

Annual Report 2011-2012



Indian Institute of Technology Guwahati

Annual Report 2011–2012



Indian Institute of Technology Guwahati

Guwahati 781039, INDIA

Indian Institute of Technology Guwahati

Indian Institute of Technology Guwahati is the sixth member of the IIT family. Indian Institute of Technology–Assam Society was formed in February 1989. The foundation stone of IIT Guwahati was laid in July 1992 in Guwahati. The Institute of Technology (Amendment) Act 1994, passed by the Parliament, was notified in the Gazette of India on May 26, 1994, by which the IIT Guwahati–Assam Society was made into IIT Guwahati. By the Gazette of India notification of the Ministry of Human Resource Development dated September 1, 1994, the Central Government declared September 1, 1994, as the date on which the Institute of Technology (Amendment) Act 1994 (No. 35 of 1994) came into force and IIT Guwahati was established. Enrollment of students started in 1995.

Annual Report 2011-2012: Highlights

Growth			
Particulars	2010-2011	2011-2012	Growth in %
Student Strength	3379	3948	16.84
Faculty Strength	269	296	10
R&D Funds Received (In crores of `)	37.92	27.18	-28.33
Total Research Publication	938	1160	23.68
Major R&D Projects Received:			
<ul style="list-style-type: none"> ○ Studies on structure of enzymes and their interaction with nanostructure materials for bio electronics device and other applications (Centre for the Environment) - ` 3.99 crores ○ Development of aptamer based molecular diagnostics for breast cancer (Department of Biotechnology) - ` 1.55 crores ○ Development of speech based multi-level person authentication system (Department of Electronics and Electrical Engineering) - ` 1.62 crores 			
Major Conference Held:			
<ul style="list-style-type: none"> ○ 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011), 8-10 December 2011. ○ International Conference on Computational Methods in Manufacturing (ICMM 2011), 15-16 December 2011. ○ International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), 24-26 February 2012. 			

Annual Report 2011–2012: A Quick Look

Department/Centre	
Academic Department	11
Academic Centre	3
Service Centre	4

Grants	
MHRD	Rs. 180.50 crores
Total	Rs. 180.50 crores

Students Admitted	
Preparatory	10
BTech/BDes	593
MTech/MDes	366
MSc/MA	154
PhD/DUAL Degree	284
Total	1407

Students Strength	
Preparatory	10
BTech/BDes	2048
MTech/MDes	678
MSc/MA	314
PhD/DUAL Degree	898
Total	3948

Number of Degrees Awarded 13 th Convocation (2011)	
BTech/BDes	340
MTech/MDes	237
MSc	87
MA	13
PhD	60
Total	737

Faculty/Staff Strength	
Faculty	296
Scientific Staff	32
Non-Teaching Staff (Group A)	31
Non-Teaching Staff (Others)	273
Total	632

Research Papers	
Journal Papers	577
Conference Papers	583
Total	1160

Consultancy Projects	
New Projects	120
Outlay (Rs. in crore)	2.2

Sponsored Research Projects	
New Projects	67
Outlay (Rs. in crore)	28.35

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PART I

Organisation

IIT Council

Board of Governors

Finance Committee

Building and Works Committee

Senate

Executive Summary

Organisation

Chairman, Council of IITs

Shri Kapil Sibal

Hon'ble Minister for Human Resource Development
Govt. of India, New Delhi 110 115

Chairman, Board of Governors

Dr. R. P. Singh

Former Chairman and Managing Director
Power Grid Corporation of India Limited

Director

Prof. Gautam Barua

Dean, Administration

Prof. S. Dandapat

Dean, Academic Affairs

Prof. S. Nandi

Dean, Faculty Affairs

Prof. P. K. Bora (up to 7.8.2011)

Prof. A. Srinivasan (from 8.8.2011)

Dean, Research and Development

Prof. P. S. Robi (up to 1.1.2012)

Prof. D. Chakraborty (from 2.1.2012)

Dean, Students' Affairs

Prof. A. K. Sarma (up to 7.8.2011)

Prof. B. K. Patel (from 8.8.2011)

Dean, Institute Works

Prof. A. Dutta

Dean, Alumni Affairs and External Relations

Prof. S. K. Bose (from 16.8.2011)

Registrar

Dr. B. N. Raychoudhury

Head, Department of Biotechnology

Prof. A. Goyal

Head, Department of Chemical Engineering

Dr. P. Saha

Head, Department of Chemistry

Prof. A. Chattopadhyay

Head, Department of Civil Engineering

Prof. S. K. Deb

Head, Department of Computer Science and Engineering

Dr. P. Bhaduri

Head, Department of Design

Prof. A. K. Das

Head, Department of Electronics and Electrical Engineering

Prof. S. Majhi

Head, Department of Humanities and Social Sciences

Prof. R. M. Punekar

Head, Department of Mathematics

Prof. R. K. Sinha

Head, Department of Mechanical Engineering

Prof. D. Chakraborty

Head, Department of Physics

Prof. S. Ravi

Head, Centre for Energy

Prof. A. K. Ghoshal

Head, Centre for the Environment

Dr. G. Das

Head, Centre for Nanotechnology

Dr. S. S. Ghosh

Head, Central Instruments Facility

Dr. A. K. Saikia

Head, Centre for Educational Technology

Prof. S. Talukdar

Head, Centre for Mass Media Communication

Prof. A. K. Das

Head, Computer Centre

Dr. D. Goswami

IIT Council

Minister in charge of Technical Education in the Central Government (Ex-Officio)

Shri Kapil Sibal **Chairman**
 Hon'ble Minister of Human Resource Development
 Govt. of India, New Delhi 110 115

Chairman of Board of Governors of all IITs (Ex-Officio)

Bombay **Dr. Anil Kakodkar** **Member**
 Chairman, BOG, IIT Bombay
 Chairman, Atomic Energy Commission
 Secretary, Dept. of Atomic Energy
 Anushakti Bhawan, CSM Marg
 Mumbai 400 001

Delhi **Shri R. P. Agarwal** **Member**
 Chairman, BOG, IIT Delhi
 H. No. 31, Green Woods Society (Phase 2)
 Sector Omega 1, Pocket P2
 Greater Noida

Guwahati **Dr. R. P. Singh** **Member**
 Chairman, BOG, IIT Guwahati
 Former Chairman and Managing Director
 Power Grid Corporation of India Limited
 29, Paschimi Marg, First Floor
 Vasant Vihar, New Delhi 110 057

Kanpur **Prof. M. Anandkrishnan** **Member**
 Chairman, BOG, IIT Kanpur
 Chairperson, Madras Institute of Development Studies
 79, Second Main Road, Gandhi Nagar
 Adyar Chennai 600 020

Kharagpur **Shri Shiv Nadar** **Member**
 Chairman, BOG, IIT Kharagpur
 Chairman, HCL Technologies Ltd.
 A-10/11, Sector 3
 Noida 201 301

Madras **Prof. M.M. Sharma** **Member**
 Chairman, BOG, IIT Madras
 3, Jaswant Baug (Runwal Park)
 Behind Akbarallys, Chembur Naka
 Mumbai 400 071

Roorkee **Shri Analjit Singh** **Member**
 Chairman, BOG, IIT Roorkee
 Chairman, Max India Limited
 Max House, 1, Dr. Jha Marg, Okhla Phase III
 New Delhi 110 020

Director of all IITs (Ex-Officio)

Bombay **Prof. Devang V. Khakhar** **Member**
 Director, IIT Bombay
 Mumbai 400 076

Delhi **Prof. R. K. Shevgaonkar** **Member**
 Director, IIT Delhi
 Hauz Khas
 Delhi 110 016

Guwahati **Prof. Gautam Barua** **Member**
 Director, IIT Guwahati
 Guwahati 781 039

Kanpur **Prof. S. G. Dhande** **Member**
 Director, IIT Kanpur
 Kanpur 208 016

Kharagpur **Prof. Damodar Acharya** **Member**
 Director, IIT Kharagpur
 Kharagpur 721 302

Madras **Prof. Bhaskar Ramamurthi** **Member**
 Director, IIT Madras
 Chennai 600 036

Roorkee **Prof. Pradipta Banerji** **Member**
 Director, IIT Roorkee
 Uttaranchal 247 667

Chairman, University Grants Commission (Ex-Officio)

Prof. Ved Prakash **Member**
 Chairman, University Grants Commission
 Bahadurshah Zafar Marg, New Delhi 110 002

Director General, Council of Scientific and Industrial Research (Ex-Officio)

Dr. Samir K. Brahmachari **Member**
 Director General
 Council of Scientific and Industrial Research
 Anusandhan Bhawan, Rafi Marg, New Delhi 110 001

Chairman, Indian Institute of Science, Bangalore (Ex-Officio)

Dr. K. Kasturirangan **Member**
 Chairman, Council of IISc Bangalore
 National Institute of Advanced Studies
 Indian Institute of Science Campus
 Bangalore 560 012

Director, Indian Institute of Science (Ex-Officio)

Prof. P. Balaram **Member**
 Director, IISc Bangalore
 Bangalore 560 012

Three nominees of the Central Government**To represent the Ministry concerned with Technical Education**

Smt. Vibha Puri Das **Member**
 Secretary, Department of Higher Education
 Ministry of Human Resource Development
 New Delhi 110 115

To represent the Ministry of Finance

Shri Sumit Bose **Member**
 Secretary (Expenditure)
 Ministry of Finance
 Department of Expenditure
 North Block, New Delhi 110 001

To represent any other Ministry

Shri J. Satyanarayana **Member**
 Secretary
 Department of Information Technology
 Electronics Niketan, CGO Complex, Lodhi Road
 New Delhi 110 003

Nominee of the All India Council for Technical Education (AICTE)

Prof. S. S. Mantha **Member**
 Chairman
 All India Council for Technical Education
 7th Floor, Chanderlok Building
 Janpath, New Delhi 110 001

Nominees of the Visitor (minimum 3 and maximum 5)

Prof. C.N.R. Rao **Member**
 Chairman
 Scientific Advisory Council to the Prime Minister

Prof. C. S. Seshadri **Member**
 Director
 Chennai Mathematical Institute, Chennai
 Plot H1, SIPKOT IT Park, Padur, Siruseri 603 103

Prof. Sabyasachi Bhattacharya **Member**
 Ex-Director
 Tata Institute of Fundamental Research
 Homi Bhaba Road, Mumbai 400 005

Dr. Kota Harinarayan **Member**
 Dr. D. S. Kothari DRDO Chair
 Dr. D. S. Kothari Block
 Aeronautical Development Establishment
 DRDO, Ministry of Defence, Govt. of India,
 New Thippasandra
 Bangalore 560 075

Shri Tarun Das **Member**
 Chief Mentor, Confederation of Indian Industry,
 Plot No. 249-F, Udyog Vihar, Sector 18
 Gurgaon 122 015

Three Members of Parliament (two from Lok Sabha and one from Rajya Sabha)

Shri Janardhana Swamy **Member**
 Hon'ble Member of Parliament (Lok Sabha)
 137, South Avenue, New Delhi 110 011

Shri Deepender Singh Hooda **Member**
 Hon'ble Member of Parliament (Lok Sabha)
 9, Pandit Pant Marg, New Delhi 110 011

Smt. Vasanthi Stanley **Member**
 Hon'ble Member of Parliament (Rajya Sabha)
 106, South Avenue, New Delhi 110 001

Secretary to the Council

Shri Ashok Thakur **Secretary**
 Special Secretary, Department of Higher Education
 Ministry of Human Resource Development
 New Delhi 110 115

Board of Governors

Chairman

Dr. R. P. Singh

Former Chairman and Managing Director
Power Grid Corporation of India Limited
29, Paschimi Marg, First Floor
Vasant Vihar, New Delhi 110 057

Member (Ex-Officio)

Prof. Gautam Barua

Director
IIT Guwahati

Member-Nominees of the IIT Council

Shri Provash Chandra Neogy

EC-126, Sector-I
Salt Lake
Kolkata 700 064

Shri K. Shankar Narayanan

H 87, Bag Mugalia Extension
Bhopal, Madhya Pradesh 462 043

Prof. Vinod Kr. Singh (up to 31.08.2011)

Director
Indian Institute of Science Education and Research (IISER) Bhopal
Transit Campus: ITI (Gas Rahat) Building
Govindpura, Bhopal 462 023

Prof. Asis Datta (from 18.11.2011)

Professor of Eminence
National Institute of Plant Genome Research
Aruna Asaf Ali Marg, Post Box No. 10531
New Delhi 110 067

Shri N. K. Sinha

Joint Secretary
Bureau of Distance Learning and Scholarships
MHRD, Dept. of Higher Education
Shastri Bhavan, New Delhi 110 115

Member-Nominee of the Govt. of Assam

Shri H. M. Cairae (up to 27.11.2011)
Principal Secretary to the Govt. of Assam
Public Enterprise and Higher Education Departments
C Block (3rd Floor), Assam Secretariat
Dispur, Guwahati 781 006

Shri H. K. Sharma, IAS (from 28.11.2011)
Commissioner and Secretary to the Govt. of Assam
Higher Education (Technical) Department
Dispur, Guwahati 781 006

Member-Nominee of the Govt. of Meghalaya

Shri P. D. Sawyan
Architect/Industrialist
Hotel Centrepoint
Police Bazar
Shillong 793 003

Member-Nominees of the Senate

Prof. B. K. Patel (up to 31.12.2011)
Professor
Department of Chemistry
IIT Guwahati

Prof. S. Dandapat
Dean, Administration and Professor
Department of Electronics and Electrical Engineering
IIT Guwahati

Prof. M. Jawed (from 1.1.2012)
Professor
Department of Civil Engineering
IIT Guwahati

Secretary (Ex-Officio)

Dr. B. N. Raychoudhury
Registrar
IIT Guwahati

Finance Committee

Dr. R. P. Singh

Former Chairman and Managing Director
Power Grid Corporation of India Limited
A-1, PWO Housing Society, Hriday Deep, Sector 43
Gurgaon, Haryana 122 002

Chairman (Ex-Officio)

Prof. Gautam Barua

Director
IIT Guwahati

Member (Ex-Officio)

Shri A. N. Jha

Financial Adviser
Integrated Finance Division
Department of Higher Education
MHRD, Shastri Bhavan, New Delhi 110 115

Member

Shri N. K. Sinha

Joint Secretary
Bureau of Distance Learning and Scholarships
Department of Higher Education
MHRD, Shastri Bhavan, New Delhi 110 115

Member

Shri D. Saikia, IAS

Former Commissioner and Secretary
Government of Assam
Sapta Swahid Path, Saru Mataria
Dispur, Guwahati 781 006

Member

Prof. P. K. Bora

Professor
Department of Electronics and Electrical Engineering
IIT Guwahati

Member

Dr. B. N. Raychoudhury

Registrar
IIT Guwahati

Secretary

Building and Works Committee

Prof. Gautam Barua

Director
IIT Guwahati

Chairman (Ex-Officio)

Dr. Hem Chandra Bora

Former Deputy General Manager
Oil India Ltd.
Debdaru Path, Dispur
Guwahati 781 006

Member

Shri Debi Charan Bora

Former Commissioner and Secretary
PWD, Govt. of Assam
Monalisa Path, Hatigarh Chariali
Zoo Narangi Road, Guwahati 781 024

Member

Prof. S. Dandapat

Dean, Administration and
Professor Department of Electronics and Electrical Engineering
IIT Guwahati

Member (Ex-Officio)

Prof. A. Dutta

Dean, Institute Works and
Professor, Department of Civil Engineering
IIT Guwahati

Member (Ex-Officio)

Chief Engineer (Buildings)

PWD, Govt. of Assam
Chandmari
Guwahati 781 003

Member (Ex-Officio)

Superintending Engineer

Assam Central Circle-II
CPWD Complex, Garchuk, NH Bye Pass 37
Opposite DY 365 Office
Guwahati 781 035

Member (Ex-Officio)

Dr. B. N. Raychoudhury

Registrar
IIT Guwahati

Member Secretary (Ex-Officio)

Senate

Chairman

Prof. Gautam Barua

Director
IIT Guwahati

Member Secretary

Dr. B. N. Raychoudhury

Registrar

Members

Prof. A. Mahanta

Professor, Electronics and Electrical Engineering

Prof. S. Nandi

Dean of Academic Affairs, and Professor, Department of Computer Science and Engineering

Prof. P. S. Robi

Dean of Research and Development, and Professor, Department of Mechanical Engineering

Prof. S. Dandapat

Dean of Administration, and Professor, Department of Electronics and Electrical Engineering

Prof. A. Srinivasan

Dean of Faculty Affairs, and Professor, Department of Physics

Prof. B. K. Patel

Dean of Students' Affairs, and Professor, Department of Chemistry

Prof. A. Dutta

Dean of Institute Works, and Professor, Department of Civil Engineering

Prof. P. G. Yammiyavar

Professor, Department of Design

Prof. A. K. Gogoi

Professor, Department of Electronics and Electrical Engineering

Prof. J.B. Baruah

Professor, Department of Chemistry

Prof. A. Chattopadhyay

Professor and Head, Department of Chemistry

Prof. A. T. Khan

Professor, Department of Chemistry

Prof. P. K. Bora

Professor, Department of Electronics and Electrical Engineering

Prof. S. C. Mishra

Professor, Department of Mechanical Engineering

Prof. A. K. Sarma

Professor, Civil Engineering

Prof. A. Khare

Professor, Department of Physics

Prof. A. K. Dass

Professor, Department of Mechanical Engineering

Prof. R. Tiwari

Professor, Department of Mechanical Engineering

Prof. U.S. Dixit

Professor, Department of Mechanical Engineering

Prof. S. Majhi

Professor and Head, Department of Electronics and Electrical Engineering

Prof. A. K. Ghoshal

Head of Centre for Energy, and Professor, Department of Chemical Engineering

Prof. D. Chakrabarti

Professor, Department of Design

Prof. R. M. Punekar

Professor, Department of Design

Prof. A. K. Das

Professor and Head, Department of Design

Prof. A. Barua

Professor, Department of Humanities and Social Sciences

Prof. S. Talukdar

Professor, Department of Civil Engineering

Prof. S. K. Deb

Professor and Head, Department of Civil Engineering

Prof. S. K. Kakoty

Professor, Department of Mechanical Engineering

Prof. D. Chakrabarty

Professor and Head, Department of Mechanical Engineering

Prof. S. K. Dwivedy

Professor, Department of Mechanical Engineering

Prof. P. Mahanta

Professor, Mechanical Engineering

Prof. R. Alam

Professor, Department of Mathematics

Prof. D. C. Dalal

Professor, Department of Mathematics

Prof. S. K. Bose

Professor, Department of Electronics and Electrical Engineering

Prof. T. Punniyamurthy

Professor, Department of Chemistry

Prof. C. Mahanta

Professor, Department of Civil Engineering

Prof. S. Borbora

Professor, Department of Humanities and Social Sciences

Prof. K. Barua

Professor, Department of Humanities and Social Sciences

Prof. B. K. Sarma

Professor, Department of Mathematics

Prof. R. K. Sinha

Head and Professor, Department of Mathematics

Prof. A. N. S. Ahmed

Professor, Department of Humanities and Social Sciences

Prof. R. Swaminathan

Professor, Department of Biotechnology

Prof. P. Goswami

Professor, Department of Biotechnology

Prof. A. Goyal

Head and Professor, Department of Biotechnology

Dr. P. Bhaduri

Head, Department of Computer Science and Engineering

Dr. P. Saha

Associate Professor and Head, Department of Chemical Engineering

Prof. S. Ravi

Professor and Head, Department of Physics

Prof. R. M. Punekar

Professor and Head, Department of Humanities and Social Sciences

Dr. S. S. Ghosh

Head of Nanotechnology, and Associate Professor, Department of Biotechnology

Dr. G. Das

Head of Centre for the Environment, and Associate Professor, Department of Chemistry

Prof. M. Jawed

Professor, Department of Civil Engineering

Dr. S. Ghosh

Chairman HAB, and Associate Professor, Department of Physics

Prof. M. Ray

Professor, Department of Chemistry

Prof. A. K. Saikia

Professor, Department of Chemistry

Prof. M. Pandey

Professor, Department of Mechanical Engineering

Prof. R. Bhattacharjee

Professor, Department of Electronics and Electrical Engineering

Prof. S. Natesan

Professor, Department of Mathematics

Prof. Diganta Goswami

Professor, Department of Computer Science and Engineering

Members (External)

Prof. Kulendu Pathak

Former Vice-Chancellor of Dibrugarh University

Prof. Nabaneeta Dev Sen

Former Professor at Jadavpur University

Dr. Pranab Bharali

Former Director (Operations), Oil India Limited

Invitees

All Associate Professors and the Deputy Librarian of the Institute

Executive Summary

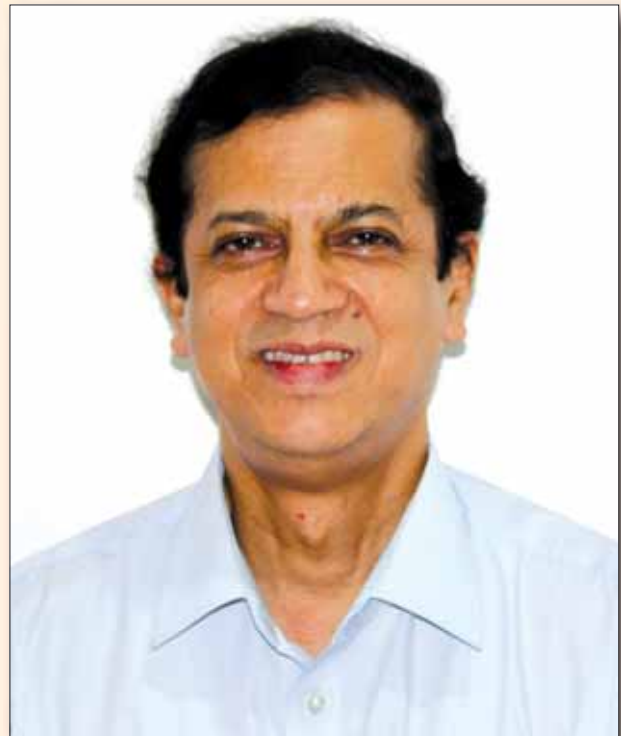
INTRODUCTION

The year 2011 has seen its thirteenth batch of students taking their degrees in the month of May. The Institute takes pride in the achievements of its students and gladly announces that almost all the passed out students have been well placed in various government organisations and multi-national companies in India and abroad. All the achievements in academic and research areas have been possible only because of the relentless efforts of dedicated faculty members and the commendable cooperation of all other non-teaching employees of the Institute.

Here is a brief report on the activities and achievements of the Institute during the year 2011-2012.

THE BOARD OF GOVERNORS

Prof. Asis Datta, Professor of Eminence, National Institute of Plant Genome Research, joined the Board as nominee of the IIT Council in November 2011. Shri H. K. Sharma, Commissioner and Secretary, Department of Higher Education (Technical), Govt. of Assam, joined the Board in November 2011 as a nominee of Govt. of Assam. Prof. M. Jawed, Department of Civil Engineering, IIT Guwahati joined the Board in January 2012 as a Senate's nominee. The Institute welcomes them all to the Board and thanks the outgoing Board members, Prof. Vinod Kr. Singh, Director, IISER, Bhopal; Shri H. M. Cairae, Principal Secretary to the Govt. of Assam; and Prof. B. K. Patel, Professor, Department of Chemistry, IIT Guwahati, for their contributions during their tenure.



ACADEMIC ACTIVITIES

The Institute has 11 academic departments, 3 interdisciplinary academic centres and 4 service centres. No additions were made this year. These are:

Departments

Biotechnology (BT), Chemical Engineering (CL), Chemistry (CH), Civil Engineering (CE), Computer Science and Engineering (CSE), Design (DE), Electronics and Electrical Engineering (EEE), Humanities and Social Sciences (HSS), Mathematics (MA), Mechanical Engineering (ME), and Physics (PH)



Shri Jairam Ramesh, Minister, Environment and Forests congratulates a degree awardee at the 13th Convocation in the presence of Dr. R. P. Singh, Chairman, BoG (1L) and Prof. Gautam Barua, Director.

Academic Centres

Centre for Energy, Centre for the Environment, Centre for Nanotechnology

Service Centres

Computer and Communication Centre, Central Instruments Facility, Centre for Educational Technology, Centre for Mass Media Communication

The Institute offers academic programmes covering a wide range of science, engineering, and humanities disciplines as given below:

Bachelor of Technology (BTech) programmes in Biotechnology (BT), Chemical Engineering (CL), Chemical Science and Technology (CT), Civil Engineering (CE), Computer Science and Engineering (CS), Electronics and Communication Engineering (EC), Electronics and

Electrical Engineering (EE), Engineering Physics (EP), Mathematics and Computing (MC), and Mechanical Engineering (ME),

Bachelor of Design (BDes) programme in the Department of Design,

Master of Technology (MTech) programmes in BT, CL, CE, CS, EE and ME,

Master of Design (MDes) programme in DE,

Master of Science (MSc) programmes in Chemistry (CH), Mathematics and Computing (MC), and Physics (PH),

Master of Arts (MA) programme in Development Studies (DS) in the Department of Humanities and Social Sciences (HS),

Doctor of Philosophy (PhD) programmes in all departments and in the Centres for Energy (EN), the Environment (EV), and Nanotechnology (NT),

A Dual (MTech+PhD) programme in the Department of Computer Science and Engineering started in July 2011.

The total number of enrolled students in 2011-2012 is 3948. Of these, 48% are post-graduate students. The detailed break up is:

Course	2010-2011	2011-2012
Preparatory	7	10
BTech and BDes	1804	2048
MTech and MDes	583	678
MSc	214	229



Shri Jairam Ramesh, Minister, Environment and Forests, Dr. R. P. Singh, Chairman, BoG, and Prof. Gautam Barua, Director, IIT Guwahati with the medal winners at the 13th Convocation.

MA	61	85
PhD	710	895
Total	3379	3948

Thirteenth Convocation

In the Thirteenth Convocation held on 27 May 2011, a total number of 737 students received their BTech, BDes, MSc, MA, MTech, MDes and PhD degrees as given below:

Programme	Nos.
BTech/BDes	
Biotechnology	26
Chemical Engineering	33
Chemical Science and Technology	18
Civil Engineering	37
Computer Science and Engineering	53
Design	20
Electronics and Communication Engineering	59
Engineering Physics	20
Mathematics and Computing	22
Mechanical Engineering	52
Total	340
MSc	
Chemistry	35
Mathematics and Computing	26
Physics	26
Total	87
MA in Humanities and Social Sciences	13
MTech/MDes	
Biotechnology	25
Chemical Engineering	34
Civil Engineering	47
Computer Science and Engineering	34
Design	14
Electronics and Electrical Engineering	39
Mechanical Engineering	44
Total	237
PhD	
Biotechnology	8
Chemistry	14
Chemical Engineering	3

Civil Engineering	8
Computer Science and Engineering	2
Electronics and Electrical Engineering	3
Humanities and Social Sciences	4
Mechanical Engineering	7
Mathematics	1
Physics	3
Centre for Energy	2
Centre for the Environment	2
Centre for Nanotechnology	3
Total	60
Grand Total	737

ACADEMIC INFRASTRUCTURE DEVELOPMENT

IIT Guwahati is an active partner of the National Knowledge Network (NKN). At present, the Institute is connected by a 1Gbps link to NKN. Two classrooms have been equipped with video conferencing facilities. The Institute proposes to deliver and receive online lectures through NKN in the near future. Under the project NP-TEL Phase-II, video and web lectures have been developed in the Institute.

The Central Library is the central hub for academics and research. Besides having an excellent print collection of about 1.5 lakh books, back volumes and theses, it subscribes to electronic versions of almost all major journals in Science, Engineering and Humanities.

A number of new equipment have been added to the laboratories of all the Departments and Centres. Some of the major equipment and facilities acquired by the Institute during the last year are –

Single Crystal X-Ray Diffractometer – ₹ 1.60 crore
Rotating Anode X-Ray Diffractometer – ₹ 1.47 crore



Single Crystal X-Ray Diffractometer



Inert Atmosphere Glove Box

Inert Atmosphere Glove Box	–	₹ 1.46 crore
Thermal Evaporation System	–	₹ 77 lakh
Wafer Testing Probe Station	–	₹ 76 lakh
X-Ray Diffractometer	–	₹ 67 lakh
Imaging Ellipsometer	–	₹ 66 lakh
Solar Simulator and IQE Measurement System	–	₹ 57 lakh
Automatic Semiconductor Characterisation System	–	₹ 47 lakh

RESEARCH AND DEVELOPMENT

The number of PhD students on campus is increasing every year. This year has seen a big jump in numbers, growing from 710 last year to 895. The current faculty to PhD students' ratio stands at a satisfactory 3. We hope

the number of PhDs graduating will see a big increase in the next few years.

The other component of our research programme is sponsored (or directed) research. There are 220 research personnel engaged in various research projects at the Institute.

We offer a 'Start-up Research Grant' to newly-joined faculty members of the Institute to start their research activities. During this year, 27 projects worth ₹ 1.31 crores have been sanctioned under this scheme.

During this year over 350 research and development projects have been in progress, having a total sanctioned value of ₹ 150 crores. In the year 2011-2012, IIT Guwahati received new projects of about ₹ 28 crores. This is in comparison to ₹ 37 crores last year, while the total funds received were ₹ 27 crores as compared to ₹ 38 crores. The R&D projects were mainly sponsored by Government Ministries and Departments with major support coming from Ministries of Environment (MoE), Human Resource Development (MHRD), Departments of Science and Technology (DST), Biotechnology (DBT), Atomic Energy (DAE), Information Technology (DIT), Council of Scientific and Industrial Research (CSIR) and Defence Research Labs (DRL). The *Table-1* below provides a comparison of this year's R&D project profile with that of last year. It shows that in monetary terms, the performance this year has been lower than last year. One of the reasons is that a few large projects were received last year. However the fact that the number of new projects and consultancies have both reduced, is a matter of concern.

Comparison of R&D project profiles of the year 2011-2012 and 2010-2011:

Particulars	2010-2011	2011-2012
New sponsored projects received	88	67
New consultancies received	203	120
Total sanctioned value of the new sponsored projects (in crores of ₹)	37.00	28.35
Total sanctioned value of the new consultancy projects and others (in crores of ₹)	3.18	2.20
Total amount received for all projects (new and ongoing) (in crores of ₹)	37.92	27.18
Total amount received for all consultancy projects and others (new and ongoing) (in crores of ₹)	3.77	2.62

Table-1

Major research projects received during the year 2011-2012:

Project Title	Funding Agency	Dept. / Centre	Amount Sanctioned (₹ in lakhs)
Molecular and functional characterisation of dextran production in <i>weissella</i> spp.- superior dextran producers for cereal applications	DBT	BT	77.06

Studies on the cellular role of calcium signalling proteins in <i>Nuespora Crassa</i>	DBT	BT	72.88
Development of aptamer based molecular diagnostics for breast cancer	DBT	BT	154.85
Development of silk protein derived artificial nerve growth conduits for neural tissue engineering	Central Silk Board	BT	45.30
Chiral recognition and separation of amines and amino alcohols inside Ni (II) based metallocavity	DST	CH	50.78
Development of text to speech system in Indian Language (Phase-II)	DIT	EEE	108.14
Development of speech based multi-level person authentication system	DIT	EEE	162.47
Development of thermal energy storage system for solar thermal power plant	DST	ME	112.63
Development of walking apparatus: Concept validation, feasibility, prototyping and testing	DIT	ME	94.32
Design and implementation of a high speed wavefront sensor of light beams	DIT	PH	61.14
Studies on structure of enzymes and their interaction with nanostructure materials for bio electronics device and other applications	DBT	ENV	399.29
Novel nanoscale materials targeted towards antimicrobial and anticancer activities	DBT	NT	88.70

Table-2

In addition to sponsored Research Projects, IIT Guwahati undertakes consultancy assignments for various State Government Departments, Railways, National Highways Authority of India, Oil and Gas Sector, Construction and Infrastructure Companies, Power Sector, Educational Institutes, Health and Pharmaceutical Industries and Financial Institutions.

A total of 120 consultancy projects (including the testing and recommendation jobs) were carried out in the year. The total value of the consultancy projects undertaken during this year is ` 2.20 crores, and ` 2.62 crores was received for all consultancies.

The IIT Guwahati Technology Incubation Centre (IITG-TIC) was established to facilitate co-operation and interaction between the Institute and entrepreneurs in various sectors of science and engineering and promote innovation. Four incubatees are currently present, working in IT and Electronics related projects. Three more are under consideration.

IIT Guwahati is coordinating on behalf of Department of Biotechnology, Govt. of India the 'Programme on strengthening of biotechnology teaching, training and research in universities and colleges in North East Region'. ` 12.00 crore was received so far out of the total sanctioned amount of ` 14.87 crore. The projects sanctioned under this programme to the Tripura University, Gauhati University, Dibrugarh University, Tezpur University, Assam University, NEHU, Darrang

College and Koliabor College are running successfully.

Under the Rural Technology Action Group for North East (RuTAG-NE), a pilot project on Mechanised Weaving of Muga Silk Fabric, a joint initiative of RuTAG-NE and NEDFi, was commissioned by His Excellency, Shri Janaki Ballav Patnaik, Governor of Assam, at the Industrial Estate, Amingaon, Guwahati.

FACULTY AND STAFF

The faculty strength at the end of March 2012 was 296. This is an increase of 27 from 269 at the end of last year.



His Excellency, Shri Janaki Ballav Patnaik, Governor of Assam (C); Sri B. P. Muktieh, CMD, NEDFi (2R); Dr. A. K. Goswami, ASTEC (1R); Prof. Gautam Barua (2L); and Prof. S. K. Kakoty (1L) at the inaugural ceremony of RuTAG-NE pilot project on Mechanised Weaving of Muga Silk Fabric

The number of non-faculty staff increased by 13 from 323 in the previous year to 336 at the end of financial year 2011-12. The creation of 64 posts is pending with the Ministry of HRD.

PUBLICATIONS

The faculty members of the Institute have been actively publishing research papers in international and national journals as well as in conference proceedings. The number of publications during the past one year is:

Papers in Journals : 577

Papers in Conference Proceedings : 583

This is a significant increase in research publications from the last year which stood at 457 papers in journals and 481 papers in conference proceedings.

CONFERENCES/WORKSHOPS/SCHOOLS/COURSES

Various conferences, seminars, workshops and schools were organised by the Departments and Centres of the Institute during the year. A few of them are –

- Introductory workshop on Optical Microscopy, 16-17 June 2011.
- Summer school on Efficient Fossil Energy Technologies, 4-10 July 2011 (in collaboration with the University of Nottingham, UK).
- Cancer Biology 2011 – Basic Theoretical Aspects, 26-27 August 2011.
- Workshop on Graph and Geometric Algorithms, 21-23 October 2011.
- National Workshop on Use and Deployment of



Shri Nayan Mani Borah, CMD, Oil India Ltd., inaugurating the International Conference on Computational Methods in Manufacturing in the presence of Prof. Gautam Barua



Dr. R. P. Singh, Chairman, BOG, IIT Guwahati inaugurating the International Conference on Environmentally Sustainable Urban Ecosystems in the presence of Prof. Gautam Barua

Web and Video Courses for Enriching Engineering Education, 4-5 November 2011.

- North East Regional Conference on Mathematics Education, 25-26 November 2011.
- 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011), 8-10 December 2011.
- International Conference on Computational Methods in Manufacturing (ICMAM 2011), 15-16 December 2011.
- SERC School and the Sixth National Symposium on Rheology of Complex Fluids (COMPFLU 2012), 3-7 January 2012.
- Workshop on Tone and Intonation: Theory, Typology and Computation with special reference to the languages of North-East India, 26-27 January 2012.
- International Symposium on Advances in Chemical Sciences, 30 January 2012.
- International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), 24-26 February 2012.



A group photograph of the participants along with the organisers of the International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011)

- Conference on Photochemistry and Luminescence, 9-10 March 2012.

In order to upgrade the knowledge and skills of the teachers working in the different institutions in the country, AICTE provides supports for organising short term training programmes in the emerging areas of engineering technology, pharmacy, management, etc. Twelve such Quality Improvement Programme Short Term Courses were organised by the Departments and Centres of the Institute during the year under report.

FACULTY ACHIEVEMENTS

A number of faculty received awards during this year. Some of the major awards were:

Dr. Rakhi Chaturvedi, Biotechnology, received Prof. Y. S. Murty Medal 2011 from Indian Botanical Society.

Prof. Arun Goyal, Biotechnology, elected fellow, National Academy of Agricultural Sciences, India.

Dr. Latha Rangan, Biotechnology, was selected for Professor Hira Lal Chakravarty Memorial Award of Indian Science Congress Association (ISCA) for the year 2011-2012.

Dr. Anil Verma, Chemical Engineering, received Amar Dye-Chem Award 2011 for excellence in basic research and development in Chemical Engineering by Indian Institute of Chemical Engineers (IICChE).

Prof. Arun Chattopadhyay, Chemistry, has been invited to serve on the editorial advisory board of Nanoscale, a journal of the Royal Society of Chemistry, for a two-year term, starting from January 2012.

Dr. P. K. Iyer, Chemistry, has been nominated as Head of the Max Planck Partner Group from 2012 up to 5 years by the Max Planck Society, Germany.

Prof. A. T. Khan, Chemistry, was selected as Council

member for Chemical Research Society of India (CRSI).

Dr. Arindam Dey, Civil Engineering, has been selected and appointed as editorial board member for the Journal of Civil Engineering, Scientific and Academic Publishing for three years.

Dr. D. Udaya Kumar, Design, awarded Designer of the Year 2012 by Indian Design Forum (IDF).

Dr. K. S. R. K. Murthy, Mechanical Engineering was awarded outstanding reviewer in 2012 by the editorial board of Journal of Engineering Fracture Mechanics, Elsevier Publications.

The Institute congratulates them all.

CONSTRUCTION AND CAMPUS DEVELOPMENT

Corresponding to the increase in student intake the construction activities of the Institute is also rising many fold. There are now nine boys' hostels and one girls' hostel.

The construction work of the eighth boys' hostel with a capacity of 504 and the ninth boys' hostel with a capacity of 1000 is going on. And both will be completed by the end of this year. With this, the total capacity for boys would be 4200. The girls' hostel has a current capacity of 514 seats. Extension of another block with an additional 156 rooms has been sanctioned and work has started. On completion the total capacity of girls' hostel would be 670. Planning for another girl's hostel has already started.

The Academic Complex which houses all the departments and centres of the Institute had an initial floor area of about 74,000 m². With the gradual increase in student strength, we are extending the Academic Complex in a phased manner. In Phase-I, 4460 m² area has been expanded and in Phase-2, 6000 m² area has been added. The third phase has been taken up with an addition of 8025 m².



Umiam — the 7th boys' hostel of IIT Guwahati with a capacity of 500 rooms. Umiam is a river in Meghalaya.



Anoushka Shankar, the famed Indian-American sitar player and composer performing at Alcheringa

Construction activities of the residences for faculty and non-faculty members are going on. On completion of all these by December 2012, the number of quarters will be F-type: 79, E-type: 114, D-type: 168, C-type: 72, and B-type: 175, for a total of 608.

Work on the second Student's Activity Centre (SAC) building for conducting activities of welfare, cultural and technical boards of the students' Gymkhana is going on. It is expected to be ready by March 2013. Two food courts are also being built, one of which is for students.

Expansion of the electrical infrastructure and of the air-conditioning capacity has also been undertaken. A number of Diesel Generating sets have been procured and a new AC plant is under implementation. This will double the institute's air conditioning capacity.

In order to enhance the security of the campus, a road along the boundary wall of the campus is being built. This will allow patrolling of the campus perimeter by the security staff. The work is expected to be completed shortly.

INSTITUTE EXPENDITURE

The details of expenditure during the year are as follows (in crores of `):

Recurring	:	78.81
Non-recurring	:	117.53
Sponsored Research	:	30.55
Total Expenditure	:	226.89

STUDENTS' ACTIVITIES

Alcheringa 2012

Alcheringa, the annual cultural festival of IIT Guwahati, was held from 2-5 February this year. Alcheringa is now regarded as a much anticipated students' cultural event of the North-East where thousands of students across the country take part in various youth oriented competitions, workshops, seminars and informal events. The performances of musicians and performing artistes of repute are the real crowd pullers. This year too well known artistes like Anoushka Shankar, Soulmate, Javed Ali in the fields of music, dance and drama performed before huge crowds.

Techniche 2011

Techniche-2011 – the annual techno-management festival of the Institute – was held during 1–4 September 2011. The thirteenth edition of the Techniche had set the goal to understand the significance and celebrate innovation that has changed the course of mankind – be it the Internet or the Telephone or the Paperclip or the Wheel.

One of the main attractions of Techniche is the Lecture



Graffiti wall of Alcheringa



A part of the exhibition held during Techniche 2011

Series, where eminent scientists, business wizards, entrepreneurs, adventurers from around the world deliver lectures on their work, share their experiences and thus greatly inspire the students. This year too, people from diverse fields of knowledge participated in the event and shared their knowledge and experience with the student community. Among them were Mr. Stephen P. Morse, the chief architect of the Intel 8086 chip (the grand-daddy of today's Pentium processor); Ian Wright, host of the famous television travel show Globe Trekker; Dr. Rajendra Kumar Pachauri, who has served as the chair of the Intergovernmental Panel on Climate Change (IPCC); and Mr. B. G. Verghese, veteran journalist and recipient of the Magsaysay Award.

Following are the other regular events organised by the students during the year:

Manthan	–	the intra-IIT cultural festival
Spirit	–	the inter-college invitation sports competition
Spardha	–	the annual sports meet
Zest	–	the annual athletics meet

The students of the Institute participated in the 47th Inter IIT sports meet 2011 held at IIT Kharagpur winning one gold, five silver and three bronze. Gold was won in pole vault; silver in javelin throw, weightlifting, basketball (women); and bronze in swimming (freestyle 50, 100 and 200 m).

Along with these, there have been regular events and competitions organised by the various clubs and societies under the Cultural Council like the Movie Club, the Fine Arts Club, the Literary Club, the Photography Club, etc.

STUDENTS' ACHIEVEMENTS

Two teams of IIT Guwahati students came second and third in the Samsung "Splash India on TV" 2011 design contest. Additional seven teams from the Institute came in the best seventeen teams in the competition. Student teams from various other institutes across the country took part in the contest. IIT Guwahati was awarded the best institute/mentor prize.

Dr. Vigya Kesari, a former student of the Department of Biotechnology has been selected for Young Scientist Award of Indian Science Congress in Agriculture and Forestry Sciences for the year 2011-2012.

Dr. Jashmini Deka, Research Associate, Chemistry, received Materials Research Society of India (MRSI) Young Scientist Award 2011 in the Young Scientists' Colloquium-2011 held on 4 August 2011.

Mr. Sankar Chakma, an MTech student of Chemical Engineering, received Ambuja's Young Researcher's Awards 2011 for doing Post-Graduate Studies in India after GATE Examination by IChE.

Perumalla Janaki Ramulu, research scholar, Mechanical Engineering, received best student paper bronze award at the International Symposium on Process and Fabrication of Advanced Materials (PFAM) 2011 at Hong Kong.



IIT Guwahati students' basketball (women) team after winning the silver at the 47th Inter IIT sports meet 2011 held at IIT Kharagpur

Ms. Satchi Kumari, research student, Department of Physics has received Plasma Science Society of India (PSSI) Poster award in National Symposium on Plasma Science and Technology (Plasma 2011) organised by PSSI and BIT Patna during 20-23 December 2011.

TRAINING AND PLACEMENT

The placement scenario at IIT Guwahati for the year 2011-2012 has been good so far. A total of 102 companies from various sectors have participated in the recruitment process. Out of a total of 722 students [BTech (335), BDes (21), MTech (251), MDes (17), MSc (57), MA (13) and PhD (28)] registered for placement, 90% BTech and BDes have been placed so far. The highest package offered to the BTech students is 150,000 USD (₹ 75 lakhs) per annum



Institute staff members who participated in the training programme along with the trainers and other officials of the Institute.

with an average package of ₹ 9 lakhs per annum.

The percentage of placement till now for the MTech and MDes is reasonable and stands at 55%. The highest package offered to MTech students is ₹ 18 lakhs per annum with an average package of ₹ 7 lakhs per annum.

For MSc programmes, 4 students have been placed out of the 57 registered candidates. 15 PhD students have also received job offers through the Institute placement cell in various sectors.

Companies from various sectors have participated in the campus recruitment process. The percentages of participation from various sectors are 42% in Core Engineering, 43% in IT, 9% in Research and Education and 6% in others. Among the core sector companies, 26% are PSUs.

The Institute organised a four-day training programme for the Institute staff members on issues related to Right to Information Act 2005, noting and drafting, conduct rules, and disciplinary procedures in August 2011. The programme was conducted by Society for Economic Research and Training (SERT), New Delhi.

The branch-wise placement details are:

Discipline	UG (BTech/BDes)				PG (MTech/MDes/MA/MSc)			
	No. of Student Reg.	No. Student Placed	% of Student Placed	Avg. Salary (Rs. Lakh p.a.)	No. of Student Reg.	No. Student Placed	% of Student Placed	Avg. Salary (Rs. Lakh p.a.)
CSE	54	50	93	16.5	51	43	84	9.8
ECE	48	45	94	8.3	40	26	65	7.2
EEE	28	25	89	9.6	–	–	–	–
ME	55	50	91	7.4	52	31	60	5.8
CE	42	34	81	6.5	52	26	50	4.8
CL	28	24	86	7.6	32	5	16	4.0
BT	20	17	85	5.8	24	9	38	3.9
M&C	25	23	92	8.6	–	–	–	–
CST	20	19	95	6.0	–	–	–	–
EP	15	12	80	6.0	–	–	–	–
DD	21	20	95	7.2	17	8	47	6.7
PH (MSc)	–	–	–	–	11	–	–	–
CH (MSc)	–	–	–	–	30	–	–	–
M&C (MSc)	–	–	–	–	16	4	25	5.5
MA (HSS)	–	–	–	–	13	–	–	–

CLOSING REMARKS

Recently there have been many reports in the media stating that the IITs are good undergraduate institutions but their research performance is poor. While this may have been true in the first 20 to 30 years since the IITs were established, it is no longer true. Unfortunately, we have not been able to convey to society the strides made by the IITs in research and development, especially in this century. Let us focus on IIT Guwahati alone. As mentioned earlier in the report, about 48% of the students are post-graduates. These numbers themselves tell that, while we are indeed proud of our undergraduate programmes, we place equal emphasis on our postgraduate programmes. Our priority for research is also high. With 300 faculty, we have 350 sponsored research projects going on. There have been 580 journal publications in the last year. There are 900 PhD students on campus. Again, the figures speak for themselves. Of course these numbers alone are not enough. We have to measure the outcome of the research, besides the publications that result. This is not easy to do, as many of the work have long term impact. But I must admit we have not done well in the number of patents or in the number of technology transfers. For the latter, industry must also be ready, and we hope that with the economy growing so steadily, India will

move to a new level of development where indigenous technology will be aggressively sought by industry. We are putting a lot of emphasis on strengthening our PhD programme. The challenge here is to attract the best students that the country has to offer to our PhD programmes. Unfortunately, the number of our undergraduates opting for a career in research and teaching, has been declining over the years. In fact the decline seems to be directly related to the growth in the Indian economy! The challenge before us is to arrest this trend and to attract the best students from IITs, NITs and other leading institutes from all over the country into our PhD programmes. Money is a factor and we can never compete with the emoluments that industry offers. But I think we can still attract these students if we have large, vigorous research projects in place. When faculty work individually, students get attracted in ones and twos. When faculty work together, students get attracted in tens and twenties. We have to see how the leading Institutes of the world are able to attract students. We have to work together to take this forward. Faculty must make the extra effort required to take up large collaborative projects. The Institute administration must streamline and simplify its processes and must strengthen its planning to help in the growth of such projects.

PART II

ACADEMIC DEPARTMENTS

Biotechnology
Chemical Engineering
Chemistry
Civil Engineering
Computer Science and Engineering
Design
Electronics and Communication Engineering
Humanities and Social Sciences
Mathematics
Mechanical Engineering
Physics

ACADEMIC CENTRES

Centre for Energy
Centre for the Environment
Centre for Nanotechnology

CENTRALISED SERVICES AND PROGRAMME

Central Library
Centre for Educational Technology
Central Instruments Facility
Centre for Mass Media Communication
Computer and Communication Centre

DEPARTMENT OF BIOTECHNOLOGY

INTRODUCTION

Department of Biotechnology was established in 2002. The Department is one of its kind in the north-eastern region of India and is dedicated for promoting goal-oriented interdisciplinary research by interfacing modern biology with applied engineering sciences, addressing problems affecting human health/welfare, and training students to be the next generation engineers and researchers. As of now, the Department has twenty five faculty members from diverse streams and specialisations, eight well-trained scientific staff members, and two administrative staff members.

The detailed activities of the Department of Biotechnology are reported below—

ACADEMIC ACTIVITIES

The Department has BTech, MTech, and PhD programmes.

STUDENT INTAKE

BTech students enrolled in 2011	: 46
MTech students enrolled in 2011	: 30
PhD students enrolled in 2011	: 31

FACULTY STRENGTH

Professor	: 3
Associate Professor	: 10

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration
Arun Goyal	Development and application of recombinant and other cellulases for large scale recycling of cellulosic biomass	DBT	64.35	D. Goyal, Thapar University	3 years

Assistant Professor	: 12
Total	: 25

MAJOR EQUIPMENTS AND FACILITIES

Atomic Force Microscope - Contact Mode, Autotensiometer, Bioreactor, Trinocular Phase Contrast Microscope with Fluorescence attachment, Trinocular Stereo Zoom Microscope with Fibre Optic Light, DuoFlow, FACS Calibur Flowcytometer Analyser, Compact Spectrofluorometer, FPLC System, Digital Imaging System, Gradient PCR Thermal Cycler, HPLC System, Ion Chromatography system, Gas Chromatography system, Bioreactors, Freeze Dryer, Manual Rotary Microtome, Multimode Microplate Reader, Real-Time PCR System, Ultracentrifuge.

RESEARCH AND DEVELOPMENT ACTIVITIES

The research in the Department of Biotechnology covers as diverse areas as biochemical engineering, plant biotechnology, environmental biotechnology, nanobiotechnology, protein and peptide chemistry, molecular biology, structural and computational biology, bioinformatics, parasite biology, tissue engineering, stem cell biology and gene therapy, enzymology, and proteomics. Keeping in mind the demands of the modern biotechnological research, the plans for establishing advanced research facilities are underway.

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration
Arun Goyal	Molecular and functional characterization of dextran production in <i>Weisella</i> spp-Superior Dextran producers for cereal applications	Indo-Finland Joint Project, DBT	77.06	-	3 years
B. Anand	Structural Basis for the Maturation of the Prokaryotic siRNA	DBT	38.48	-	3 years
B. Anand	Dynamical Aspects of Era GTPase - 16S rRNA Interactions and its Implication in Ribosome Assembly	DAE	16.85	-	3 years
Biman B Mandal	Bioengineered silk vascular grafts for blood vessel engineering	DAE-BRNS	17.00	-	3 years
Biman B Mandal	Silk based biomimetic scaffolds for tissue engineering applications	IITG-Start up grant	5.00	-	2 years
Biman B Mandal	Mechanically strong silk composite matrices for bone tissue engineering	ICMR-NE seed grant	10.00	-	3 years
Bithiah Grace Jaganathan	Role of Rho GTPase RhoA on interaction between Human Mesenchymal Stem Cells and Hematopoietic Stem Cells	DBT	39.26	Anil M Limaye and Bosanta Boruah	3 years
Bithiah Grace Jaganathan	Cytoskeletal organization and migration potential of Mesenchymal Stem Cells (MSC) during different stages of differentiation	DST	24.2	-	3 years
Bithiah Grace Jaganathan	Isolation of Stem Cells from Human Limbal and Extra ocular muscle tissues and differentiation into retinal progenitor cells	ICMR	3.49	Damaris Magdalene (Sri Sankaradev Nethralaya Hospital)	1 year
Debasish Das	Novel microalgal isolates as cell factory for biodiesel production: Identification of multiple targets and designing of optimal process via system biology and biochemical engineering approach.	DBT	52.27	Sanjeeva Srivastava, IIT Bombay	3 years
Debasish Das	Process optimization for Microbial synthesis of Hyaluronic Acid (HA) from new isolates: Development of structure kinetic model and experimental validations	CSIR	13.92	Arun Goyal	3 years
Latha Rangan	Molecular and physico-chemical characterization of selected ginger species from North Eastern Region	DBT	52.75	Ajay Parida (MSSRF Chennai), Sudip Mitra (JNU New Delhi)	3 years
Lingaraj Sahoo	Development of Transgenic Cowpea for Virus Resistance Using the Tool of RNA Interference (RNAi)	DBT	83.34	Sunil Kumar Mukherjee, ICGEB, New Delhi	3 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration
Nitin Chaudhary, R. Nagaraj (CCMB, Hyderabad)	Understanding the role of cation- π interaction in the self-assembly of amyloidogenic and de novo designed peptides	DBT-NER Twinning programme	45.33 (31.03 for IIT Guwahati)	-	3 years
Rakhi Chaturvedi	Yield enhancement strategies for production of therapeutic compounds by cell and tissue cultures of <i>Tinospora cordifolia</i> (willd.) Miers ex Hook. F. & Thoms	DBT	82.52	B. K. Patel	
S. S. Ghosh	Novel nanoscale materials targeted towards antimicrobial and anticancer activities.	DBT (Implemented at the Centre for Nanotechnology)	169	A. Chattopadhyay, Biplab Bose	3 years
Utpal Bora	Development of Silk Protein Derived Artificial Nerve Growth Conduits for Neural Tissue Engineering	Central Silk Board	45.3	Ranjan Tamuli	3 years
Vibin Ramakrishnan	Computational Engineering of Protein Folding Pathways: Implications on Stability, Mis-folding and Aggregation	DBT	22.26	-	2 years
Vikash Kumar Dubey	Studies on trypanothione synthetase, a key enzyme of redox metabolism of <i>Leishmania donovani</i>	DBT	27.73	-	3 years
Vikash Kumar Dubey	Variation in proteome profile of legume plants in response to heavy metal toxicity	DST	23.5	Anil Verma	3 years
Dr. Vishal Trivedi	Regulation of Macrophage CD36 Mediated Immune Response During Malaria.	DST	24.41	None	3 yrs

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration
Aiyagari Ramesh	Evaluation of probiotic attributes of lactic acid bacteria based on bacteriocinogenic activity and in vitro adhesion properties	CSIR	11.30	Biplab Bose	3 years
Anil M Limaye	The SHBG-R _{SHBG} pathway: insights from prostate cancer cell lines.	DST (Fast Track Grant)	19	-	3 years
Arun Goyal	Prebiotics and nutraceuticals production from Lactic acid bacteria.	Indo-Bulgarian Joint project, DST	16.0	-	3 years
Arun Goyal	Production of microbial carbohydrates and carbohydrate active enzymes for healthcare	DBT	11.74	-	3 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration
Arun Goyal	Probiotic fermentation as a platform for production of nutraceuticals.	CSIR	20.1	-	3 years
Arun Goyal	Bioinformatics Infrastructure Facility	DBT	20.0	V. Dubey	
Arun Goyal	MTech Programme Support	DBT	170.00	Coordinator	3 years
Bithiah Grace Jaganathan	Study of Apoptotic Signalling Pathways in Mesenchymal Stem Cells during Normal and Differentiated State	DBT	91.05	Rajesh Singh (IIAR), Chandramani Pathak (IIAR)	3 years
G.K. Saini for Collaborating Institute (IITG)	Isolation, characterization and identification of natural pigments of food and industrial values from filamentous fungi	DBT	56.76	Suresh (PI, North east, N.C. Talukdar (PI, Collaborating Institute (IBSD)	3 Years
Latha Rangan	DNAB (DNA Barcoding) based biodiversity inventory in Zingiberaceae of Northeast India	DIT, Ministry of Information Tech	71.18	U. Bora, D. L. Sahoo	5 years
Latha Rangan	Cloning of fatty acid saturation genes and analysis of spatial and temporal expression from seeds of candidate plus tree Karanj (<i>P. pinnata</i> L.)	DBT	22.64	B.G. Jaganathan	3 years
Lingaraj Sahoo	Development of Pod Borer Resistant Transgenic Pigeonpea and Chickpea	ICAR	795.30 (58.00 For IITG for 3 years)	Coordinator: S. K. Sen, BREF Biotech, IIT Khragpaur	5 years
Lingaraj Sahoo	Development and evaluation of transgenic mungbean over expressing AtNHX1 and AVP1 for salt tolerance	DBT	78.75	-	3 years
Lingaraj Sahoo	Molecular cloning and functional Analysis of Na ⁺ /H ⁺ antiporter gene in Cowpea (<i>Vigna unguiculata</i> L. Walp)	DBT	44.88	S. K. Panda (AU, Assam)	3 years
Lingaraj Sahoo	Amino acid polymorphism in conserved Motifs in HMA proteins and Heavy Metal Resistance in Plants	Indo-Japan DST Project	4.20	H. Koyama, Gifu University, Japan; Satoshi Iuchi, RIKEN BRC, Japan; S. K. Panda (AU, Assam)	3 years
Pranab Goswami	Development of Enzyme Electrode for the Construction of Cholesterol Biosensor	CSIR	9.40	U. Bora	3.5 years
R. Swaminathan	Protein aggregation: Early molecular events, mechanisms and inhibition	DST	53	-	3 years
R. Swaminathan	Conjugating luminescent quantum dots to proteins: Consequences on protein function and development of sensitive assays.	CSIR	12	-	3 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration
R. Swaminathan	Single molecule fluorescence investigations on the mechanism of lysozyme aggregation and RNA helicase activity	DBT	95	B. Anand (IIT Guwahati) and Dr. Sudipta Maiti (TIFR, Mumbai)	3 years
Ranjan Tamuli and Durgadas P. Kasbekar (CCMB)	Studies on the cellular roles of calcium signaling proteins in <i>Neurospora crassa</i>	DBT	72.88 (Total), 50.70 (for IITG)	Utpal Bora and Ch. Mohan Rao	3 years
Ranjan Tamuli	Functional analysis of calcium signaling proteins in <i>Neurospora crassa</i>	DST	15.352	-	3 years
S. Patra	Protein stability prediction of lipases in silico studies	DBT	41.89	V.K. Dubey	4 years
S. Patra with CFTRI, Mysore	Purification of caffeine from waste tea leaves and their transformation to potent pharmaceutical molecules	DBT	61.0	P.K. Iyer	3 years
DBT Programme Support	Fundamental Molecular Investigations in Biotechnology (Core Project) S. S. Ghosh (Project coordinator)	DBT	1133.68	P. Goswami, L. Sahoo, B. Bose, A. Ramesh, S. Patra	-
	Studies and application of redox enzymes for bioelectronics devices (P. Goswami)			S. Patra	-
	Combination therapy using suicide genes and recombinant antibody (B. Bose)			S. S. Ghosh	-
	Investigations on the molecular mechanism of nanomaterial-cellular interactions (S. S. Ghosh)			B. Bose, A. Ramesh	-
	Molecular cloning and functional characterization of heavy metal stress specific phytochelatin synthase gene from <i>Eichhornia crassipes</i> (L. Sahoo)			-	-
Utpal Bora	Ganga river basin management plan: Thematic group-Ecology and Biodiversity (IIT Consortia National Project)	Ministry of Environment and Forests (MOEF)	1600.00 (Total)	National Coordinator: Vinod Tare, IIT Kanpur, Ranjan Tamuli and Mrinal Kanti Dutta	1.5 years
Utpal Bora	Silk Based scaffolds for Neural Tissue Engineering	DBT	58.44	Ranjan Tamuli	3 years
Utpal Bora	Establishment of Institutional Biotech Hubs (IBThubs) by DBT under special programme for North Eastern States of India	DBT	35.00	Chandan Mahanta, Ranjan Tamuli	3 years

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration
Utpal Bora	Development of Aptamer- Based Molecular Diagnostics for Breast Cancer	DBT	154.85	Ranjan Tamuli	3 years
V. Venkata Dasu	Purification, Characterization and production of microbial Cutinase	DST	33.49	-	4 years
Vikash Kumar Dubey	Studies on Peptide conjugated Nanoparticles mediated antileishmanial drug delivery to macrophages	DBT	31.83	S. Patra	3 years
Vikash Kumar Dubey	Betraying the parasite's redox system: Studies on spermidine synthase of <i>Leishmania donovani</i>	DBT	82.18	V. Trivedi, P. K. Iyer S. Sundar (IITD), M. V. Jagannadham (BHU)	3 years
Vikash Kumar Dubey	Deciphering the molecular mechanism underlying the activity of antitumor agents as antileishmanial agents and their potential for therapy	DBT	40.68	-	3 years
Vikash Kumar Dubey	An integrated computational and biochemical approach to target Ornithione decarboxylase, a key enzyme involved in synthesis of trypanothione for antileishmanial drug discovery	ICMR	40.00	V. Trivedi	3 years
Vikash Kumar Dubey	Studies on effect of small molecule compounds on folding and amyloid formation of proteins	CSIR	21.50	S. Patra	3 years
Vikash Kumar Dubey	Studies on trypanothione Reductase from <i>Leishmania</i> Parasites: Structure, Function, Folding and Potential for Chemotherapy	DBT	35.76	S. Patra	3 years
Vishal Trivedi	Molecular Modeling, Design and Synthesis of Macrophage Phagosome-Lysosome Fusion Activators in Development of anti-malarials	BRNS	16.86	-	3 years
Vishal Trivedi	Biochemical and Functional Characterization of RIO kinase (s) from <i>Plasmodium falciparum</i> as a Potential Drug Target	DBT	31.48	V. K. Dubey	3 years
Vishal Trivedi	Winged Helix domain-oligonucleotide recognition as an axis to develop PfRIO-2 specific inhibitor: implication in anti-malarial drug development	DBT	82.10	Sanjukta Patra, Chandra Lata Bal (PI at BIT Ranchi)	3 years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount (₹ in Lakh)	Co-Investigator	Duration
Anil M. Limaye	Characterization of rat ventral prostate specific PBPC1BS and S100RVP gene promoters	IIT Guwahati (Start-up Grant)	5.0	-	2 years
Arun Goyal	Microbial conversion of cellulose to sugars for ethanol production	DBT	31.48	D. Goyal (Thapar University)	3 years
Biplab Bose	Inhibitor Based Selection of Blocking Antibodies against Heparin-binding EGF-like Growth Factor: Developing Potent Molecules for Antibody-based Cancer Therapy	DBT	11.72	S. S. Ghosh	3 years
Biplab Bose	Development of Therapeutic Human Antibodies Against Cripto-1: Targeting Oncogenic Signaling	DST	10.34	-	3 years
Lingaraj Sahoo	Genetic engineering of Cowpea (<i>Vigna unguiculata</i>) for resistance to pod borer and bruchid	DBT	11.62	L. Rangan	3 years
Lingaraj Sahoo	Cloning of elite germplasm of <i>Jatropha</i> for large scale plantation	DARL	9.98	-	3 years
Lingaraj Sahoo	Genetic engineering of Cowpea (<i>Vigna unguiculata</i> L. Walp) for storage pest resistance	DST	4.92	-	3 years
Lingaraj Sahoo	Development of micropropagation technology for <i>Jatropha</i> : A potential biofuel plant	NEDFi	4.0	-	3 years
Rakhi Chaturvedi	In vitro production of haploids in Tea (<i>Camellia</i> sp).	DBT	34.49	V. V. Dasu	3 years
Rakhi Chaturvedi	In vitro morphogenesis and biochemical analysis of neem (<i>Azadirachta indica</i> A. Juss).	DST	9.96	-	3 years
Utpal Bora	Synthesis of Biodegradable Nanocarriers for Targeted Drug Delivery	DBT	14.69	Pranab Goswami	3 years
Utpal Bora	Electrospun nanofiber Scaffolds For Hepatic Tissue Engineering	DBT	52.55	R. R. Bhonde and P. Goswami	3 years
Utpal Bora	Nanoparticle mediated targeted siRNA delivery to cancer cell lines.	DST	12.96	-	3 years
V. V. Dasu	Production of bacterial L-asparaginase: an approach for process optimization	DBT	6.0	-	2 years
Vikash Kumar Dubey	Development of novel therapeutics against leishmaniasis	DIT	8.66	A. Goyal	2.5 years
Vikash Kumar Dubey	Structural Properties and folding mechanism of apocytichrome C552 from <i>Hydrogenobacter Thermophilus</i>	DST	11.5	-	3 years
Vikash Kumar Dubey	Structure, Stability and Functional Studies of 2,5-Diketo-D-gluconate Reductase	DBT	11.65	-	3 years

RESEARCH PUBLICATIONS**International Journal**

M. D. Adhikari, B. R. Panda, U. Vudumula, A. Chattopadhyay and A. Ramesh

'A facile method for estimating viable bacterial cells in solution based on "subtractive-aggregation" of gold nanoparticles', *RSC Advances*, 2, pp 1782-1793, 2012.

U. Vudumula, M. D. Adhikari, B. Ojha, S. Goswami, G. Das and A. Ramesh

'Tuning the bactericidal repertoire and potency of quinoline-based amphiphiles for enhanced killing of pathogenic bacteria', *RSC Advances*, DOI: 10.1039/C2RA20140B, 2012.

Seema Patel and Arun Goyal

'The current trends and future perspectives of prebiotics research: A review', *3 Biotech*. DOI 10.1007/s13205-012-0044-x, 2012

Arijita Dutta, Deeplina Das and Arun Goyal

'Purification and characterisation of fructan and fructansucrase from *Lactobacillus fermentum* (AKJ15) isolated from Kodo ko Jaanr, a fermented beverage from North Eastern Himalayas', *International Journal of Food Sciences and Nutrition*, vol. 63, pp 216-224, 2011

Swati Khanna, Arun Goyal and V.S. Moholkar

'Production of n-butanol from biodiesel derived crude glycerol using *Clostridium pasteurianum* immobilised on amberlite', *Fuel*, DOI 10.1016/j.fuel.2011.10.071, 2012

Seema Patel and Arun Goyal

'Recent developments in mushrooms as anticancer therapeutics: A review', *3 Biotech*. DOI 10.1007/s13205-011-0036-2, 2012

Shraddha Shukla and Arun Goyal

'Optimisation of fermentation medium for enhanced glucansucrase and glucan production from *Weissella confusa*', *Brazilian Archives of Biology and Technology*, vol. 54 (6), pp 1117-1124, 2011

Shraddha Shukla and Arun Goyal

'16S rRNA based identification of a glucan hyper-producing *Weissella confusa*', *Enzyme Research*, vol. 2011, 10 pages, doi:10.4061/2011/250842, 2011

Damini Kothari, Ankur Tyagi, Seema Patel and Arun Goyal

'Dextranase from the mutant of *Pediococcus pentosaceus* more stable than the wild-type', *3 Biotech*,

vol. 1, pp 199-205, 2011

Rishikesh Shukla, Shraddha Shukla, Veselin Bivolarski, Iliia Iliev, Iskra Ivanova and Arun Goyal

'Production and structural characterisation of insoluble dextran produced in the presence of maltose from *Leuconostoc mesenteroides* NRRL B-1149', *Food Technology and Biotechnology* vol. 49 (3), pp 291-296, 2011

Deeplina Das and Arun Goyal

'Expression of antagonism by Lactic acid bacterium isolated from Marcha: An ethnic fermented beverage of North-eastern Himalayas', *International Journal of Biotechnology & Biochemistry*, vol. 7 (4), pp 411-422, 2011

Deepmoni Deka, P. Bhargavi, Ashish Sharma, Dinesh Goyal, M. Jawed and Arun Goyal

'Enhancement of cellulase activity from a new strain of *Bacillus subtilis* by medium development and analysis with various cellulosic substrates', *Enzyme Research*, vol. 2011, 8 pages doi:10.4061/2011/151656, 2011

Seema Patel, Damini Kothari and Arun Goyal

'Purification and characterisation of an extracellular dextranase from *Pediococcus pentosaceus* isolated from soil of North East India', *Food Technology and Biotechnology*, vol. 49 (3), pp 297-303, 2011

Seema Patel, Damini Kothari, Rishikesh Shukla, Debasish Das and Arun Goyal

'Scale up of dextran production from a mutant of *Pediococcus pentosaceus* (SPAm) using optimised medium in a bioreactor', *Brazilian Archives of Biology and Technology*, vol. 54 (6), pp 1125-1133, 2011

Seema Patel and Arun Goyal

'Functional oligosaccharides: Production, properties and applications', *World Journal of Microbiology and Biotechnology*, vol. 27, 1119-1128, 2011

B. B. Mandal, A. Grinberg, E. S. Gil, B. Panilaitis and D. L. Kaplan

'High strength silk protein scaffolds for bone repair', *Proceedings of National Academy of Science USA*, DOI. 10.1073/pnas.1119474109

A. B. Das, P. Loying, B. Bose

'Human recombinant Cripto-1 increases doubling time and reduces proliferation of HeLa cells independent of pro-proliferation pathways', *Cancer Lett*, vol. 318 (2), pp 189-98, 2012 (Epub 2011 Dec 17)

Ruchi Mutreja, Debasish Das, Dinesh Goyal and Arun

- Goyal
'Bioconversion of agricultural waste to ethanol by SSF using recombinant cellulase from *Clostridium thermocellum*', *Enzyme Research*, vol. 2011, 10 pages, doi:10.4061/2011/340279, 2011
- Rajesh K. Srivastava, Soumen K. Maiti, Debasish Das, Prashant M. Bapat, Kritika Batta, Mani Bhushan and Pramod P. Wangikar
'Metabolic flexibility of D-ribose producer strain of *Bacillus pumilus* under environmental perturbations', *Journal of Industrial Microbiology & Biotechnology*, DOI 10.1007/s10295-012-1115-z, 2012
- Digar Singh and Gurvinder Kaur
'Optimisation of different process variables for the production of an indolizidine alkaloid, Swainsonine from *Metarhizium anisopliae*', *Journal of Basic Microbiology*, Published online: 5 Dec 2011, DOI. 10.1002/jobm.201100255, 2011
- V. Ranga and Gurvinder Kaur
'Biochemical and molecular characterisation of wild-type and fused protoplasts of *Beauveria bassiana* and *Metarhizium anisopliae*', *Folia Microbiologica*, vol. 56, pp 289-295, 2011
- K. Pakshirajan and S. Kheria
'Continuous treatment of coloured industry wastewater using immobilised *Phanerochaete chrysosporium* in a rotating biological contactor reactor', *Journal of Environmental Management*, vol. 101, pp 118-123, 2012
- K. Sen, K. Pakshirajan and S. B. Santra
'Modelling the biomass growth and enzyme secretion by the white rot fungus *Phanerochaete chrysosporium* in presence of a toxic pollutant', *Journal of Environmental Protection*, vol. 3, pp 114-119, 2012
- P. Saravanan, K. Pakshirajan and P. Saha
'Biodegradation kinetics of phenol by predominantly *Pseudomonas* sp. in a batch shake flask', *Desalination and Water Treatment*, vol. 36 (1-3), pp 99-104, 2011
- N. K. Sahoo, K. Pakshirajan and P. K. Ghosh
'Batch biodegradation of para-nitrophenol using *Arthrobacter chlorophenicus* A6', *Applied Biochemistry and Biotechnology*, vol. 165 (7-8), pp 1587-1596, 2011
- K. Pakshirajan, S. Jaiswal and R. K. Das
'Biodecolourisation of azo dyes using *Phanerochaete chrysosporium*: effect of culture conditions and enzyme activities', *Journal of Scientific and Industrial Research*, vol. 70, pp 987-991, 2011
- P. Sangeeta, S. Kheria and K. Pakshirajan
'Biodecolourisation of real textile industry wastewater using the white rot fungus *Phanerochaete chrysosporium*', *Journal of Scientific and Industrial Research*, vol. 70, pp 982-986, 2011
- P. Saravanan, K. Pakshirajan and P. Saha
'Kinetics of phenol degradation and growth of predominantly *Pseudomonas* species in a simple batch stirred tank reactor', *Bulgarian Chemical Communications*, vol. 43 (4), pp 502-509, 2011
- P. Saravanan, K. Pakshirajan and P. Saha
'Studies on growth kinetics of predominantly *Pseudomonas* sp. in internal loop airlift bioreactor using phenol and m-cresol', *Korean Journal of Chemical Engineering*, vol. 28 (7), pp 1550-1555, 2011
- B. Mahanty, K. Pakshirajan and V. V. Dasu
'Understanding the complexity and strategic evolution in PAHs remediation research', *Critical Reviews in Environmental Science and Technology*, vol. 41 (19), pp 1697-1746, 2011
- P. Saravanan, K. Pakshirajan and P. Saha
'Repeated batch operation of internal loop airlift bioreactor in degrading phenolics as single and mixed substrate by using *Pseudomonas* sp.', *Sustainable Environment Research (Formerly Journal of Environmental Engineering and Management)*, vol. 21 (3), pp 135-140, 2011
- A. Daverey, K. Pakshirajan and S. Sumalatha
'Spherulipids production by *Candida bombicola* using dairy industry wastewater', *Clean Technologies and Environmental Policy*, vol. 13 (3), pp 481-488, 2011
- N. K. Sahoo, K. Pakshirajan and P. K. Ghosh
'Biodegradation of p-nitrophenol using *Arthrobacter chlorophenicus* A6 in a novel upflow packed bed reactor', *Journal of Hazardous Materials*, vol. 190 (1-3), pp 729-737, 2011
- N. K. Sahoo, K. Pakshirajan, P. K. Ghosh and A. Ghosh
'Biodegradation of 4-chlorophenol by *Arthrobacter chlorophenicus* A6: Effect of culture conditions and degradation kinetics', *Biodegradation*, vol. 22 (2), pp 275-286, 2011
- V. Kesari and L. Rangan
'Electrophoretic patterns of proteins isolated from immatured and matured stages of 10 candidate plus trees of versatile oleaginous legume, *Pongamia pinnata* (L.) Pierre', *Agroforestry Systems*, vol. 84, pp 157-161, 2012

- V. Kesari and L. Rangan
'Co-ordinated changes in storage proteins during development and germination of elite seeds of *Pongamia pinnata*, a versatile biodiesel legume', *Annals of Botany Plants*, vol. 2011, pp 1-13, doi: 10.1093/aobpla/plr026 2011
- V. Kesari and L. Rangan
'Assessment of genetic diversity by RAPD markers in candidate plus trees of *P. pinnata*, a promising biodiesel plant', *Biomass and Bioenergy*, vol. 35, pp 3123-3128, 2011
- A. Nath, A. Das, L. Rangan and A. Khare
'Screening of antimicrobial activity of Copper nanoparticles against pathogenic bacteria', *Science of Advanced Materials* vol. 34, pp 234-237, 2011
- A. Jain, S. Hallihosur and L. Rangan
'Dynamics of Nanotechnology patenting- An Indian scenario', *Technology in Society*, vol. 33, pp 137-144, 2011
- A. Das, V. Kesari, M. S. Vinod, A. Parida and L. Rangan
'Genetic relationship of *Curcuma* species from North East India using PCR based markers', *Molecular Biotechnology*, vol. 49, pp 65-76, 2011
- A. Nath, A. Das, L. Rangan and A. Khare
'Antibacterial activity of Cu@Cu₂O nanoparticles synthesised via laser ablation in liquids', *Proceedings Photonics 2010: Tenth International Conference on Fiber Optics and Photonics SPIE 8173, 81730A* (2010); doi:10.1117/12.899527. 2011
- S. Bakshi, B. Saha, N. K. Roy, S. Mishra, S. K. Panda and L. Sahoo
'Successful recovery of transgenic cowpea (*Vigna unguiculata*) using phosphomannose isomerase gene as alternative selectable marker', *Plant Cell Reports*, DOI: 10.1007/s00299-012-1230-3, 2012
- S. Bakshi, N. K. Roy and L. Sahoo
'Seedling preconditioning in thidiazuron enhances axillary shoot proliferation and recovery of transgenic cowpea plants', *Plant Cell Tissue Organ Culture*, DOI: 10.1007/s11240-012-0132-y, 2012
- M. Dey, S. Bakshi, G. Galiba, L. Sahoo and S. K. Panda
'Development of a genotype independent and transformation amenable regeneration system from shoot apex in rice (*Oryza sativa* spp. indica) using TDZ', *3 Biotech*, DOI: 10.1007/s13205-012-0051-y, 2012
- A. Paul, S. Bakshi, D. P. Sahoo, M. C. Kalita and L. Sahoo
'Agrobacterium-mediated genetic transformation of *Pogostemon cablin* (Blanco) Benth. using leaf explants: Bactericidal effect of leaf extracts and counteracting strategies', *Applied Biochemistry and Biotechnology*, DOI: 10.1007/s12010-012-9612-0, 2012
- G. Thapa, S. K. Panda and L. Sahoo
'Molecular mechanistic model of plant heavy metal tolerance', *Biometals*, DOI: 10.1007/s10534-012-9541-y, 2012
- S. K. Singh, M. K. Rai and L. Sahoo
'An improved and efficient micropropagation of *Eclipta alba* through transverse thin cell layer culture and assessment of clonal fidelity using RAPD analysis', *Industrial Crops and Products*, vol. 37, pp 328–333, 2012
- R. Thangjam and L. Sahoo
'In vitro regeneration and Agrobacterium tumefaciens-mediated genetic transformation of *Parkia timoriana* (DC.) Merr.: a multipurpose tree legume', *Acta Physiologiae Plantarum*, DOI: 10.1007/s11738-011-0917-3, 2012
- T. C. Thounaojam, P. Panda, P. Mazumdar, Devanand Kumar, G. D. Sharma, L. Sahoo and S. K. Panda
'Excess copper induced oxidative stress and response of antioxidants in rice', *Plant Physiology and Biochemistry*, vol. 53, pp 33-39, 2012
- S. Bakshi, A. Sadhukhan, S. Mishra and L. Sahoo
'Improved Agrobacterium-mediated transformation of cowpea via sonication and vacuum infiltration', *Plant Cell Reports*, vol. 30, pp 2281-2292, 2011
- S. K. Pachahara, N. Chaudhary, C Subbalakshmi and R. Nagaraj
'Hexafluoroisopropanol induces self-assembly of β -amyloid peptides into highly ordered nanostructures', *Journal of Peptide Science*, vol. 18 (4), pp 233-241, 2012
- Preety Vatsyayan, Mitun Chakraborty, Sandip Bordoloi, and Pranab Goswami
'Electrochemical investigations of fungal cytochrome P450', *Journal of Electroanalytical Chemistry*, vol. 662, pp 312-316, 2011
- M. Singh and Rakhi Chaturvedi
'Evaluation of nutrient uptake and physical parameters on cell biomass growth and production of spilanthol in suspension cultures of *Spilanthes acmella* Murr.', *Bioprocess Biosyst Eng.*, DOI 10.1007/s00449-012-0679-3, 2012
- M. Singh and Rakhi Chaturvedi

- 'Screening and quantification of an antiseptic alkylamide, spilanthol from in vitro cell and tissue cultures of *Spilanthus acmella* Murr.', *Industrial Crops Products*, vol. 36, pp 321-328, 2012
- M. Singh and Rakhi Chaturvedi
'Statistical optimisation of media for enhanced azadirachtin production from redifferentiated zygotic embryo cultures of neem (*Azadirachta indica* A. Juss.)', *In Vitro Cell. Dev. Biol. – Plant*, DOI 10.1007/s11627-011-9394-z, 2011
- P. Srivastava and Rakhi Chaturvedi
'Increased production of azadirachtin from an improved method of androgenic cultures of a medicinal tree *Azadirachta indica* A. Juss.', *Plant Signaling Behaviour*, vol. 6, pp 974-981, 2011
- P. Srivastava, V. Sisodia and Rakhi Chaturvedi
'Effect of culture conditions on synthesis of triterpenoids in suspension cultures of *Lantana camara* L.', *Bioprocess Biosyst Eng*, vol. 34, pp 75-80, 2011
- R. Deka, R. Kumar and R. Tamuli
'*Neurospora crassa* homologue of Neuronal Calcium Sensor-1 has a role in growth, calcium stress tolerance, and ultraviolet survival', *Genetica*, vol. 139 (7), pp 885-894, 2011
- V. K. Yata and S. S. Ghosh
'Investigating structure and fluorescence properties of green fluorescent protein released from chitosan nanoparticles', *Materials Letters*, vol. 73, pp 209–211, 2012
- S. Mallick, S. Sharma, M. Banerjee, S. S. Ghosh, A. Chattopadhyay and A. Paul
'Iodine - Stabilised Cu Nanoparticle Chitosan Composite for Antibacterial applications', *ACS Applied Materials & Interfaces*, vol. 4 (3), pp 1313-23, 2012
- A. K Sahoo, S. Sharma, A. Chattopadhyay and S. S. Ghosh
'Quick and simple estimation of bacteria using a fluorescent paracetamol dimer-Au nanoparticle composite', *Nanoscale*, vol. 4 (5), pp 1688 – 1694, 2012
- A. Jaiswal, S. S. Ghosh and A. Chattopadhyay
'One step synthesis of C-dots by microwave mediated caramelisation of poly (ethylene glycol)', *Chemical Communications*, vol. 48 (3), pp 407-409, 2012
- A. Jaiswal, A. Chattopadhyay and S. S. Ghosh
'Functional chitosan nanocarriers for potential applications in gene therapy', *Materials Letters*, vol. 68 (1), pp 261-264, 2012
- M. Banerjee, S. Sharma, A. Chattopadhyay and S. S. Ghosh
'Enhanced antibacterial activity of bimetallic gold-silver core-shell nanoparticles at low silver concentration', *Nanoscale*, vol. 3 (12), pp 5120-5125, 2012
- A. K. Sahoo, Md Palashuddin Sk, S. S. Ghosh and A. Chattopadhyay
'Plasmid DNA linearisation in the antibacterial Action of a new Fluorescent Ag Nanoparticle-Paracetamol Dimer composite', *Nanoscale*, vol. 3 (10), pp 4226-33, 2011
- P. J. Babu, P. Sharma, M. C. Kalita and U. Bora
'Green synthesis of biocompatible gold nanoparticles using *Fagopyrum esculentum* leaf extract', *Front. Mater. Sci*, vol. 5 (4), pp 379–387, 2011
- A. Kumar and U. Bora
'In silico inhibition studies of NF- κ B p50 subunit by curcumin and its natural derivatives', *Medicinal Chemistry Research*, DOI: 10.1007/s00044-011-9873-0, 2011
- P. Nahar, U. Bora, G. L. Sharma and D. K. Kannoujia
'Microwave-mediated enzyme-linked immunosorbent assay procedure', *Analytical Biochemistry*, 421 (2), pp 764-766, 2012
- U. Bora, D. K. Kannoujia, S. Kumar, P. Sharma, P. Nahar
'Photochemical activation of polyethylene glycol and its application in pegylation of protein', *Process Biochemistry*, 46 (6), pp 1380-1383, 2011
- V. Ramakrishnan, S. Srinivasan, S. M. Salem, M. J. Zaki, S. J. Matthews, W. Colon and C. Bystroff
'GeoFold: Topology-based protein unfolding pathways capture the effects of engineered disulfides on kinetic stability', *Proteins*, vol. 80 (3), pp 920-934, 2011
- K. Dutta and V. Venkata Dasu
'Synthesis of short chain alkyl esters using cutinase from *Burkholderia cepacia* NRRL B2320', *Journal of Molecular Catalysis B: Enzymatic*, vol. 72, pp 150-156, 2011
- S. Kumar, V. Venkata Dasu and K. Pakshirajan
'Studies on pH and thermal stabilities of purified L-asparaginase from *P. carotovorum* MTCC 1428: A thermodynamic consideration', *Microbiology*, vol. 80 (3), pp 349-355, 2011
- A. Agarwal, S. Kumar and V. Venkata Dasu,
'Effect of carbon and nitrogen, pH and dissolved oxygen on L-asparaginase production from a newly isolated *Serratia marcescens* SK-07', *Letters in Applied Microbiology*, vol. 52, pp 307-313, 2011

Rajiv K. Verma, Vijay K. Prajapati, Girijesh K. Verma, Deblina Chakraborty, Shyam Sundar, Madhukar Rai, Vikash Kumar Dubey and Maya Shankar Singh
'Molecular Docking and in vitro Antileishmanial Evaluation of Chromene-2-thione Analogues', *ACS Medicinal Chemistry Letters*, vol. 3, pp 243-247, 2012

Neha Sharma, Anil Kumar Shukla, Mousumi Das and Vikash Kumar Dubey
'Evaluation of plumbagin and its derivative as potential modulator of redox thiol metabolism of Leishmania parasite', *Parasitology Research*, vol. 110, pp 341-348, 2012

Saudagar Prakash and Vikash Kumar Dubey
'Cloning, expression, characterisation, and inhibition studies on trypanothione synthetase, a drug target enzyme, from *Leishmania donovani*', *Biological Chemistry*, vol. 392, pp 1113-22, 2011

Nandini Sarkar, Manjeet Kumar and Vikash Kumar Dubey
'Rottlerin dissolves pre-formed protein amyloid: A study on hen egg white lysozyme', *Biochimica et Biophysica Acta-General Subjects*, vol. 1810, pp 809-814, 2011

Abhay Narayan Singh, Neeraj Suthar, Sushant Singh, and Vikash Kumar Dubey
'Glutaraldehyde activated chitosan matrix for immobilisation of a novel cysteine protease, procerain B', *Journal of Agricultural and Food Chemistry (ACS)*, vol. 59, pp 6256-62, 2011

Nandini Sarkar, Manjeet Kumar and Vikash Kumar Dubey
'Effect of sodium tetrathionate on amyloid fibril: Insight in to the role of disulfide bond in amyloid progression', *Biochimie*, vol. 93, pp 962-968, 2011 (The article is featured as a key scientific article on the Global Medical Discovery web site.)

Anil K. Shukla, Sanjukta Patra and Vikash Kumar Dubey
'Evaluation of selected antitumor agents as subversive substrate and potential inhibitor of trypanothione reductase: An alternative approach for chemotherapy of Leishmaniasis', *Molecular and Cellular Biochemistry*, vol. 352, pp 261-70, 2011 (Research Highlight of the article published in Nature India)

Anil K. Shukla, Sanjukta Patra and Vikash Kumar Dubey
'Deciphering molecular mechanism underlying antileishmanial activity of *Nyctanthes arbortristis*, an Indian medicinal plant', *Journal of Ethnopharmacology*, vol. 134, pp 996-998, 2011

Jihun Lee, Sachiko I. Blaber, Vikash K. Dubey and Michael Blaber

'A polypeptide "building block" for the β -trefoil fold identified by top-down symmetric deconstruction', *Journal of Molecular Biology*, vol. 407, pp 744-63, 2011

Bankapallai Leela Krishna, Abhay Narain Singh, Sanjukta Patra and Vikash Kumar Dubey

'Purification, characterisation and immobilisation of urease from *Momordica charantia* seeds', *Process Biochemistry*, vol. 46, pp 1486-1491, 2011

Abhay Narain Singh and Vikash Kumar Dubey

'Exploring applications of procerain B, a novel protease from *Calotropis procera*, and characterisation by N-terminal sequencing as well as peptide mass fingerprinting', *Applied Biochemistry and Biotechnology*, vol. 164, pp 573-80, 2011

Anil K Shukla, Sanjukta Patra and Vikash Kumar Dubey
'Biophysical and folding parameters of trypanothione reductase from *Leishmania infantum*', *Applied Biochemistry and Biotechnology*, vol. 165, pp 13-23, 2011

Santhosh K. Venkatesan, Prakash Saudagar, Anil Kumar Shukla and Vikash Kumar Dubey

'Screening natural products database for identification of potential antileishmanial chemotherapeutic agents', *Interdisciplinary Sciences: Computational Life Sciences*, vol. 3, pp 1-15, 2011

V. Trivedi and S. Nag

'In Silico Characterisation of Atypical Kinase, PFD0975w from plasmodium kinome: A suitable target for drug discovery', *Chemical Biology and Drug Design*, vol. 79, pp 600-609, 2012

S. Nag, K. M. N. Prasad and V. Trivedi

'Identification and screening of antimalarial Phytochemical reservoir from northeastern Indian plants to develop PfPRIO-2 Kinase Inhibitor', *European Journal of Food Research Technology*, vol. 234, pp 905-911, 2012

National Journal

Seema Patel, Avishek Majumder and Arun Goyal

'Industrial potentials of exopolysaccharides from Lactic acid bacteria', *Indian Journal of Microbiology*, vol. 52 (1), pp 3-12, 2012

Shadab Ahmed, Rahul Charan, Arabinda Ghosh and Arun Goyal

'Comparative modeling and ligand binding site

prediction of a family 43 glycoside hydrolase from *Clostridium thermocellum*, *Journal of Proteins and Proteomics*, vol. 3 (1), 2012

Seema Patel, Deeplina Das and Arun Goyal
'Structural characterisation of the exopolysaccharide produced by a new strain of *Pediococcus pentosaceus* (SPO) isolated from soil of Orissa', *Proceedings of National Academy of Sciences, India, Section B*, vol. 81, pp 291-298, 2011

Seema Patel, Damini Kothari and Arun Goyal
'Enhancement of dextransucrase activity of *Pediococcus pentosaceus* mutant SPAm1 by Response Surface methodology', *Indian Journal of Biotechnology*, vol. 10, pp 346-351, 2011

Mayur Agrawal, Rishikesh Shukla and Arun Goyal
'UV-mutagenesis of *Leuconostoc mesenteroides* NRRL B-640 for generation of a mutant (B640M) with hyper-producing dextransucrase activity', *Current Trends Biotechnology and Pharmacy*, 5 (4), pp 1445-1453, 2011

V. K. Mishra, A. Khare and Rakhi Chaturvedi
'Assessment of HE-NE laser pre-treatment of seeds on morphological, physiological and biochemical properties of *B. juncea* seedlings', *J. Assam Science Society*, vol. 52, pp 1-4. [ISSN 0587-1921], 2011

S. J. Sarma, K. Pakshirajan and K. B. G. Saamrat
'Pyrene biodegradation by free and immobilised cells of *Mycobacterium frederiksbergense* using a solvent encapsulated system', *Indian Journal of Biotechnology*, vol. 10, pp 496-501, 2011

Sushil Kumar Shakyawar, Arun Goyal and Vikash Kumar Dubey
'Genome analysis of selected foodborne pathogens for identification of drug targets', *Current Trends in Biotechnology and Pharmacy*, vol. 5, pp 1134-1148, 2011

Santhosh K. Venkatesan, Prakash Saudagar and Vikash Kumar Dubey
'Identification of novel inhibitor of Trypanothione synthetase from two *Leishmania* species: comparative in silico analysis', *Journal of Proteins and Proteomics*, vol. 2, pp 41-48, 2011

S. N. Balaji and V. Trivedi
'Extracellular Methemoglobin mediated early ROS spike triggers osmotic fragility and RBC destruction: An Insight into the enhanced hemolysis during malaria', *Indian Journal of Clinical Biochemistry*, DOI: 10.1007/s12291-011-0176-5, 2011

Conference/Workshop/Seminar/Symposia

International

Anup K Singh, R Bankar, P Dutta and Anil M. Limaye
'Extracellular protease production by a local soil isolate of *Bacillus cereus* grown in pH adjusted whey', Gordon Research Conference on Applied and Environmental Microbiology: Functional Interactions from Molecules to Biomes, Mt Holyoke College, South Hadley, MA, USA, 11-15 Jul 2011

Rajeev Ravindran, Saprativ P. Das, Deepmoni Deka and Arun Goyal
'Lignocellulosic biomass as a sustainable source for bioethanol production', International conference on environmentally sustainable urban ecosystems, IIT Guwahati, Guwahati, 24-26 Feb 2012

Deepmoni Deka, Saprativ P. Das, Rajeev Ravindran and Arun Goyal
'Water hyacinth as a potential source of biofuel for sustainable development', International conference on environmentally sustainable urban ecosystems, IIT Guwahati, 24-26 Feb 2012

Rishikesh Shukla, Rwivoo Baruah and Arun Goyal
'Taguchi methodology for optimization of enhanced glucansucrase and glucan production by *Pediococcus pentosaceus* CRAG3', 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

Rishikesh Shukla and Arun Goyal
'Purification and characterization of glucansucrase and glucan by *Pediococcus pentosaceus* CRAG3', 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

Swati Khanna, Arun Goyal, Vijayanand S. Moholkar
'Effect of pH on solvent production by immobilized whole cells of *Clostridium pasteurianum* utilizing biodiesel glycerol as a carbon source', 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

Shraddha Shukla and Arun Goyal
'Enhancement and scale up of dextran production by

Weissella confusa using Response surface methodology', 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

Ashim Borah and Arun Goyal

'Synthesis and characterization of dextran-coated superparamagnetic iron oxide nanoparticles for MRI and drug delivery', 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

Deeplina Das and Arun Goyal

'Purification and characterization of glucansucrase produced by Lactobacillus plantarum DM5 isolated from a fermented beverage Marcha of Sikkim' 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

T. Jagan Mohan Rao and Arun Goyal

'Screening and identification of a glucansucrase producing lactic acid bacterium Weissella cibaria isolated from apple', 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

Arabinda Ghosh, Carlos M.G.A. Fontes and Arun Goyal

'Cloning and comparative binding of two Carbohydrate Binding Modules of family 35 (Cthe2811 and Cthe0032) from Clostridium thermocellum', 18th International Conference (Post ISCBC-2012) on Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science & Technology (IASST), Guwahati, 28-30 Jan 2012

Swati Khanna, Arun Goyal, V.S. Moholkar

'Effect of varying concentration of crude glycerol on solvent production by silica immobilized Clostridium pasteurianum', International Congress of Environmental Research, NIT, Surat, 15-17 Dec 2011

Shadab Ahmed, Carlos M.G.A. Fontes and Arun Goyal

'Cloning and substrate binding studies on Carbohydrate Binding Modules (CBM6A and CBM6B) from Clostridium thermocellum', International Conference on New Horizons in Biotechnology, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, 23-26 Nov 2011

Damini Kothari and Arun Goyal

'Storage stability and inhibition studies of dextransucrase from Pediococcus pentosaceus', International Conference on New Horizons in Biotechnology, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, 23-26 Nov 2011

Shadab Ahmed, Arabinda Ghosh, Carlos M.G.A. Fontes and Arun Goyal

'Biochemical characterization of family 43 glycoside hydrolase (GH43F) and its truncated derivative (GH43) from Clostridium thermocellum', International Conference on New Horizons in Biotechnology, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, 23-26 Nov 2011

Soumyadeep Chakraborty and Arun Goyal

'Determining possible 3-dimensional structure of family 1 polysaccharide lyase (CtPL1) and family 35 carbohydrate binding module (CtCBM35) from Clostridium thermocellum using bioinformatics tools', International Conference on New Horizons in Biotechnology, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, 23-26 Nov 2011

Anil Kumar Verma and Arun Goyal

'Investigating the 3-dimensional structure of family 5 glycoside hydrolase (CtGH5), from cellulosome of Clostridium thermocellum', International Conference on New Horizons in Biotechnology, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, 23-26 Nov 2011

Rishikesh Shukla and Arun Goyal

'Probiotic potential and biochemical characterization of glucan producing Lactobacillus plantarum (RS3) isolated from fermented cucumber', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Rishikesh Shukla, Arun Dhillon, Ilia Iliev, Iskara Ivanova and Arun Goyal

'Purification and characterization of Leuconostoc mesenteroides NRRL B-1149 sucrose hydrolyzing enzymes and enzyme synthesized oligosaccharides', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Arabinda Ghosh, Carlos M.G.A. Fontes and Arun Goyal

'Comparative biochemical studies of Glycoside

Hydrolase Family 26 (GH26) and its derivative (GH26-CBM35) from *Clostridium thermocellum*, International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Shraddha Shukla and Arun Goyal

'Purification and characterization of dextransucrase from a dextran hyper-producing *Weissella confusa*', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

T.J.M. Rao and Arun Goyal

'Optimization of culture and assay conditions of dextran-sucrase from *Weissella cibaria* isolated from apple', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Rajeev Ravindran, Saprativ P. Das, Deepmoni Deka and Arun Goyal

'Bench scale bioethanol production involving recombinant *C. thermocellum* hydrolytic enzymes and fermentative microbes', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Shraddha Shukla and Arun Goyal

'Enhancement of dextransucrase production by *Weissella confusa* using Taguchi's orthogonal array method', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Deeplina Das and Arun Goyal

'Antagonistic activity of bacteriocin produced by a potential probiotic *Lactobacillus plantarum* DM5 isolated from a fermented beverage of Sikkim', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Nadeem Akhtar, Dinesh Goyal and Arun Goyal

'Biodegradation of leaf litter biomass by *Bacillus* sp. AS3', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference

of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Navpreet Kaur, Vikash Kumar, Nadeem Akhtar, Dinesh Goyal and Arun Goyal

'Simultaneous saccharification and fermentation (SSF) of mixed leaf litter biomass', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Ankita Jindal, Nadeem Akhtar, Arun Goyal and Dinesh Goyal

'Isolation of cellulolytic bacteria from agricultural waste biomass', International Conference on Microbial Biotechnology for Sustainable Development (52nd Annual Conference of Association of Microbiologists of India), Panjab University, Chandigarh, 3-6 Nov 2011

Arabinda Ghosh, Shadab Ahmed, Anil Kumar Verma, Carlos M.G.A. Fontes and Arun Goyal

'Cloning, expression and biochemical characterization of family 26 glycoside hydrolase (GH26-CBM35) and carbohydrate binding module (CBM35) from *Clostridium thermocellum*', 9th Carbohydrate Bioengineering Meeting, Technical University of Lisbon, Portugal, 15-18 May 2011

T. Vasileva, V. Bivolarski, R. Shukla, I. Ivanova, A. Goyal and I. Iliev

'Acceptor reactions of mannitol and lactitol with glucosyltransferases from *Leuconostoc mesenteroides* B-1149 and *Leuconostoc mesenteroides* URE 13', 9th Carbohydrate Bioengineering Meeting, Technical University of Lisbon, Portugal, 15-18 May 2011

S. Ahmed, A. Ghosh, C.M. Fontes and Arun Goyal

'Biochemical characterization of a family 43 glycoside hydrolase (GH43) from *Clostridium thermocellum*', 9th Carbohydrate Bioengineering Meeting, Technical University of Lisbon, Portugal, 15-18 May 2011

Shraddha Shukla and Arun Goyal

'16S rRNA based identification of a glucan hyper-producing *Weissella confusa*', 9th Carbohydrate Bioengineering Meeting, Technical University of Lisbon, Portugal, 15-18 May 2011

V. S. Chipeva, S. Kambarev, P. Moncheva, I. Iliev, Arun Goyal, M. Tzenova, I. Ivanova

'Microbial diversity of hard Churpi cheese – Traditional milk product of North-eastern India', Sofia, Bulgaria, 21-24 April 2011

B. B. Mandal, S. H. Park, E. S. Gil and D. L. Kaplan
'Hierarchical silk scaffolds for Intervertebral disc engineering', Oral talk at TERMIS AP, 2011, Singapore, 3-5 August 2011

Muthusivaramapandian Muthuraj, Kumaran Sivalingavasu, Reeshav Gupta and Debasish Das
'Effect of Nitrogen and Phosphate Starvation on Lipid Accumulation in a Freshwater Microalgal Isolate from Indian Biodiversity', 1st International Conference on Algal Biomass, Biofuels and Bioproducts, Westin St. Louis, St Louis, USA, Elsevier, 17-20 July 2011

Saprativ P. Das, R. Ravindran, Debasish Das and Arun Goyal
'Reactor scale-up for lingo-cellulosic fermentation employing different hydrolytic enzymes and bioethanol producers', International Conference on Yeast Biology, IIT Bombay, Mumbai, 10-13 Dec 2011

Saprativ P. Das, Rajeev Ravindran, Debasish Das and Arun Goyal
Bioethanol production by Simultaneous Saccharification and Fermentation (SSF) using statistically optimized parameters and mixed enzymes and cultures', International Conference on New Horizons in Biotechnology, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, 23-26 Nov 2011

S.J. Sarma and K. Pakshirajan
'Oil encapsulated microspheres: A novel method of enhancing the bioavailability and biodegradation of polycyclic aromatic hydrocarbons', 4th International Conference on Biotechniques for Air Pollution Control, Á Coruna, Spain, 12-14 Oct 2011

N.K. Sahoo, S.P. Abraham, P.K. Ghosh and K. Pakshirajan
'Biodegradation of 4-chlorophenol using calcium alginate immobilized *Arthrobacter chlorophenolicus* A6', Proc. of Twelfth International Conference on Environmental Science and Technology, CEST 2011, Rhodes Island, Dodecanese, Greece, 8-10 Sept 2011

N.K. Sahoo, S.P. Abraham, P.K. Ghosh and K. Pakshirajan
'Kinetics of 4-bromophenol degradation using calcium alginate immobilized *Arthrobacter chlorophenolicus* A6', Proc. of International Conference on Environmental Pollution and Remediation, ICEPR 2011, Ottawa, Canada, 17-19 Aug 2011

L Rangan
'Expanding Horizons in Chemical and Biological Sciences: Innovations Crossroads', 7th ISCB International

Conference (ISCBC-2012), Solapur, 21-24 Jan 2012 (ISCB Young Scientist Award Lecture in area of Biological Sciences)

Tushar, SC Rao, J Bennetzen, L Rangan
'Mining of Zingiberoideae plastid genome for assessment of phylogenetic relationships', Plant Genome Evolution, Amsterdam, Netherlands, 4-6 Sep 2011

Sadhukhan, S. Mishra, S. K. Panda and L. Sahoo
'Isolation and functional characterization of DREB2A from cowpea', International conference on Plant Biotechnology for food security (ICPBFS 2012), New Delhi, 21-24 Feb 2012

S. Mishra, S. K. Panda and L. Sahoo
'Cloning and functional characterization of Na⁺/H⁺ antiporter genes of mungbean and cowpea', International conference on Plant Biotechnology for food security (ICPBFS 2012), New Delhi, 21-24 Feb 2012

Mitun Chakraborty, Siddhartha Sankar Ghosh, Pranab Goswami
'Partial Characterization of Novel Broad Substrate Specific Alcohol Oxidase from *Aspergillus terreus* MTCC 6324 Through Molecular and In-Silico Approach', International Conference on New Horizons in Biotechnology and 8th Annual Convention of The Biotech Research Society, India (NHBT-2011), NIIST, CSIR, Trivandrum, 21-24 Nov 2011

Ankana Kakoti, Pranab Goswami
'Alcohol oxidase from *Aspergillus terreus* as a potential biocatalyst for the production of fragrance compounds', International Conference on New Horizons in Biotechnology (NHBT-2011), Trivandrum, 21-24 Nov 2011

Urmila Saxena, Pranab Goswami
'Nanomaterials as the Electroactive Interface for Direct Electron Transfer Between Redox Centre of Enzyme and Electrode in Developing Cholesterol Biosensor', International Conference on Advances in Biodetection and Biosensors, Hamburg, Germany, 30 June–1 July 2011

Madhuri Das, Leepakshi Barbora, Priyanki Das, Pranab Goswami
'Development of laccase based biocathode for biofuel cell application', 18th International Conference (POST ISCBC-2012) IASST Guwahati, 28-30 January 2012

Seraj Ahmad, Pranab Goswami
'Statistical evaluation of medium components by experimental design for enhancing the cholesterol

oxidase production from *Rhodococcus* sp', World Congress on Biotechnology, Hyderabad International Convention Centre (HICC), Hyderabad, 21-23 March 2011

V.K. Mishra and Rakhi Chaturvedi

'Determination of antioxidant activity and total phenolic contents in in vitro androgenic cultures of *Camellia sinensis* (L.) O. Kuntze', 12th International Congress of Ethnopharmacology on Traditional Medicine and Globalization—The Future of Ancient System of Medicine, International Society of Ethnopharmacology (ISE) and Jadavpur University, Kolkata, 17-19 Feb 2012

M. Singh and Rakhi Chaturvedi

'Studies involving azadirachtin biosynthesis, a biodegradable biopesticide, from in vitro cultures of *Azadirachta indica* A. Juss', 2nd International Conference on Agrochemicals Protecting Crops, Health and Natural Environment – Role of Chemistry for Sustainable Agriculture, Indian Agricultural Research Institute (IARI), Society for Promotion of Sustainable Agriculture and Indian Council of Agricultural Research, New Delhi, 15-18 Feb 2012

V.K. Mishra and Rakhi Chaturvedi

'Identification and quantification of (+)- catechin, (-)-epicatechin and epigallocatechin gallate in anther derived callus cultures of TV21 cultivar of *Camellia sinensis* (L.) O. Kuntze var. *assamica*', 18th International Conference 2012 (Post ISCBC) on Perspective and Challenges in Chemical and Biological Sciences', Indian Society of Chemists and Biologists (ISCB) and Institute of Advanced Study in Science and Technology (IASST), Guwahati, 28-30 Jan 2012

V.K. Mishra and Rakhi Chaturvedi

'In vitro haploid production via anther culture of TV21 Cultivar of *Camellia sinensis* (L.) O. Kuntze var. *assamica*', International Conference on New Horizons in Biotechnology (NHBT), Biotech Research Society of India (BRSI) and National Institute of Interdisciplinary Science and Technology-CSIR, Trivandrum, Kerala, 21-24 Nov 2011

Rakhi Chaturvedi

'Exploring in vitro differentiated gametic cells for production of azadirachtin, a key triterpenoid present in *Azadirachta indica* A. Juss', International Conference on New Horizons in Biotechnology (NHBT), Biotech Research Society of India (BRSI) and National Institute of Interdisciplinary Science and Technology-CSIR, Trivandrum, Kerala, 21-24 Nov 2011

Rakhi Chaturvedi and Mithilesh Singh

'Cell line selection and media optimization for enhanced Azadirachtin production from In Vitro cultures of *Neem* (*Azadirachta indica* A. Juss)', In Vitro Biology Meeting, Society for In Vitro Biology (SIVB), Raleigh, North Carolina, USA, 4-8 June 2011

N. Chandra and R. Swaminathan

'Inhibition of lysozyme amyloidogenesis by osmolytes', 56th Annual Meeting of the Biophysical Society, San Diego, 25-29 Feb 2012

V. K. Ravi, M. Goel, R. Swaminathan

'Carboxymethylation of cysteines impedes aggregation of hen lysozyme in alkaline pH', 56th Annual Meeting of the Biophysical Society, San Diego, 25-29 Feb 2012

V. K. Ravi, N. Chandra, T. Swain and R. Swaminathan

'Manipulating the size of hen lysozyme nanoparticles created by controlled self-assembly', 56th Annual Meeting of the Biophysical Society, San Diego, 25-29 Feb 2012

D.A. Srivastava R. Tamuli

'Role of calcium signaling genes in circadian rhythm of *Neurospora crassa*', International Conference on Microbial, Plant and Animal Research, ICMPAR 2012, Mody Institute of Technology and Science, Lakshmangarh, Sikar, Rajasthan, 29-30 Mar 2012

R. Deka, U. Sarma, D.A. Srivastava, R. Kumar, R. Gedela and R. Tamuli

'Understanding calcium signaling machinery of *Neurospora crassa*', 7th Conference on Yeast Biology, IIT Bombay, Mumbai, 10-13 Dec 2011

R. Deka, R. Kumar, R. Gedela, U. Sarma, D.A. Srivastava and R. Tamuli

'Calcium signalling in *Neurospora crassa*', Cell Signalling Networks 2011, Merida, Mexico, 22-27 Oct 2011

D.A. Srivastava, U. Sarma and R. Tamuli

'Genetic resources of *Neurospora* and its importance in molecular biology and biotechnology', International seminar on bioresearches and human sustenance, Cotton College, 20-22 Oct 2011

R. Tamuli, D.A. Srivastava, R. Kumar, R. Deka and D. Mahor 'Genetics of calcium signaling machinery in *Neurospora crassa*', Comparative genomics of eukaryotic microorganisms: understanding the complexity of diversity, Sant Feliu de Guixols, Spain, 15-20 Oct 2011

R. Deka and R. Tamuli

'Characterization of *Neurospora crassa* homologue of

Neuronal Calcium Sensor-1; Comparative genomics of eukaryotic microorganisms: understanding the complexity of diversity, Sant Feliu de Guixols, Spain, 15-20 Oct 2011

Sanjukta Patra

'Structure prediction of caffeine demethylating enzyme from *Pseudomonas alcaligenes*', ICBBT 2012, Singapore, 26-28 Feb 2012

S. Sharma, M. Banerjee, A. Chattopadhyay and S.S. Ghosh

'Nanomaterials as antibacterial agents', Miami 2012 Winter Symposium: Nanotechnology in Biomedicine, JW Marriott Marquis Miami, Miami, FL, USA, 26-29 Feb 2012

A. Jaiswal, A. Chattopadhyay and S.S. Ghosh

'Facile synthesis of carbon dots using poly(ethylene glycol) as precursor and passivizing agent', International Conference on Nanoscience and Technology (ICONSAT - 2012), Hyderabad, 20-23 Jan 2012

A. K. Sahoo, Sk Palashuddin Md, S. S. Ghosh and A. Chattopadhyay

'Novel antibacterial Ag nanoparticle-paracetamol dimer composite causing linearization in plasmid DNA', India Australia Workshop on Nanotechnology in Materials and Energy Applications (IAWNT 2011), School of Materials Science and Nanotechnology, Jadavpur University, Kolkata, 28-31 Dec 2011

S. Sharma, M. Banerjee, A. Chattopadhyay and S.S. Ghosh

'Bimetallic gold-silver core-shell nanoparticles showing antibacterial activity at low silver concentration', Indo-US bilateral Workshop on Nanoparticle Assembly: from Fundamentals to Applications, Indian Institute of Technology Delhi, New Delhi, 12-14 Dec 2011

A. Jaiswal, A. Chattopadhyay and S.S. Ghosh

'Multifunctional chitosan nanocarriers: synthesis and application', Indo-US Workshop on Nanoparticle Assembly: from Fundamentals to Applications, Indian Institute of Technology Delhi, New Delhi, 12-14 Dec 2011

S. Sharma, P. Sanpui, A. Chattopadhyay and S.S. Ghosh

'Alginate mediated green synthesis of silver nanoparticles and fabrication of films with antimicrobial properties', 2nd International Conference of Advance Nanomaterials and Nanotechnology (ICANN 2011), Indian Institute of Technology Guwahati, Guwahati,

8-10 Dec 2011

S. Mallick, S. Sharma, M. Banerjee, S.S. Ghosh, A. Chattopadhyay and A. Paul

'Role of iodine in the antimicrobial activity of silver nanoparticle chitosan as well as copper nanoparticle chitosan composite', 2nd International Conference of Advance Nanomaterials and Nanotechnology (ICANN 2011), Indian Institute of Technology Guwahati, Guwahati, 8-10 Dec 2011

A. K. Sahoo, Sk Palashuddin Md, S. S. Ghosh and A. Chattopadhyay

'New fluorescent silver nanoparticle-paracetamol dimer composite causing linearization of plasmid DNA in antimicrobial action', 2nd International Conference of Advance Nanomaterials and Nanotechnology (ICANN 2011), Indian Institute of Technology Guwahati, Guwahati, 8-10 Dec 2011

V.R. Sarath, M.S. Thakur, Sanjukta Patra

'Structure prediction of caffeine demethylating enzyme from *Pseudomonas alcaligenes*', International Conference on Bioinformatics and Biomedical Technology, Singapore, 26-28 Feb 2012

U. Bora and R. Tamuli

'Current Status of Biobanking in India', ISBER Annual Meets and Exhibits 2011: Impact and Public Benefits of Biorepositories, Washington DC, USA, 15-18 May 2011

U. Bora, S. Rahman and P.C. Bhattacharya

'Urban Biodiversity Management of Guwahati City: The Gateway to North East India', Urban Wild Life Management and Planning Conference 2011, Austin, Texas, USA, 22-25 May 2011

Vikash Kumar Dubey

'Fun with Flagellated parasite', Second National Conference on Biotechnology, Bioinformatics and Bioengineering, Kolhapur, Maharashtra, 24-25 Feb 2012

Vikash Kumar Dubey

'Computer added drug designing: targeting redox metabolism of *Leishmania* parasite', Workshop on Bioinformatics: Application in Agriculture and Medical Sciences, Banaras Hindu University, Varanasi, 16-18 Feb 2012

Vikash Kumar Dubey

'Application of Bioinformatics in Protein Sciences', Workshop on Bioinformatics: Application in Agriculture and Medical Sciences, Banaras Hindu University, Varanasi, 16-18 Feb. 2012

Anil Kumar Shukla, Sanjukta Patra and Vikash Kumar Dubey

'Targeting redox system of Leishmania parasite for drug discovery', 18th International Conference of ISCB-2012, IASST, Guwahati, 28-30 Jan 2012

Manjeet Kumar and Vikash Kumar Dubey

'Quinacrine a potential biomarker to trace amyloid plaque: studies on Ab 40 peptide and hen egg white lysozyme amyloid as model system', Annual Meeting of Indian Biophysical Society, University of Madras, Chennai, 19-21 Jan 2012

P. Saravanan, VK Dubey and P. Sanjukta

'Potential inhibitors targeting LdLip3 to combat Leishmaniasis', Annual Meeting of the Indian Biophysical Society organized by University of Madras, Chennai, 19-21 Jan 2012

Saudagar Prakash and Vikash Kumar Dubey

'Trypanothion synthetase: A validated drug target enzyme from Leishmania donovani', 18th International Conference (POST ISCBC-2012), IASST Guwahati, 28-30 Jan 2012

Abhay Narayan Singh and Vikash Kumar Dubey

'Procerain B: an industrially important cysteine protease; Purification, characterization and cloning', 18th International Conference (POST ISCBC-2012) IASST Guwahati, 28-30 Jan 2012

P Saravanan, H Avinash, VK Dubey and P. Sanjukta

'Targeting essential cell wall lipase rv3802c to combat tuberculosis: homology modeling, virtual screening and comparative docking studies', Open Source Computer-Aided for Translational Medicine organized by IMTECH, Chandigarh, 22-25 Feb 2012

Vikash Kumar Dubey, Anil Kumar Shukla and Prakash Saudagar Dubey

'Current trends in anti-leishmanial drug discovery', International conference on New Horizons in Biotechnology, Trivandrum, 21-24 Nov 2011

Prakash Saudagar and Vikash Kumar Dubey

'Trypanothione Synthetase from L. donovani : Cloning,

expression, characterization, and inhibition studies', 80th Annual Meeting of Society of Biological Chemists, held at Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011 (Best poster Award)

Prity Yadav, Abhay Narayan Singh and Vikash Kumar Dubey

'Heterologous expression of a novel plant cysteine protease: procerain B in E. coli and site directed mutagenesis to study the amino acids at catalytic triad', 80th Annual Meeting of Society of Biological Chemists, held at Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 21-24 Nov 2011

Mousumi Das and Vikash Kr. Dubey

'Exploring ornithine decarboxylase for novel drugs against Leishmania donovani', 80th Annual Meeting of Society of Biological Chemists, Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011

Manjeet Kumar and Vikash Kumar Dubey

'Quinacrine: as potential antemortem diagnostic dye for Alzheimer's disease', 80th Annual Meeting of Society of Biological Chemists, Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011

Ruchika Bhardwaj, Anil Kumar Shukla and Vikash Kumar Dubey

'Synthesis of Chitosan-PEG coated Gold nanoparticles entrapping doxorubicin for evaluation of anti-leishmanial activity and targeted delivery to macrophage', 80th Annual Meeting of Society of Biological Chemists, Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011

Shyamali Sarma and Vikash Kumar Dubey

'Cloning, expression and characterization of spermidine synthase, a drug target enzyme of Leishmania donovani', 80th Annual Meeting of Society of Biological Chemists, Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011

Sushant Singh, Abhay Narayan Singh, Anil Verma, Vikash Kumar Dubey

'Heavy metal stress induced Superoxidedismutase: Purification and characterization from Cicer arietinum L. seedlings', 80th Annual Meeting of Society of Biological Chemists, Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011

Abhay Narayan Singh and Vikash Kumar Dubey
 'Physiochemical characterization, immobilization and cloning of procerain B: an industrially important plant cysteine protease', 80th Annual Meeting of Society of Biological Chemists, Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011

Anil Kumar Shukla and Vikash Kumar Dubey
 'Synthesis of PEGylated nanospheres encapsulating doxorubicin and mitomycin C for their specific macrophage targeting, reduced toxicity and enhanced antileishmanial activity', 3rd EMBO meeting, Vienne, 10-13 September 2011 (DBT Travel Award)

National

S. Goswami, M.D. Adhikari, C. Kar, G. Das and A. Ramesh
 'Structural modulation of synthetic amphiphiles for enhanced bactericidal efficacy', 52nd Annual Conference of Association of Microbiologists of India (AMI), Chandigarh, 3-6 Nov 2011

S. Mukherjee, A. K. Singh, M. D. Adhikari and A. Ramesh
 'Probiotic assessment and in vitro adhesion potential of native lactic acid bacteria', 52nd Annual Conference of Association of Microbiologists of India (AMI), Chandigarh, 3-6 Nov 2011

Reeshav Gupta, Muthusivaramapandian Muthuraj, Sahil Batra, Anil M Limaye and Debasish Das
 'Screening of bioactive molecules from cyanobacteria and algal communities to combat multi drug resistance', 2nd National Conference on Antimicrobial Resistance – A Cause for Global Concern at Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad, 6-8 February 2012

Gauri Deb, Sahil Batra and Anil M Limaye
 'EGCG inhibits MMP-2 and MMP-9 activity by direct binding', 31st Annual Convention of Indian Association for Cancer Research and International Symposium on Cancer Genomics and its impact in the Clinic, ACTREC, Navi Mumbai, 26-29 January 2011

Abrar Ali Khan, Anup K. Singh, R. Bankar, P. Dutta and Anil M. Limaye
 'Extracellular protease production by a local soil isolate of *Bacillus cereus* grown in pH adjusted whey', 52nd Annual Conference of Association of Microbiologists of India (AMI): International Conference on Microbial Biotechnology for Sustainable Development, Punjab

University, Chandigarh, 2011

T. Jagan Mohan Rao and Arun Goyal
 'Inhibition studies of glucansucrase from *Weissella cibaria* by UV and Fluorescence Spectroscopy', Conference on Photochemistry and Luminescence, Indian Institute of Technology Guwahati, 9-10 March 2012

Anil Kumar Verma and Arun Goyal
 'Cloning of a family 5 glycoside hydrolase (GH5-CBM) and carbohydrate binding module (CBM6) from *Clostridium thermocellum*', Symposium on carbohydrates at the interface of Chemistry and Biology (CARBO-XXVI), Indian Institute of Chemical Biology, Kolkata, 23-25 Nov 2011

Deepmoni Deka, Saprativ P. Das, Rajeev Ravindran, M. Jawed, Debasish Das and Arun Goyal
 'Approaches for identification of a combination of hydrolytic enzymes and fermentative microbes for bioethanol production from thatch grass', Symposium on carbohydrates at the interface of Chemistry and Biology (CARBO-XXVI), Indian Institute of Chemical Biology, Kolkata, 23-25 Nov 2011

Soumyadeep Chakraborty and Arun Goyal
 'Cloning of family 1 polysaccharide lyase (CtPL1) and family 35 carbohydrate binding module (CtCBM35) from *Clostridium thermocellum* for biochemical studies and characterization', Symposium on carbohydrates at the interface of Chemistry and Biology (CARBO-XXVI), Indian Institute of Chemical Biology, Kolkata, 23-25 Nov 2011

Damini Kothari and Arun Goyal
 'Physico-chemical characterization of dextran isolated from NRRL B-*Leuconostoc mesenteroides* NRRL B-1426', Symposium on carbohydrates at the interface of Chemistry and Biology (CARBO-XXVI), Indian Institute of Chemical Biology, Kolkata, 23-25 Nov 2011

Rishikesh Shukla, Riwivo Barua and Arun Goyal
 'Production, purification and characterization of polysaccharides and oligosaccharides produced by hydrolysis from *Leuconostoc mesenteroides* NRRL B-1149', Symposium on carbohydrates at the interface of Chemistry and Biology (CARBO-XXVI), Indian Institute of Chemical Biology, Kolkata, 23-25 Nov 2011

Shraddha Shukla and Arun Goyal
 'Production, purification and characterization of glucan and gluco-oligosaccharides from *Weissella Confusa*', Symposium on carbohydrates at the interface of

Chemistry and Biology (CARBO-XXVI), Indian Institute of Chemical Biology, Kolkata, 23-25 Nov 2011

Prajakta Naval, Muthusivaramapandian Muthuraj, Kumaran Sivalinga Vasu, Reeshav Gupta, Sukhomay Pal and Debasish Das

'Improved Nile Red based neutral lipid quantification in novel freshwater microalgal isolates, *Chlorella* sp. and *Navicula* sp.', Conference on Photochemistry and Luminescence (CPL-2012), Indian Institute of Technology Guwahati, 9-10 March 2012

L. Rangan

'Characterization of *Pongamia pinnata*—a versatile legume', 99th Indian Science Congress, Invited lecture in section of Plant Sciences, Bhubneshwar, 3-7 Jan 2012 (Prof Hiralal Chakravarty Award Lecture in Plant Sciences of ISCA 2012)

L. Rangan, V. Kesari, M.S. Vinod, A. Parida

'Molecular markers based characterization in versatile forest tree species, *P. pinnata*', 99th Indian Science Congress, Bhubneshwar, 3-7 Jan 2012

S Basak, A Nandy, L Rangan

'Inhibition studies of cellulolytic activities isolated from *Fusarium oxysporum*', National symposium on Microorganisms and plant health, 24th Annual general meeting of Indian Phytopathological Society, Gauhati University, Assam, 4-5 Nov 2011

V. Kumar, S. Ghosh, V. S. Hedao, U. Bora, L. Rangan

'Physico-chemical characterization and antimicrobial activity from rhizome essential oil of *Alpinia nigra*', 3rd Edition of Indian Youth Science Congress, Delhi, 3-5 Nov 2011

V. S. Hedao, S. Basak, V. Kumar, S. Ghosh, U. Bora, L. Rangan

'Molecular marker based characterization in *Alpinia nigra*', 3rd Edition of Indian Youth Science Congress, Delhi, 3-5 Nov 2011

A.M. Ramesh, V. Kesari, L. Rangan

'*Rhizobium pongamiae* sp. nov., from root nodules of a versatile legume *Pongamia pinnata*', National Seminar on Emerging Trends in Biotechnology, 24-26 September 2011

A.M. Ramesh, A. Das, N. Kasoju, U. Bora, L. Rangan

'Chemical and biological investigation of essential oil

of *Z. moran*, an endemic species from Northeast India', National Seminar on Emerging Trends in Biotechnology, 24-26 September 2011

S. Bakshi and L. Sahoo

'Expression of *Btcry1Ac* in transgenic cowpea and genetic stability', National Symposium on PTC and Biotech & XXXII PTCA (I) meet, Rajasthan, 4-6 Feb 2011

S. Bakshi, A. Sadhukhan, N. K. Roy, S. Kailasam, D. P. Sahoo and L. Sahoo

'Genetic engineering of cowpea with *Btcry1Ab* for resistance to *Maruca pod borer*', National Symposium on PTC and Biotech & XXXII PTCA (I) meet, Rajasthan, 4-6 Feb 2011

P. Borah, N. Kalita, S. Bakshi S, S. Mishra and L. Sahoo

'Genetic transformation of mungbean with *cry1Ac* gene for insect resistance', National Symposium on PTC and Biotech & XXXII PTCA (I) meet, Rajasthan, 4-6 Feb 2011

S. Mishra, S. K. Panda and L. Sahoo

'Cloning and characterization of a vacuolar Na⁺/H⁺ antiport gene *VrNHX1* from the grain legume mungbean (*Vigna radiata*)', National Symposium on PTC and Biotech & XXXII PTCA (I) meet, Rajasthan, 4-6 Feb 2011

Madhuri Das, Pranab Goswami

'Electrochemical characterization and development of alcohol oxidase bioelectrode for enzymatic biosensor and biofuel cell application', 80th Annual meeting of the society of Biological Chemists, CSIR-CIMAP, 12-15 November 2011

Madhuri Das, Pranab Goswami

'Development of Alcohol biosensor using Multiwalled carbon nanotube(MWCNT) -nafion-Polyethyleneimine (PEI) as electroactive matrix for immobilization of alcohol oxidase on electrode surface', Bangalore India Bio 2011, Bangalore International Exhibition Centre, 4-6 May 2011

R.W. Daniel and Rakhi Chaturvedi

'In vitro Clonal propagation and rooting of *Azadirachta indica* A. Juss.', National Seminar (DBT, Govt. of India Sponsored) on Prospects of Biotechnological Applications for Sustainable Agriculture, B.B.K. College, Nagaon, Barpeta, 30-31 January 2012

R. Radhika and Rakhi Chaturvedi

'Establishment of callus and cell suspension cultures

from leaf explants of *Spilanthes acmella* – A medicinal plant', National Seminar (DBT, Govt. of India Sponsored) on Prospects of Biotechnological Applications for Sustainable Agriculture, B.B.K. College, Nagaon, Barpeta, 30-31 January 2012

Chaturvedi Rakhi

'Exploring dedifferentiated and redifferentiated in vitro cultures of *Azadirachta indica* A. Juss. for production of azadirachtin, a key component of the plant', XXXIII PTCA (I) Annual Meeting and National Symposium on Impact of Plant Tissue Culture on Advances in Plant Biology, St. Xavier's College and Loyola Centre for Research and Development, Ahmedabad, Gujrat, 19-21 January 2012

Archana Tandle Kisan and Rakhi Chaturvedi

'Establishment of callus and cell suspension cultures of *Lantana camara* - a valuable medicinal plant', 80th Annual Meeting of the Society of Biological Chemists (SBC) India, CSIR-Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 November 2011

U. Bora

'Silk based Tissue Engineering', Brainstorming workshop on Silk Biotechnology Organized jointly by DBT Govt. Of India with Andhra Pradesh State Sericulture Research & Development Institute (APSSRDI), Hindupur in collaboration with the Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad, 19 August 2011

Vishal Trivedi

'Pro-stimulatory potentials of methemoglobin in inflammation during cerebral malaria through heme polymer formation', 80th annual meeting of the society of biological chemist (India) CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, 12-15 Nov 2011

Vishal Trivedi

'Potentials of Structural and Biochemical Characterization of PFI1625c from *P.falciparum* in Drug Development against Malaria', 80th annual meeting of the society of biological chemist (India) CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, 12-15 Nov 2011

Vishal Trivedi

'Extracellular Methemoglobin Mediated Oxidative Stress Causes RBC Destruction: An Insight Into The Enhanced Hemolysis', 80th annual meeting of the society of biological chemist (India) CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow,

12-15 Nov 2011

Vishal Trivedi

'In Silico Identification of Plasmodium Falciparum RIO-2 Kinase (PFD0975w) Inhibitors from Northeastern Plants of India: A Future of Anti-malarial Drug Discovery', 80th annual meeting of the society of biological chemist (India) CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, 12-15 Nov 2011

Book, Chapter, etc.

N. K. Sahoo, A. Ramesh and K. Pakshirajan

'Bacterial Degradation of Aromatic Xenobiotic Compounds: An Overview on Metabolic Pathways and Molecular Approaches', *Microorganisms in Environmental Management—Microbes and Environment*, T. Satyanarayana, B. N. Johri, A. Prakash (eds), Springer, 2012

Deeplina Das and Arun Goyal

'Lactic acid bacteria in food industry', *Microorganisms in Sustainable Agriculture and Biotechnology*, T. Satyanarayana, B.N. Johri and Anil Prakash (eds), Chapter 33, pp. 757-772, Springer, 2012

S. Mishra, L. Rangan, S. Mitra

'Greenhouse Gases Emission from Rice Paddy Ecosystem and their Management', *Crop Improvement Under Adverse Conditions*, N. Tuteja and S. Singh (eds), Springer Science + Business Media, Vol 1, pp. 1-10, 2012

S. Mishra, L. Sahoo and S. K. Panda

'Genetic engineering for acid soil tolerance in plants', *Improving Crop Productivity in Sustainable Agriculture*, N. Tuteja, S. S. Gill and R. Tuteja (eds), Wiley-Blackwell, Germany, 2012

Priyanka Srivastava, Mithilesh Singh and Rakhi Chaturvedi

'Biotechnological improvement of neem', *Plant Tissue Culture and Applied Plant Biotechnology*, Ashwani Kumar and Shikha Roy (eds), Aavishkar Publishers and Distributors, Jaipur, Rajasthan, pp. 191-219, 2011

R. Swaminathan, V. Kumar Ravi, S. Kumar, M. V. S. Kumar and N. Chandra

'Lysozyme: A Model Protein for Amyloid Research', *Advances in Protein Chemistry and Structural Biology*, In Rossen Donev (ed), Vol. 84, Burlington: Academic Press, pp. 63-111, 2011

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Title of Lecture	Name of Inst./Org.	Place	Date
Dr. Aiyagari Ramesh	Biological Applications of Nanoscale Materials and Synthetic Amphiphiles	Central Food Technological Research Institute	Mysore	16 November 2011
Prof. Arun Goyal	Production, purification and characterization of glucan and gluco-oligosaccharides from <i>Weissella confusa</i>	Indian Institute of Chemical Biology	Kolkata	23-25 November 2011
Prof. Arun Goyal	Biotechnological Applications of Genetic Engineering	College of Veterinary Science, Guwahati	Guwahati	9 September 2011
Prof. Arun Goyal	Biotechnological applications of dextrans from Lactic acid bacteria isolated from microbial diversity of Assam	National Academy of Agricultural Sciences	New Delhi	4 June 2011
Dr. Biman B. Mandal	Hierarchical silk scaffolds for Intervertebral disc engineering	TERMIS AP, 2011	Singapore	4 August 2011
Dr. Biman B. Mandal	Silk Matrix Based Tissue Engineering	IIT Delhi	New Delhi	22 February 2012
Dr. Biman B. Mandal	Silk Based Biomaterials for Tissue Engineering	MITS, Sikar	Rajasthan	30 March 2012
Dr. B. Anand	Phylogenetic Analysis	Assam University, Silchar	Silchar	22-23 July 2011
Dr. Biplab Bose	Molecular Signaling Network of Human Oncofetal Protein Cripto-1	Dr. B. Borooah Cancer Institute	Guwahati	28 February 2012
Dr. Biplab Bose	Targeted Delivery in Nanotherapeutics	Bahona College	Jorhat	20 May 2011
Dr. Latha Rangan	Clean Energy Options - Science Day Celebration	Tezpur University	Tezpur	28 February 2012
Dr. Latha Rangan	Advances in Genomics in Rice and Rice relatives	Solapur University	Solapur	22 January 2012
Dr. Latha Rangan	Characterization of <i>Pongamia pinnata</i> - a versatile legume	KIIT University	Bhubneshwar	4 January 2012
Dr. Latha Rangan	Application of Biotechnology in Bioresources Utilization and Conservation	Dhing College	Nagaon	29 September 2011
Dr. Latha Rangan	DNAB as an ally for bioresources conservation	IIT Guwahati	Guwahati	13 July 2011
Dr. Latha Rangan	Socio-economic Empowerment of NE through Innovations	NRDC New Delhi	Guwahati	26 May 2011
Dr. Lingaraj Sahoo	Genetic improvement of legumes for biotic and abiotic stress tolerance	Shizouka University, Shizouka	Japan	7 November 2011
Dr. Lingaraj Sahoo	Writing an winning research proposal	Combined Graduate School, Gifu University, Shizouka University, Shizouka	Japan	10 November 2011
Dr. Lingaraj Sahoo	Food and Nutritional Security: Vision for 2035	Bose Institute, Kolkata	Kolkata	7 June 2011

Name of Faculty	Title of Lecture	Name of Inst./Org.	Place	Date
Dr. Lingaraj Sahoo	Plant Genetic Engineering and Functional Genomics for Crop Improvement: Where we are!	Assam University	Silchar	12th August 2011
Dr. Lingaraj Sahoo	Plant Genetic Engineering for Crop Improvement	Gauhati University	Guwahati	14th September 2011
Dr. Lingaraj Sahoo	Agricultural Biotechnology – Current Scenario and Future Prospects	Nagaon College	Nagaon	30th January 2012
Dr. Lingaraj Sahoo	Plant genetic engineering for crop improvement	Karimganj College	Karimganj	8th December 2011
Dr. Lingaraj Sahoo	Prospects of Biofuel	QIP Programme, Department of Mechanical Engineering, IIT Guwahati	Guwahati	29th August 2011
Dr. Nitin Chaudhary	Self-assembly of proteins and peptides	Guru Gobind Singh Indraprastha University	Delhi	January 12, 2012
Prof. Pranab Goswami	Advances in biosensor research: Nano-materials as electroactive matrix for developing enzyme-based biosensors	IASST, Guwahati	Guwahati	31 January 2012
Prof. R. Swaminathan	Molecular events in protein aggregation investigated using hen lysozyme as a model system	National Centre for Biological Sciences	Bangalore	8th July 2011
Prof. R. Swaminathan	Protein Folding: Past, Present and Future	Tezpur University	Tezpur	26th Nov 2011
Prof. R. Swaminathan	Manipulating the size of hen lysozyme nanoparticles created by controlled self-assembly	Tata Institute of Fundamental Research	Mumbai	30th Sept. 2011
Prof. R. Swaminathan	Manipulating the size of hen lysozyme nanoparticles created by controlled self-assembly	IIT Guwahati	Guwahati	10th March 2012
Dr. Rakhi Chaturvedi	Applications of Plant Tissue Culture Technology	BIOTECH HUB of Department of Botany, Goalpara College	Goalpara	November 3, 2011
Dr. Rakhi Chaturvedi	Plant Tissue Culture and its Application to Plant Improvement and Bioactive Compound Production	Lucknow University	Lucknow	October 10-12, 2011
Dr. Rakhi Chaturvedi	In Vitro Tissue Culture Techniques for Bioresources Conservation	IIT Guwahati	Guwahati	July 11-15, 2011
Dr. S.S. Ghosh	Gene Therapy: prospects in combination therapy	NEHU, Shillong	Shillong	21st March 2012
Dr. S.S. Ghosh	Multiplexing of DNA nanotechnology and Theranostics	NEHU, Shillong	Shillong	21st March 2012
Dr. S.S. Ghosh	Nanomaterials for potential implications in therapy	Dr. B. Borooah Cancer Institute, Guwahati	Guwahati	29th February 2012

Name of Faculty	Title of Lecture	Name of Inst./Org.	Place	Date
Dr. S. S. Ghosh	1. Multiplexing of DNA nanotechnology 2. Silver nanoparticles as therapeutic agents	Academic Staff College, Gauhati University	Guwahati	19th November 2011
Dr. S. S. Ghosh	Implications of nanomaterials as Therapeutic Agents	Bahona College	Jorhat	20th May 2011
Dr. Utpal Bora	Scope of Nanotechnology in Joint and Cartilage restoration	NEIGRIMHS	Shillong	9-10th April 2011
Dr. Utpal Bora	Silk as a Biomaterial	Central Muga Eri Research and Training Institute, Central Silk Board, Ministry of Textiles Govt. of India	Jorhat	27-29th September 2011
Dr. Utpal Bora	Ecohydrology and Wetland Management	Kamrup District Administration, Govt. of Assam and Chandubi Festival Organising Committee	Chandubi	31st Dec 2011 – 4th Jan 2012
Dr. Utpal Bora	Silk Based Scaffolds for Cardiac Tissue Engineering	Asian Polymer Association (APA) in collaboration with IIT Delhi and Jamia Hamdard University	New Delhi	20th -23rd February 2012
Dr. Utpal Bora	Bio-polymers for tissue engineering (Keynote Address)	Velammal Engineering College	Chennai	24th February, 2012
Dr. Vibin Ramakrishnan	Canonicalization of Molecular Structures for Virtual Activity Profiling.	Pondicherry Central University	Pondicherry	September 22, 2011
Dr. Vibin Ramakrishnan	Reduced representations of Molecular Structures; Applications in Activity Profiling.	Tezpur University	Tezpur	March 22, 2012
Dr. Vikash Kumar Dubey	Fun with Flagellated parasite	Second National Conference on Biotechnology, Bioinformatics and Bioengineering Society of Applied Biotechnology	Maharashtra	February 24, 2012
Dr. Vikash Kumar Dubey	Computer added drug designing: targeting redox metabolism of Leishmania parasite	Banaras Hindu University	Varanasi	Feb. 17, 2012
Dr. Vikash Kumar Dubey	Application of Bioinformatics in Protein Sciences	Banaras Hindu University	Varanasi	Feb. 18, 2012
Dr. Vikash Kumar Dubey	Current trends in anti-leishmanial drug discovery	International conference on New Horizons in Biotechnology (Biotech Research Society of India)	Trivandrum	November 22, 2011

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS

Name	Name of Inst./Univ./Org.	Purpose	Date
Dr. Saurav Datta	Argonne National Laboratory, USA	Advanced Membrane Technologies for Bioengineering and Energy Applications	24th Jan 2012
Prof. Dulal Panda	Department of Biosciences and Bioengineering, IIT Bombay	Bacterial cytoskeleton: An attractive target for a new class of antibacterial drugs	20th Jan 2012
Dr. Sudip Mondal	National Centre for Biological Sciences, TIFR	Microfluidic devices for in vivo studies in genetic model organisms	24th Nov 2011
Prof. Dulal Borthakur	Department of Molecular Biosciences and Bioengineering, University of Hawaii at Manoa, Honolulu, USA	Bacterial and plant enzymes for degradation of mimosine, a toxin present in <i>Leucaena leucocephala</i>	22nd November 2011
Dr. Apurba Kumar Sau	National Institute of Immunology	Regulation of GTP hydrolysis in interferon-gamma induced GTPases	4th Nov 2011
Prof. Rajani Nadgauda	IIAR Gandhinagar	Plant tissue culture and secondary metabolite production through cell culture	22nd Sep 2011
Prof. Anju Chadha	IIT Chennai	Biocatalytic One Pot Deracemisation Reactions: Towards Green Synthesis of Chiral Synthons	12th Sep 2011
Mr. Sriganesh Srihari	NUS Singapore	Methods Integrating Biological Insights with Topology for Analysis of Protein Interaction Networks Area: Bioinformatics	20th May 2011

SEMINARS/WORKSHOPS/CONFERENCES/SHORT TERM COURSES ORGANIZED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/ National
Dr. Latha Rangan and Dr. Utpal Bora	Short Term Course on 'Tools for Bioresources Protection'	QIP, IIT Guwahati	11-15 July 2011	
Dr. Latha Rangan	Preparation of Instruction Material on Basics of IPR and Patents, CD-CELL Activity	IIT Guwahati	July 2012	
Dr. Lingaraj Sahoo	DBT Crop Biotechnology Task Force Meeting	DBT	23-24 March 2012	National
Dr. Lingaraj Sahoo	DBT Sponsored Short-Term Course on 'Advance Techniques in Biotechnology'	DBT	12-15 October 2011	National
Dr. S. S. Ghosh	Advance Techniques in Biotechnology	DBT	12-15 October 2011	
Dr. V. Ramakrishnan, Dr. U. Bora, Prof. A Goyal	Workshop on Basic Techniques in Bioinformatics	DBT	12-14 October 2011	National

PATENT FILED

L. Rangan, A. Das
Medicinal herbal composition from the rhizome essential oil of Zingiber moran and the process thereof, TIFAC-DST T.1(49) / TIFA /2011.

L. Rangan, A. Das, N. Kasoju, U. Bora
Multipurpose herbal utility of camphene from Zingiber moran, an endemic medicinal plant from northeast India, TIFAC-DST- T.1(49) / TIFA /2011.

AWARDS AND HONOURS**Prof. Arun Goyal**

1. Invited as member "Purchase Committee" meeting at Guwahati Biotech Park, Guwahati, 27 March 2012.
2. Invited as Chairman "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, 17 March 2012.
3. Elected as FNAAS (Fellow, National Academy of Agricultural Sciences, India), June 2011.
4. Invited to Chair the Session on Industrial Biotechnology in an International Conference on "New Horizons in Biotechnology", 21-24 November 2011, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, India.
5. Invited as Chairman "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, 27 September 2011.
6. Invited as Chairman "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, 11 August 2011.
7. Member, Board of Governors, Biotech Research Society of India (BRSI), (May 2011- April 2013).

Dr. B. Anand

Young Scientist Research Award from Department of Atomic Energy.

Dr. Biman B. Mandal

1. "Young Scientist Research Grant Award 2011" from Department of Atomic Energy (DAE) for project "Bioengineered silk vascular grafts for blood vessel engineering".
2. "SYIS Young Investigator Award 2011" in TERMIS

AP, International conference, Singapore for his work on "Hierarchical silk scaffolds for intervertebral disc engineering" carrying certificate and cash prize.

Dr. K. Pakshirajan

1. Awarded the BOYSCAST Fellowship for the year 2010-2011 by the Department of Science and Technology (DST), India, to conduct advanced research at Department of Environmental Resources, UNESCO-IHE, Westvest 72611 AX Delft, the Netherlands, for a period of twelve months starting from August 2011 onwards.
2. Awarded the HIYOSHI YOUNG LEAF AWARD - 2010 by Hiyoshi Corporation, Japan, for his outstanding contribution and progress in research and application in environmental conservation and protection.

Dr. Latha Rangan

1. ISCB Young Scientist Award in the area of Biological Sciences for the year 2011-2012.
2. Prof. HiraLal Chakravarty Award in Plant Sciences awarded by Indian Science Congress Association (ISCA) 2011-2012.
3. Editorial Board Member of the Journal 'Agriculture and Food Security' by BioMed Central 2012.

Dr. Rakhi Chaturvedi

1. Awarded "Prof. Y. S. Murty Medal 2011" by Indian Botanical Society (IBS) in its XXXIV meeting at Lucknow University, Lucknow.
2. Member, National Academy of Sciences, India (NASI)

Dr. Vibin Ramakrishnan

1. Innovative Young Biotechnologist Award-Extension, 2011-2013 by Department of Biotechnology, Govt. of India

Dr. Vikash Kumar Dubey

1. Young Scientist Award for 2011 by Society of Applied Biotechnology.
2. Work as corresponding author (PhD student: Saudagar Prakash): Received Best Poster presentation Award during the 80th Annual Meeting of Society of Biological Chemists, India held at Lucknow, November 12-15, 2011
3. Anil Kumar Shukla, PhD student under Dr. Vikash Kumar Dubey has been awarded travel award by Department of Science and Technology for attending European Molecular Biology Organization (EMBO) meeting 2011 held at Vienna.

ANY OTHER (SPECIAL MENTION)

1. Ms. Priyanka Dhar (PhD student) completed in September 2011; supervisor, Dr. G. K. Saini.
2. Dr. Vigya Kesari a former PhD student of Dr. Latha Rangan at the Department of Biotechnology, awarded Young Scientist Award of (ISCA) for the year 2011-2012 in the area of 'Agriculture and Forest Science' during 99th Indian Science Congress held at KIIT University, Bhubaneswar on 7 January 2012 by Former President of India Dr. A. P. J. Abdul Kalam.
3. Dr. Archana Das completed her PhD in the year 2011 under the supervision of Dr. Latha Rangan and pursuing Post Doctorate at Purdue University, USA.
4. Mr. Tushar, PhD student perusing research as Fullbright Scholar under the aegis of US India Fullbright Nehru Research Scholarship at University of Georgia, USA 2011-2012.
5. Mr. Vinod Kr. Yata (07610608) has completed PhD thesis defence on 23rd March 2012 under the guidance of Dr. S. S. Ghosh. His thesis is entitled, "Suicide Enzymes: Purification, Characterization and Encapsulation for Therapeutic Implications".
6. Atomic Force Microscopy images of hen lysozyme protein acquired by Prof. R. Swaminathan's Ph.D. student, Vijay K. Ravi using AFM at IIT Guwahati has appeared on the cover page of *Advances in Protein Chemistry and Structural Biology*, Vol. 84, R. Donev (Editor), Academic Press, 2011.

FACULTY MEMBERS**B. Anand**

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Structural Biology, Bioinformatics and Computational Biology, RNA Biology, Molecular Evolution

U. Bora

PhD (Institute of Genomics and Integrative Biology, Delhi)
Associate Professor

Areas of Interest: Biomaterials, Nanotechnology, Drug Delivery and Tissue Engineering

B. Bose

PhD (AIIMS, New Delhi)
Assistant Professor

Areas of Interest: Cell Signalling, Computational Biology, Recombinant Proteins

R. Chaturvedi

PhD (University of Delhi, Delhi)
Associate Professor

Areas of Interest: Plant Cell, Tissue and Organ Culture, Protoplast Isolation and Regeneration, Isolation, Purification and Characterisation of Plant Secondary Metabolites

N. Chaudhary

PhD (Centre for Cellular and Molecular Biology, Hyderabad)
Assistant Professor

Areas of Interest: Peptide self-assembly and amyloid aggregates, Peptide-membrane interactions, Curvature inducing proteins

D. Das

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Metabolic Engineering, Biochemical Engineering, Modelling of Fermentation Process, Biofuel

V.V. Dasu

PhD (IIT Madras)
Associate Professor

Areas of Interest: Bioprocess Development (upstream to downstream), Metabolic Engineering, Bioenergy

V.K. Dubey

PhD (Benaras Hindu University, Varanasi)
Associate Professor

Areas of Interest: Protein Biochemistry; Parasite Biochemistry

S.S. Ghosh

PhD (Indian Institute of Chemical Biology, Kolkata)
Associate Professor

Areas of Interest: Gene Therapy, Expression Cloning (Mammalian Systems), Nanobiotechnology

P. Goswami

PhD (NEIST, CSIR, Jorhat)
Professor

Areas of Interest: Biocatalysis, Biosensor, Enzymatic Biofuel cell, and Biotransformation

A. Goyal

PhD (IIT Kanpur)
Professor and Head of the Department

Areas of Interest: Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate active enzymes and other industrial microbial enzymes

B.G. Jaganathan

PhD (Frankfurt University, Germany)

Assistant Professor

Areas of Interest: Mesenchymal Stem Cells (Biology, For Tissue repair, In health and disease), Cell Therapy, Rho GTPases and Haematopoietic Stem Cells**A.M. Limaye**

PhD (IISc Bangalore)

Assistant Professor

Areas of Interest: Molecular endocrinology, Cancer biology, Gene expression and regulation in Eukaryotic and Prokaryotic systems**B. Mandal**

PhD (IIT Kharagpur)

Assistant Professor

Areas of Interest: Cell based tissue engineering, Biomaterials, Stem cells, Drug delivery systems**K. Pakshirajan**

PhD (IIT Madras)

Associate Professor

Areas of interest: (a) Environmental Biotechnology: biological removal of organic and inorganic pollutants from water and wastewaters (b) Biotechnological Products and Process Engineering: production, characterization and properties, process design, kinetics and optimization (c) Biohydrometallurgy and (d) Biofuels**S. Patra**

PhD (Central Food Technological Research Institute, Mysore)

Assistant Professor

Areas of Interest: Enzymes - applications in Pharma and Food Sector**V. Ramakrishnan**

PhD (IIT Bombay)

Assistant Professor

Areas of Interest: Computational Biology, Bioinformatics, Biophysics, Bio-Organic Chemistry, Bio-nanotechnology**A. Ramesh**

PhD (Central Food Technological Research Institute, Mysore)

Associate Professor

Areas of Interest: Nanobiotechnology, Molecular Microbiology**L. Rangan**

PhD (M.S. Swaminathan Research Foundation, Chennai,

International Rice Research Institute, Philippines)

Associate Professor

Areas of Interest: Molecular Systematics, Biofuel, IPR**L. Sahoo**

PhD (Maharshi Dayanand University, Rohtak)

Associate Professor

Areas of Interest: Genetic Engineering and Functional Genomics of plants**G.K. Saini**

PhD (Andhra University, Visakhapatnam)

Assistant Professor

Areas of Interest: Fungal Biotechnology, Biological Control, DNA fingerprinting and Transformation studies, Studies on extracellular enzymes and toxic metabolite production, Development of a potent biopesticide**S. Senthilkumar**

PhD (Central Leather Research Institute, Chennai)

Assistant Professor

Areas of Interest: Bioprocess Analytical Technology (BioPAT), Biocalorimetry, Bioprocess Monitoring and Control, Environmental Bioprocess Systems**R. Swaminathan**

PhD (Tata Institute of Fundamental Research, Mumbai) Professor

Areas of Interest: Spectroscopic and computational approaches to investigate the following—Intrinsically Disordered Proteins: Their identity and prevalence in the Proteome, Protein Aggregation: Their mechanisms and approaches to inhibit aggregation, Biochemical consequences of Macromolecular Crowding inside living cells**R. Tamuli**

PhD (Centre for Cellular and Molecular Biology, Hyderabad)

Assistant Professor

Areas of Interest: Calcium Signalling, Identification of novel cancer relevant genes**V. Trivedi**

PhD (Jawaharlal Nehru University, New Delhi)

Assistant Professor

Areas of Interest: Intracellular Signalling in *Plasmodium falciparum*

DEPARTMENT OF CHEMICAL ENGINEERING

INTRODUCTION

Chemical Engineering Department was started in 2002 with BTech course and PhD programme. MTech course with specialisation in Petroleum Refinery Engineering was started in 2004. The Department is fully supported by 26 faculty members and 11 staff members. The Department comprises of about 7 laboratories for the undergraduates. In addition, the Department is equipped with excellent analytical instruments, computer facilities and research laboratories for the postgraduates and the research scholars. Our mission is to impart Chemical Engineering principles to the young graduates, to motivate and develop the students' intellectual skills and to promote extensive research in Chemical Engineering which supports the academic objectives, industrial needs and the socio-economic development of our country.

ACADEMIC ACTIVITIES

Started in 2002, the Department is a major academic host offering all degree programmes such as BTech, MTech and PhD in Chemical Engineering. The Department offers two specialisations in the master degree course viz. (1) Petroleum Science and Technology and (2) Materials Science and Technology. Bachelor degree in Chemical Engineering follows an eight semester system. The curriculum is designed to impart fundamental principles as well as recent advancements in Chemical Engineering. The syllabi include Humanities, Computer, Mechanical, and Chemical engineering sciences. The students are encouraged to do a two semester thesis work (semesters VII and VIII) to get an insight into the realistic industrial problems and to find a suitable solution methodology. To enhance their skills, the undergraduate students are motivated to attend various workshops and undergo summer training. The master degree courses follow a four semester system. In the first two semesters, the postgraduate students are exposed to advanced common courses of Chemical Engineering as well as specialisation related courses. The curriculum involves one year thesis work (semesters III and IV) which

includes fundamental and applied research. The doctoral programme requires a minimum necessity of taking four course work for master (MTech) degree holder and six course work for bachelor (BTech) degree holder in the first two semesters. After the completion of course work, the doctoral students have to appear for the PhD comprehensive examination. The research scholar is further allowed to carry out his/her research work after successful completion of the PhD comprehensive examination. The exceptional candidates in Masters' degree programme are encouraged to be inducted in our doctoral program in their second year of Masters' degree. The maximum duration for the doctoral programme is about four years.

STUDENT INTAKE

BTech Students admitted in 2011-2012	: 64
MTech Students admitted in 2011-2012	: 51
PhD Students admitted in 2011-2012	: 23

FACULTY STRENGTH

Professor	: 01
Associate Professor	: 12
Assistant Professor	: 13
Total	: 26

MAJOR EQUIPMENT AND FACILITIES

- i) Interfacial Rheometer
- ii) High performance liquid chromatography
- iii) Elipsometer
- iv) FTIR
- v) Delsa Nano

RESEARCH AND DEVELOPMENT ACTIVITIES

Presently, the Department is endowed with young, vibrant and dynamic faculty well qualified to impart high quality teaching and research in conventional and frontier areas of Chemical Engineering and Refinery Engineering. The major research areas include

Catalysis and Reaction Engineering, Process Systems Engineering, Transfer Operations, Fluid Dynamics, Refinery Engineering, Thermodynamics, Environmental

Engineering, Fuel Cells etc. Also, the faculty of the department are actively involved in various sponsored and consultancy projects from the external agencies.

RESEARCH PROJECTS

a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration (years)
R. Uppaluri	Fabrication of low cost dense Palladium composite membranes for hydrogen energy applications	DST	19.42	Anil Verma	2011 - 2014
R. Uppaluri	Preparation and Characterization of low cost silver-ceramic composite membranes for bacteriostatic and drinking water treatment applications	CSIR	12.96	-	2011 - 2014
R. Uppaluri	Development of Low cost ceramic membranes for juice clarification	DBT	18.87	-	2011 -2014
P. Ghosh	Development of plant prototype for removal of ammonia, arsenic and odorous compounds from water/ wastewater by ozone microbubbles	DST	17	S. K. Majumder	2010-2011
P. Ghosh	Stabilization of soft colloidal dispersions by mixed-surfactants: experimental and theoretical studies	CSIR	11	-	2012-2015
Rajesh K. Upadhyay	Design and Fabrication of Membrane based Hydrogen Separator	Ministry of Defense (DRDO)	48	-	18 Months
Rajesh K. Upadhyay	Visualization of Pebbles Movement in Advanced High temperature Nuclear Reactor by using Radioisotopes Techniques	Department of Atomic Energy (BRNS)	19.985	-	36 Months
S. Gumma	Assessment of Metal Nanostructures for Hydrogen Storage	CSIR	17	Anil Verma	2 years
S. K. Majumder	Process intensification of flotation by ionic microbubbles	CSIR	10.86	P. Ghosh	2012-2015
T. K. Mandal	Flow characterization and intensification of pressure drop reduction of heavy crude oil-water two-phase flow through inclined conduit	CSIR	12.46	S. K. Majumder	2012-2015

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration (years)
K. Mohanty	Optimized Production of Bioethanol and Biohydrogen from Lignocellulosic Biomass in a Fluidized Bed Reactor	CSIR	16.51	V.V. Goud	2010-2013
K. Mohanty	Concentration of Biogas Slurry to Preserve Microorganisms in the Inoculum by Novel Separation Techniques	DRL, Tezpur (DRDO)	6.84	C. Das	2010-2012
K. Mohanty	Novel Supported Ionic Liquid Membrane for the Extraction of Endocrine Disrupting Chemicals from Aqueous Solutions	DST	16.39	-	2010-2013
G. Pugazhenthii	Development and characterization of low cost ceramic composite membranes for separation of dyes from aqueous solution	DST	19.60	-	2010-2013
Ashok Kumar Dasmahapatra	Investigation of Diblock Copolymer Crystallization by Molecular Simulation	SERC-DST	30.02	-	3 years
Chandan Das	Mass Transfer Operations I (Web course) under PIC of NPTEL Phase II	MHRD	7.0	S. K. Majumder	2010-2012
M.K. Purkait	Treatment of contaminated drinking water using electrocoagulation technique	DRDO	9.6	Chandan Das	2010-2012
S. K. Majumder	Process intensification of flotation by ionic microbubbles	CSIR	10.86	P. Ghosh	2012-2015
T. K. Mandal	Flow characterization and intensification of pressure drop reduction of heavy crude oil-water two-phase flow through inclined conduit.	CSIR	12.46	S. K. Majumder	2012-2015
S. K. Majumder	Process intensification in drag reduction in high viscous multi phase flow through pipeline	CSIR	10.42	T. K. Mandal	2010-2013
P. Ghosh	Development of plant prototype for removal of ammonia, arsenic and odorous compounds from water/wastewater by ozone microbubbles	DST	17.00	S. K. Majumder	2010-2011

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration (years)
R. Uppaluri	Optimization of Mass Transfer Enhanced Electroless Plating Parameters for Metal Composite Membrane Fabrication	CSIR	12.73	M. K. Purkait	2008 - 2011
A. K. Golder	Toxic metal hazard from sludge generated during reduction of Cr(VI) from waste water by zero-valent iron (Fe ⁰)	IITG (Startup Grant)	4.6	-	24 months
Tamal Banerjee	Simultaneous Desulphurization and Denitrification of Diesel oil using Ionic Liquids with Quantum Chemical Prediction and Validation	DST	17.6	-	3 years
Bishnupada Mandal	Synthesis gas purification by CO ₂ -selective polymeric membranes	DST	28.72	-	May 2008 to Nov 2011

CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (₹ in Lakh)	Co-Investigator	Duration (years)
P. Ghosh	Colloid and Interface Science under the project entitled Developing suitable pedagogical methods for various classes, intellectual calibres and e-learning	MHRD	8	Dipankar Bandyopadhyay	-
P. Ghosh	Numerical Methods for Chemical Engineers under the project entitled Developing suitable pedagogical methods for various classes, intellectual calibres and e-learning	MHRD	8	Tamal Banerjee	-
G. Pugazhenthii	Sea Water Reverse Osmosis (SWRO) Membrane Cleaning Characterization	ABB Global Industries & Services Ltd., Bangalore	7.56	Chandan Das	2010-2011
S. K. Majumder	Development of we course 'Mass Transfer Operation-I'	MHRD	7	Chandan Das	-

RESEARCH PUBLICATIONS**Journals International / National**

S. Jana, M.K.Purkait, K. Mohanty

'Clay supported polyvinyl acetate coated composite membrane by modified dip coating method: Application for the purification of lysozyme from chicken egg white', *J. Membr. Sci.*, 382, 243-251, 2011

M. Ghaedi, H. Hossainian, A. Shokrollahi, F. Shojapour, M. Soylak, M.K. Purkait

'A novel acorn based adsorbents for the removal of brilliant green', *Desalination*, 281, (2011) 226-233.

V.K. Bulasara, R. Uppaluri, M.K. Purkait

'Manufacture of nickel-ceramic composite membranes in agitated electroless plating baths', *Materials and Manufacturing Processes*, 26(6), 862-867, 2011

D. Ghosh, C.R. Medhi, M.K. Purkait

'Techno economic analysis for the electrocoagulation of fluoride contaminated drinking water', *Toxicological & Environmental Chemistry*, 93 (3), 424-437, 2011

V.K. Bulasara, H. Thakuria., R. Uppaluri, M.K. Purkait

'Combinatorial performance characteristics of agitated nickel hypophosphite electroless plating baths', *J. Mat. Processing Technol.*, 211, 1488-1499, 2011

S. Jana, Anirban Saikia, M.K. Purkait, K. Mohanty

'Chitosan based ceramic ultrafiltration membrane: Preparation, characterization and application to remove Hg(II) and As(III) using polymer enhanced ultrafiltration', *Chemical Engineering Journal*, 170, 209–219, 2011

A. Goswami, M.K. Purkait

'Kinetic and equilibrium study for the fluoride adsorption using pyrophyllite', *Sep. Sci Technol.*, 46(11), 1797-1807, 2011

V.K. Bulasara, H. Thakuria., R. Uppaluri, M.K. Purkait

'Nickel-ceramic composite membranes: Optimization of hydrazine based electroless plating process parameters', *Desalination*, 275, 243–251, 2011

V. Singh, M.K.Purkait, C. Das

'Cross flow Ultrafiltration of Industrial Oily Wastewater: Experimental and Theoretical Consideration', *Sep. Sci Technol.*, 46(8), 1213-1223, 2011

V.K. Bulasara, H. Thakuria., R. Uppaluri, M.K. Purkait

'Effect of process parameters on electroless plating and nickel-ceramic composite membrane characteristics', *Desalination*, 268, 195–203, 2011

Somen Jana, M K Purkait, Kaustubha Mohanty

'Preparation and Characterizations of Ceramic Microfiltration Membrane: Effect of Inorganic Precursors on Membrane Morphology', *Sep. Sci. and Technol.*, 46, 33–45, 2011

B. K. Nandi, R. Uppaluri, M.K. Purkait

'Identification of optimal membrane morphological parameters during microfiltration of mosambi juice using low cost ceramic membranes', *LWT - Food Sci and Technol.*, 44 (1), 214-223, 2011

A. Goswami, J. Nath, M.K. Purkait

'Cloud Point Extraction Of Nitrobenzene Using TX-100', *Sep. Sci. Technol.*, 46(5), 744-753, 2011

Hekmati, M. Ghaedi, S. Khodadoust, R. Sahraei, A. Daneshfar, A. Mihandoost, M.K. Purkait

'Cadmium telluride nanoparticles loaded on activated carbon as adsorbent for efficient removal of sunset yellow', *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 90, 22-27, 2012

A. Goswami, P. K. Raul and M. K. Purkait

'Arsenic adsorption using copper (II) oxide nanoparticles', *Chem Eng Res Des.*, doi:10.1016/j.cherd.2011.12.006

V. K. Bulasara, M. S. Abhimanyu, T. Pranav, R. Uppaluri and M.K. Purkait

'Performance characteristics of hydrothermal and sonication assisted electroless plating baths for nickel-ceramic composite membrane fabrication', *Desalination*, 284, 77-85, 2012

S. Jana, M.K. Purkait, K. Mohanty

'Polymer enhanced ultrafiltration of mercury using chitosan impregnated ceramic membrane', *Desalination and water treatment*, 37, 321-330, 2012

V. Dinesh Kumar, D. Maity, M.K. Purkait

'Prediction of flux decline during membrane filtration of leather plant effluent', *Int. J. Env. Waste Manage*, 9(1/2), 123–140, 2012

V.K. Bulasara, R. Uppaluri, M.K. Purkait

'Effect of ultrasound on the performance of nickel hydrazine electroless plating baths', *Materials and Manufacturing Processes*, 27, 201-206, 2012

B. Pradhan, S. Murugavelh, K. Mohanty

'Phenol Biodegradation by Indigenous Mixed Microbial Consortium: Kinetics of Growth and Inhibition', *Environmental Engineering Science*, 29, 86-92, 2012

- S. Jana, M. K. Purkait, K. Mohanty
'Polymer enhanced ultrafiltration of mercury using chitosan impregnated ceramic membrane', *Desalination and Water Treatment*, 37, 321-330, 2012
- P. Mittal, S. Jana, K. Mohanty
'Synthesis of Low-Cost Hydrophilic Ceramic-Polymeric Composite Membrane for Treatment of Oily Wastewater', *Desalination*, 282, 54-62, 2011
- S. Sasmal, V.V. Goud, K. Mohanty
'Optimization of the acid catalyzed pretreatment of areca nut husk fiber using the Taguchi design method', *Biosystems Engineering*, 110, 465-472, 2011
- L. Kumar, T. Banerjee, K. Mohanty
'Prediction of selective extraction of Cresols from aqueous solutions by ionic liquids using theoretical approach', *Separation Science and Technology*, 43, 2075-2087, 2011
- V. Venugopal, K. Mohanty
'Biosorptive uptake of Cr(VI) from aqueous solutions by Parthenium hysterophorous weed: Equilibrium, kinetics and thermodynamic studies', *Chemical Engineering Journal*, 174, 151-158, 2011
- S. Jana, M. K. Purkait, K. Mohanty
'Clay supported polyvinyl acetate coated composite membrane by modified dip coating method: Application for the purification of lysozyme from chicken egg white', *Journal of Membrane Science*, 382, 243-251, 2011
- S. Kondapalli, K. Mohanty
'Influence of Temperature on Equilibrium, Kinetic and Thermodynamic Parameters of Biosorption of Cr(VI) onto Fish Scales as Suitable Biosorbent', *Journal of Water Resource and Protection*, 3, 429-439, 2011
- B. K. Nandi, R. Uppaluri and M. K. Purkait
'Identification of optimal membrane morphological parameters during microfiltration of mosambi juice using low cost ceramic membranes', *LWT-Food science and Technology*, 44(1), 214-223, 2011
- B. K. Nandi, B. Das, R. Uppaluri
'Clarification of Orange Juice using Ceramic Membrane and Evaluation of Fouling Mechanism', *Journal of Food Process Engineering*, DOI:10.1111/j.1745-4530.2010.00597
- P. K. Bikkina, Shoham and R. Uppaluri
'Equilibrated Interfacial Tension Data of CO₂-Water System at High Pressures and Moderate Temperatures', *Journal of Chemical and Engineering Data*, 56, 3725-3733
- R. P. Chopade, E. Agnihotri, A. K. Singh, A. Kumar, R. Uppaluri, S. C. Mishra and P. Mahanta
'Application of particle swarm algorithm for parameter retrieval in a transient conduction radiation problem', *Numerical Heat Transfer*, 59(9), 672-692, 2011
- D. Vasanth, G. Pugazenthi and R. Uppaluri
'Fabrication and properties of low cost ceramic microfiltration membranes for separation of oil and bacteria from its solution', *Journal of Membrane Science*, 379 (1-2), 154-163, 2011
- V. K. Bulasara, Mahesh Babu Ch. S. N., R. Uppaluri
'Effect of surfactants on the performance of electroless plating baths for nickel-ceramic composite membrane fabrication', *Surface Engineering*, 27(7), DOI: 1179/1743294411Y.0000000035
- V. K. Bulasara, R. Uppaluri, H. Thakuria and M. K. Purkait
'Combinatorial performance characteristics of agitated nickel hypophosphite electroless plating baths', *Journal of Material Process Technology*, 211(9), 1488-1499, 2011
- Vimal Katiyar and Hemant Nanavati
'More cost-effective, superior biodegradable food packaging', *Plastic Research Online*, DOI: 10.1002/spepro.003699 (published online)
- Dipankar Bandyopadhyay, P. Dinesh Sankar Reddy, Ashutosh Sharma, Sang Woo Joo, Shizhi Qian
'Electro-Magnetic Field Induced Flow and Interfacial Instabilities in Confined Stratified Liquid Layers', *Theor. Comp. Flu. Dyn.*, 26, 23-28, 2012
- Bahni Ray, Dipankar Bandyopadhyay, Sang Woo Joo, Ashutosh Sharma, Shizhi Qian, Gautam Biswas
'Surface instability of a thin electrolyte film undergoing coupled electroosmotic and electrophoretic flows in a microfluidic channel', *Electrophoresis*, 32, 1-11, 2011
- Gaurav Tomar, Dipankar Bandyopadhyay and Ashutosh Sharma
'Instabilities of soft elastic micro-tubes filled with viscous fluids: pearls, wrinkles and sausage-strings', *Physical Review*, E 84, 031603, 2011
- Bahni Ray, P. Dinesh Sankar Reddy, Dipankar Bandyopadhyay, Sang Woo Joo, Ashutosh Sharma, Shizhi Qian, Gautam Biswas
'Instabilities in free-surface electro-osmotic flows', *Theor. Comp. Flu. Dyn*, DOI 10.1007/s00162-011-0234-x, 2011
- Lin Xu, Dipankar Bandyopadhyay, Tongfei Shi, Lijia An, Ashutosh Sharma, and Sang Woo Joo

- 'Switching of Interfacial Instabilities from the Polymer-air Interface to the Polymer-polymer Interface in a Thin Bilayer', *Soft Matter*, 7, 8056-8066, 2011
- Lin Xu, Dipankar Bandyopadhyay, Tongfei Shi, Lijia An, Ashutosh Sharma, and Sang Woo Joo
'Dewetting Kinetics on Polymer Substrates by Thickness Variation of the Underlayer', *Polymer*, 52, 4345-4354, 2011
- Sibnath Kayal, Dipankar Bandyopadhyay, Tapas Kumar Mandal, Raju V. Ramanujan
'Flow of Magnetic Nanoparticles in Magnetic Drug Targeting', *Royal Society Advances*, 1, 238-246, 2011
- P. Dinesh Sankar Reddy, Dipankar Bandyopadhyay, Sang Woo Joo, Ashutosh Sharma, Shizhi Qian
'Parametric study on instabilities in a two-layer electromagneto-hydrodynamic channel flow confined between two parallel electrodes', *Phys. Rev.*, E 83, 036313, 2011
- D. Vasanth, R. Uppaluri and G. Pugazhenthhi
'Influence of Sintering Temperature on the Properties of Porous Ceramic Support Prepared by Uniaxial Dry Compaction Method using Low Cost Raw Materials for Membrane Applications', *Separation Science and Technology*, 46, 1241-1249, 2011
- P. Monash and G. Pugazhenthhi
'Addition of TiO₂ on the properties of ceramic membrane supports and its influence on the separation of oil and BSA protein from its solution', *Desalination*, 279, 104-114, 2011
- D. Vasanth, G. Pugazhenthhi and R. Uppaluri
'Biomass Assisted Microfiltration of Chromium(VI) Using Backer's Yeast by Ceramic Membrane Prepared from Low Cost Raw Materials', *Desalination*, 285, 239-244, 2012
- Balakrushna Sahu and G. Pugazhenthhi
'Characterisation of Polystyrene (PS)/Organomodified Layered Double Hydroxide (LDH) Nanocomposites Prepared by in situ Polymerization', *Advanced Materials Research*, 410, 164-167, 2012
- G. Sangeetha Rani, Murali Krishna Beera and G. Pugazhenthhi
'Development of Sulfonated poly (ether ether ketone) (SPEEK)/Zirconium Titanium Phosphate (ZTP) Composite Membranes for Direct Methanol Fuel Cell', *Journal of Applied Polymer Science*, 124, E45-E56, 2012
- N. Kishore
'Flow and drag phenomena of tandem spheroid particles at finite Reynolds numbers', *Ind. Eng. Chem. Res.*, 51, 3186-3196, 2012
- N. Kishore and S. Gu
'Effect of blockage on heat transfer phenomena of spheroid particles at moderate Reynolds and Prandtl numbers', *Chem. Eng. Tech.*, 34, 1551-1558, 2011
- S. Samanta and P. Ghosh
'Coalescence of bubbles and stability of foams in Brij surfactant systems', *Ind. Eng. Chem. Res.*, 50, 4484-4493, 2011
- C. Sudulagunta and P. Ghosh
'Coalescence of bubbles in aqueous mixed surfactant-alcohol systems', *Bubble Sci. Eng. Tech.*, 3, 20-29, 2011
- R. C. Borah, P. Ghosh and P. G. Rao
'A review on devolatilization of coal in fluidized bed', *International J. Energy Research*, 35, 929-963, 2011
- S. Samanta and P. Ghosh
'Coalescence of air bubbles in aqueous solutions of alcohols and nonionic surfactants', *Chem. Eng. Sci.*, 66, 4824-4837, 2011
- S. Samanta and P. Ghosh
'Coalescence of bubbles and stability of foams in aqueous solutions of Tween surfactants', *Chem. Eng. Res. Des.*, 89, 2344-2355, 2011
- A. Srinivas and P. Ghosh
'Coalescence of bubbles in aqueous alcohol solutions', *Ind. Eng. Chem. Res.*, 51, 795-806, 2012
- S. Patra and P. Saha
'Modeling and Control of a Complex Interacting Process', *Advanced Materials Research*, 403-408, 3758-3762, 2011
- Nirmal Ravi Varma, G. Gopal, R. Anantharaj, Tamal Banerjee
'Solid liquid equilibria predictions of ionic liquid containing systems using COSMO-RS', *The Journal of Chemical Thermodynamics*, 48, 246-253, 2012
- R. Anantharaj and Tamal Banerjee
'Phase Behaviour of Catalytic Deactivated Compounds and Water with 1-Ethyl-3-Methylimidazolium Acetate {[EMIM][OAc]} Ionic Liquid at T=(298.15 to 323.15) K and p=1 bar", *Journal of Industrial Engineering and Chemistry*, 18, 331-343, 2012
- Debashis Kundu and Tamal Banerjee
'Multicomponent Vapor-Liquid-Liquid Equilibrium

- Prediction using an a-priori Segment based Model', *Industrial Engineering Chemistry Research*, 50, 14090–14096, 2011
- R. Anantharaj and Tamal Banerjee
'Physiochemical Properties of Hydrodenitrification and Hydrodesulphurization Inhibiting Compounds with 1-Ethyl-3-Methylimidazolium Ethylsulphate at T=(298.15 to 323.15)K and p=1 Bar', *Journal of Thermodynamics*, DOI:10.1155/2011/978324, 2011
- L. Kumar, Tamal Banerjee, K. Mohanty
'Prediction of Selective Extraction of Cresols from Aqueous Solutions by Ionic Liquids Using Theoretical Approach', *Separation Science and Technology*, 46, 2075-2087, 2011
- R. Anantharaj and Tamal Banerjee
'Fast Solvent Screening for the Simultaneous Hydrodesulfurization and Hydrodenitrification of Diesel Oil Using Ionic Liquids', *J. Chem. Eng. Data*, 56, 2770-2785, 2011
- R. Anantharaj and Tamal Banerjee
'Prediction and Validation of Carbon Dioxide Gas Solubility in Ionic Liquids at T=298K and Atmospheric Pressure using Quantum Chemical Approach', *Chemical Product and Process Modeling*, 6 (1), 20, 2011, DOI: 10.2202/1934-2659.1576
- Ramalingam Anantharaj and Tamal Banerjee
'Phase Behaviour of 1-Ethyl-3-methylimidazolium Thiocyanate Ionic Liquid with Catalytic Deactivated Compounds and Water at Several Temperatures: Experiments and Theoretical Predictions', *International Journal of Chemical Engineering*, DOI:10.1155/2011/209435, 2011
- R. Anantharaj and Tamal Banerjee
'Liquid-Liquid Equilibria for Quaternary Systems of Imidazolium based Ionic Liquid + Thiophene + Pyridine + Iso-octane at 298.15 K: Experiments and Quantum Chemical Predictions', *Fluid Phase Equilibria*, 312, 20-30, 2011
- S. Pandian, S. Gokhale, A.K. Ghoshal
'An open-terrain line source model coupled with street-canyon effects to forecast carbon monoxide at traffic roundabout', *Science of the Total Environment*, 409, 1145-1153, 2011
- S. K. Chattopadhyay, S. Singh, N. Pramanik, U. K. Niyogi, R. K. Khandal, R. Uppaluri, A. K. Ghoshal
'Biodegradability Studies on Natural Fibers Reinforced Polypropylene Composites', *Journal of Applied Polymer Science*, 121, 2226–2232, 2011
- R. Kumar, N. Sahoo, V. Kulkarni and Anugrah Singh
'Laser based calibration technique of thin film gauges for short duration transient measurements', *J. Thermal Sc. & Engg. Appln.*, 3, 044504:1-6, 2011
- M. Eswaram, Anugrah Singh and U.K. Saha
'Experimental measurements of the surface velocity field in an externally induced sloshing tank', *J. Engg. Meritime Env.*, 225, 133-148, 2011
- M. Hafiz, O.K. and Anugrah Singh
'CFD simulation of laser enhanced modified chemical vapor deposition process', *Chem. Engg. Res. Design*, 89, 593-602, 2011
- B. J. Medhi, A. Ashok Kumar and Anugrah Singh
'Apparent wall slip velocity measurements in free surface flow of concentrated suspensions', *Int. J. Multiphase Flow*, 37, 609-619, 2011
- M.K. Gagrai, S. Khuntia, C. Das and A.K. Goldert
'Effect of background ions on reduction of Cr (VI) to Cr (III) using saline water algae', *Res. J. Chem. Environ.*, 15 (2), 450-453, 2011
- V. Singh, M.K. Purkait and Chandan Das
'Cross flow microfiltration of industrial oily wastewater: experimental and theoretical consideration', *Sep. Sci. Technol.*, 46, 1213-1223, 2011
- PVVV Prasad, C. Das and A.K. Golder
'Reduction of Cr(VI) to Cr(III) and removal of total chromium from wastewater using scrap iron in the form of zerovalent iron (ZVI): Batch and column studies', *The Canadian J. Chem. Eng.*, 89 (6), 1575-1582, 2011
- P. Mishra, S. Jedidah, F. Dreisbach, B. Mandal and S. Gumma
'Adsorption of CO₂, CO, CH₄ and N₂ on a Zinc based Metal organic Framework', *Separation and Purification Technology*, DOI: 10.1016/j.seppur.2011.09.041, 2011
- P. Chowdhury, S. Mekala, F. Dreisbach and S. Gumma
'Adsorption of CO₂, CO and CH₄ on Cu-BTC and MIL-101: Effect of Open Metal Sites and Adsorbate Polarity', *Microporous and Mesoporous Materials*, 152, 246-252, 2012
- S. Sen, V.V. Dasu and B. Mandal
'Characterization of a novel surfactant and organic solvent stable high-alkaline protease from new Bacillus

Pseudofirmus SVB1', *Research Journal of Microbiology*, 6, 769-783, 2011

M. Sivaiah, R. Parmar and S. K. Majumder
'Gas entrainment and holdup characteristics in a modified gas-liquid-solid down flow three-phase contactor', *Powder Technology*, 217, pp. 451-461, 2012

S. K. Patel and S. K. Majumder
'Frictional pressure drop of an additive based non-Newtonian flow in packed bed', *Special Topics and Reviews in Porous Media*, 3 (3), pp. 97-106, 2012

M. K. Singh and S. K. Majumder
'Co- and Counter-current mass transfer in bubble column', *International Journal of Heat and Mass Transfer*, 54, pp. 2283–2293, 2011

S. K. Patel and S. K. Majumder
'Interfacial stress in non-Newtonian flow through packed bed', *Powder Technology*, 211, pp. 127-134, 2011

D. Vasanth, G. Pugazhenthii and R. Uppaluri
'Fabrication and Properties of Low Cost Ceramic Microfiltration Membranes for Separation of Oil and Bacteria from its Solution', *Journal of Membrane Science*, 379, pp. 154-163, 2011

P. Mishra, S. Jedidah, F. Dreisbach, B. Mandal and S. Gumma
'Adsorption of CO₂, CO, CH₄ and N₂ on a Zinc based Metal organic Framework', *Separation and Purification Technology*, DOI: 10.1016/j.seppur.2011.09.041, 2011

L. M. Aeshala, S. U. Rahman, A. Verma
'Effect of solid polymer electrolyte on electrochemical reduction of CO₂', *Separation and Purification Technology*, DOI: 10.1016/j.seppur.2011.12.030, 2011

B. K. Kakati, D. Sathiyamoorthy, A. Verma
'Semi-empirical modelling of electrical conductivity for composite bipolar plate with multiple reinforcements', *International Journal of Hydrogen Energy*, 36, pp. 14851-14857, 2011

N. Shrotri, L. Barbora, and A. Verma
'Neodymium triflate modified nafion composite membrane for reduced alcohol permeability in direct alcohol fuel cell', *International Journal of Hydrogen Energy*, 36, pp. 14907-14913, 2011

N. Kishore
'Numerical Investigation of Interaction between Spheroid Particles in Tandem Arrangement at Moderate

Reynolds Numbers', *Industrial and Engineering Chemistry Research*, 51, pp. 10265-10273, 2012

Monographs

S. Samanta and Pallab Ghosh
'Coalescence of Bubbles and Stability of Foams', VDM Verlag, Germany, 2011, (ISBN: 9783639364668)

B. K. Kakati and Anil Verma
'Carbon-polymer Composite Bipolar Plate for PEM Fuel Cell: Development, Characterization, and Performance Evaluation', LAMBERT Academic Publishing, Germany, 2011 (ISBN: 9783846503119)

Conference/Workshop/Seminar/Symposia

M.K. Gagrai, S. Khuntia, C. Das and A.K. Golder
'Effect of background ions on reduction of Cr (VI) to Cr (III) using saline water algae', 5th International Congress of Chemistry and Environment (ICCE-2011), 27-29 May 2011, Kuching, Sarawak, Malaysia

M.K. Gagrai, C. Das and A.K. Golder
'Study on the mechanism of aqueous Cr(VI) sorption by Spirulina platensis biomass', Microbes in Wastewater & Waste Treatment, Bioremediation and Energy Production (MWT 2011) 24 -27 January 2011, BITS Goa

M.K. Gagrai, C. Das, Animes Kumar Golder
'Cr(III) Biosorption by a Saline Microalgae Spirulina Platensis: Studies on Two Parameters Isotherms', Chemical Engineering Congress (CHEMCON), December 2011, Bangalore

M.K. Gagrai, C. Das, Animes Kumar Golder
'Studies on the Hazardous Nature of Spent Bio-Sludge Laden With Cr(III): Toxicity Characteristic Leaching Procedure : Oxidative Fenton process', Chemical Engineering Congress (CHEMCON), December 2011, Bangalore

A. Giri, A.K. Golder
'Degradation of pharmaceutical from wastewater: Oxidative Fenton process', Chemical Engineering Congress (CHEMCON), December 2011, Bangalore

A. Das, A.K. Golder, C. Das
'Comparison of Microwave Assisted Drying of Aloe Vera with Direct Hot Air Drying, Oxidative Fenton process', Chemical Engineering Congress (CHEMCON), December 2011, Bangalore

Dipankar Bandyopadhyay, P. Dinesh Sankar Reddy,

- Ashutosh Sharma
'Field-assisted Micro/nano Fabrication and Patterning on Soft Surfaces', ICONSAT, 2012
- D. Vasanth, G. Pugazhenthii and R. Uppaluri
'Development of Low Cost Ceramic Microfiltration Membrane from Inexpensive Raw Materials for Bacteria Removal Application', International Conference on Membranes (ICM-2011), 16-19 September 2011, Kottayam, Kerala
- Balakrushna Sahu and G. Pugazhenthii
'Characterization of Polystyrene (PS)/Organomodified Layered Double Hydroxide (LDH) Nanocomposites Prepared by in situ Polymerization', 20th International Symposium on Processing and Fabrication of Advanced Materials (PFAM XX), 15-18 December 2011, Hong Kong
- Vijay Kumar, Manish Kumar and G. Pugazhenthii
'Effect of various solvents on the thermal properties and thermal degradation kinetics of PMMA/organoclay nanocomposites prepared by solvent blending method', 64th Annual Meeting of Indian Institute of Chemical Engineers (CHEMCON 2011), 27-29 December 2011, Bangalore
- D. Vasanth, R. Arvind, Raja Subramanian Ramanathan, A. Arunagiri and G. Pugazhenthii
'Removal of methylene blue dye from aqueous solution using mixed clays adsorbent', 64th Annual Meeting of Indian Institute of Chemical Engineers (CHEMCON 2011), 27-29 December 2011, Bangalore
- P. Monash and G. Pugazhenthii
'Removal of Methyl Orange Dye from its Aqueous Solution using Calcined Ni-Al Layered Double Hydroxide (LDH) Adsorbent', 2nd International Conference on Advances in Mechanical, Manufacturing and Building Sciences (ICAMB- 2012), 9-11 January 2012, VIT University, Vellore, Tamilnadu
- Santhi Raju Pilli, Tamal Banerjee, Kaustubha Mohanty
'Ionic Liquid as Green Solvents for the Extraction of EDCs from Aqueous solutions: A Theoretical Approach', Proceedings of the 64th Annual Session of the Indian Institute of Chemical Engineers, CHEMCON 2011, Bangalore, 27-29 December 2011
- Patra S. and P. Saha
'Modelling and Control of a Complex Interacting Process', International Conference on Management, Manufacturing and Materials Engineering (ICMMM 2011), Zhengzhou, China, 8-10 December 2011
- M. S. Manna, K. Bhatluri, P. Saha and A. K. Ghoshal
'Liquid Membrane Based Separation and Recovery of Catechin (+C), a Bioactive Compound', International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), 24-26 February 2012, Guwahati
- K. Bhatluri, M.S. Manna, P. Saha and A.K. Ghoshal
'Separation of Cd(II) from Wastewater using Environmentally Benign Vegetable Oil as Liquid Membrane', International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), 24-26 February 2012, Guwahati
- Vimal Katiyar
'Poly (L-lactic Acid) based Film Processing for Food Packaging Applications', First Indo-US International conference on Polymers for Packaging Applications (ICPPA 2012), 31 March – 2 April 2012, Kottayam
- Arvind Gupta, Dipankar Bandyopadhyay, Vimal Katiyar
'Polymer Solar Cells, Conference on Photochemistry and Luminescence', CPL 2012, 9-10 March 2012, IIT Guwahati
- Neelima Tripathi, Vimal Katiyar
'Stereo-Poly (lactic acid): New Generation Biodegradable Polymer for Engineering Applications', National conference on Advanced Polymers, Fibers and Fabrics, 26-28 December 2011, DMSRD Kanpur
- J. K. Verma, A. Verma, A. K. Ghoshal
'Performance analysis of solid oxide fuel cells (SOFCs) using reformed fuel', The 3rd International Conference on Fuel Cell and Hydrogen Technology (ICFCHT 2011), 22-23 November 2011, Kuala Lumpur, Malaysia
- S. Khuntia, M.K. Gagrai, C. Das and A.K. Golder
'Effect of background ions on reduction of Cr (VI) to Cr (III) using saline water algae', 5th International Congress of Chemistry and Environment (ICCE-2011), Kuching, Sarawak, Malaysia, 27-29 May 2011
- M.K. Gagrai, C. Das and A.K. Golder
'Biological reduction and removal of Cr(vi) with microbial consortia collected from local water treatment plant', IWA Regional Conference on Wastewater Purification and Reuse (WWPR 2012), 28-30 March 2012, Heraklion, Crete, Greece
- V. Singh and C. Das
'Study of different pretreatment methods for the clarification of mosambi juice', Indian Chemical Engineering Congress (CHEMCON-2011), 27–29 Dec 2011, M S Ramaiah Institute of Technology, Bangalore

Mahesh Kumar Gagrai, Animes Kumar Golder and Chandan Das

'Cr(III) biosorption by a saline microalgae *Spirulina platensis*: Studies on two parameters isotherms', Indian Chemical Engineering Congress (CHEMCON-2011), 27–29 December 2011, M S Ramaiah Institute of Technology, Bangalore

Mahesh Kumar Gagrai, Chandan Das and Animes Kumar Golder

'Studies on the hazardous nature of spent bio-sludge laden with Cr(III): Toxicity characteristic leaching procedure', Indian Chemical Engineering Congress (CHEMCON-2011), 27–29 December 2011, M S Ramaiah Institute of Technology, Bangalore

Arijit Das, Animes Kumar Golder and Chandan Das

'Comparison of microwave assisted drying of Aloe Vera with direct hot air drying', Indian Chemical Engineering Congress (CHEMCON-2011), 27–29 December 2011, M S Ramaiah Institute of Technology, Bangalore

M. Sivaiah and S. K. Majumder

'Energy efficient entrainment of gas in a modified downflow three-phase reactor', *Proceedings of International Conference on Computational Electronics and Nanotechnology*, Amity Univeristy, Rajasthan, pp. 330-337, 2012

Ashok Kumar Dasmahapatra

'Coil-Globule Transition of Polymer – Tricriticality of Theta', APS March Meeting, 27 February - 2 March 2012, Boston, USA

Book, Chapter, etc.

Kaustubha Mohanty, Mihir K. Purkait (Eds.) *Membrane Technologies and Applications*, pp 522, CRC Press, Taylor & Francis Group, December 2011 (ISBN: 9781439805268)

C. Das and M. K. Purkait

'Micellar-enhanced ultrafiltration and its Application', *Membrane Technologies and Applications*, (Eds.) Kaustubha Mohanty, Mihir K. Purkait, CRC Press, Taylor & Francis Group, December 2011 (ISBN: 9781439805268)

Somen Jana, Mihir Kumar Purkait, and Kaustubha Mohanty

'Preparation and Applications of Zeolite Membranes: A Review', *Membrane Technologies and Applications*, (Eds.) Kaustubha Mohanty, Mihir K. Purkait, CRC Press, Taylor & Francis Group, December 2011 (ISBN: 9781439805268)

Aloke Kumar Ghoshal

'Fundamentals of Liquid Membrane', *Membrane Technologies and Applications*, (Eds.) Kaustubha Mohanty, Mihir K. Purkait, CRC Press, Taylor & Francis Group, December 2011 (ISBN: 9781439805268)

Sumedha Sharma and Kaustubha Mohanty

'Membranes for Fuel Cell Application: Hybrid Organic and Inorganic Membranes', *Membrane Technologies and Applications*, (Eds.) Kaustubha Mohanty, Mihir K. Purkait, CRC Press, Taylor & Francis Group, December 2011 (ISBN: 9781439805268)

S. K. Majumder

Energy Efficiency of Gas-Liquid Two-Phase Contacting Devices, INTECH Publisher, USA

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
K. Mohanty	CHEMCON 2011	Bangalore	27-29 Dec 2011	National
K. Mohanty	ICER 2011	Surat	15-17 Dec 2011	International
K. Mohanty	ICM 2011	Kottayam	16-19 Sep 2011	International
R. Uppaluri	CHEMCON 2011	Bangalore	27-29 Dec 2011	National
A.K. Golder	Delaware Environmental Institute (DENIN) Research Symposium	University of Delaware	12 Jan 2012	International
Vimal Katiyar	ICPPA 2012	Kottayam	31 Mar-2 Apr 2012	International
G. Pugazhenth	20th International Symposium on Processing and Fabrication of Advanced Materials (PFAM XX)	Hong Kong	15-18 Dec 2011	International

P. Saha	11th International Symposium on Process Systems Engineering	Singapore	15-19 Jul 2012	International
P. Saha	ICMMM 2011	Zhengzhou China,	8-10 Dec 2011	International
P. Saha	ENSURE 2012	Guwahati, India	24-26 Feb 2012	National
Rajesh K. Upadhyay	GLS9	Braga, Portugal	26-29 Jun 2011	International
Rajesh K. Upadhyay	Diagnosis of Multi-phase Systems of Petrochemical Plants and waste water Treatment Systems Using Radiotracers Incorporation with Computer Modeling and Simulation	Daejeon, Korea	19-23 Sep 2011	International
Ashok Kumar Dasmahapatra	Rheology of Complex Fluids	IIT Guwahati	6-7 Jan 2012	National
Ashok Kumar Dasmahapatra	APS March Meeting	Boston, USA	27 Feb - 2 Mar 2012	International
Chandan Das	Indian Chemical Engineering Congress (CHEMCON-2011)	Bangalore, India	27-29 Dec 2011	National
Prakash Kotecha	NUiCONE 2011	Ahmadabad	8-10 Dec 2011	International
Prakash Kotecha	CHEMCON 2011	Bangalore	27-29 Dec 2011	National
Prakash Kotecha	Molecular Modeling & Simulation	Mumbai	28 Jan - 1 Feb 2012	National
Prakash Kotecha	Advanced Optimization Through Intelligent Techniques : A Research Perspective	Vellore	1-2 Mar 2012	National
S. K. Majumder	ICCEN-2012	Rajasthan	1-2 Mar 2012	International
S. K. Majumder	PCNE-2011	Guwahati	8-9 Dec 2011	National
Anil Verma	ICFCHT 2011	Kuala Lumpur, Malaysia	22-23 Nov 2011	International
Anil Verma	ESFuelCell2011	Washington DC, USA	7-10 Aug 2011	International
Anil Verma	International Conference on Recent Advances in Chemical Engineering and Technology	Cochin, Kerala	10-12 Mar 2011	International
Anil Verma	ICORE-2011	Tezpur University, Assam	2-4 Nov 2011	International
Anil Verma	International Conference on Advanced Nanomaterials and Nanotechnology	IIT Guwahati	8-10 Dec 2011	International
Anil Verma	CHEMCON 2011	Bangalore	27-29 Dec 2011	National

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
K. Mohanty	Purification of Monoclonal Antibodies using Membrane Cascades	ICM -2011	Kottayam	16-19 Sep 2011
Dipankar Bandyopadhyay	Self-Propulsion of Motors Decorated with Catalytic Metal Nanoparticles	2nd Indo-German Workshop on Advances in Reaction and Separation Processes	Magdeburg, Germany	2012
Dipankar Bandyopadhyay	ElectroMagnetoHydrodynamic and ElectroOsmotic Instabilities of thin liquid films	Advanced Instability Methods	Mumbai	2012
Dipankar Bandyopadhyay	Self-propulsion of catalytic motors decorated with nanoparticles: Emulating the voyage of the microorganisms	Dept. of Chemical Engineering, Indian Institute of Technology Hyderabad	Hyderabad	2012
Dipankar Bandyopadhyay	Dynamics of Thin Films: A Journey from Random to Ordered Microstructures	QIP short-term course, Department of Mechanical Engineering, IIT Guwahati	Guwahati	2011
P. Saha	Process Identification	Indian Institute of Technology Madras	Madras	3 Mar 2012
Rajesh K. Upadhyay	Radioactive Particle Tracking Techniques for Investigating Process Hydrodynamics	International Atomic Energy Agency (IAEA) and Bhabha Atomic research Centre (BARC)	New Delhi	18-20 Oct 2011
A. K. Ghoshal	Carbon Capture & New Generation Technology	Centre for Energy, IIT Guwahati	Guwahati	4-10 Jul 2011
A. K. Ghoshal	Application of Environmentally Benign Solvent (Vegetable Oil) in Supported Liquid Membrane based Separation	ICM-2011	Kottayam	16-19 Sep 2011
A. K. Ghoshal	Overview of CO ₂ Emission and Capture	CCS workshop organised by Ministry of Power, GOI	New Delhi	27 Sep 2011
A. K. Ghoshal	Clean Coal Technology: India's Perspective	CII	New Delhi	8 Nov 2011
A. K. Ghoshal	Environmentally Benign Liquid Membrane Technology for Chemical, Pharmaceutical and Medicinal Applications	Second Indo German Workshop on "Advances in Reaction and Separation Processes"	Bad Herrenalb, Germany	20-22 Feb 2012
Prakash Kotecha	Constraint Programming & Combinatorial Optimization	Nirma Universtiy	Ahmadabad	9 Dec 2011
Prakash Kotecha	Constraint Programming: Novel Strategies and Applications to Process Systems Engineering	Indian institute of Chemical Engineers	Bangalore	27 Dec 2011
Anil Verma	Research Activities in Fuel Cell Laboratory	Illinois Institute of Technology, Chicago	Chicago, USA	11 Aug 2011

Anil Verma	Current Research Activities of the Fuel Cell Research Group in Chemical Engineering Department	International Congress on Renewable Energy (ICORE) 2011	Tezpur University, Assam	2 Dec 2011
Ashok Kumar Dasmahapatra	Thermodynamics of Dilute Polymer Solutions	SERC School on Rheology of Complex Fluids	IIT Guwahati	3-5 Jan 2012

SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
R. Uppaluri	CD Cell Workshop on "Optimization Techniques using MATLAB & EXCEL"	QIP Cell, IITG	29 Feb – 2 Mar 2011	National
R. Uppaluri	Virtual Mass Transfer Laboratory Workshop	JNTU, Kakinada	24–25 Mar 2011	National
Ashok Kumar Dasmahapatra	SERC School on Rheology of Complex Fluids	DST	3–5 Jan 2012	National
Anugrah Singh	SERC School on Rheology of Complex Fluids & Sixth National Symposium on Rheology of Complex Fluids	DST	3–5 & 6–7 Jan 2012	National

AWARDS AND HONOURS

1. Dipankar Bandyopadhyay—Visiting faculty at the Yeungnam University, South Korea, June 2011
2. Animes Kumar Golder—BOYSCAST fellowship 2010 2011
3. Tamal Banerjee—INDO-US Fellowship in Engineering Sciences, 2011
4. Prakash Kotecha—IChE Award for the Year 2011, Dr. A. V. Rama Rao Foundation's Best PhD Thesis and Research Award in Chemical Engineering/Technology.
5. Anil Verma—Amar Dye-Chem Award (2011) for Excellence in Research and Development by the Chemical Engineers in India, IChE, in Bangalore during CHEMCON 2011.
6. B.K. Kakati and Anil Verma—best paper award in the 3rd International Conference on Fuel Cell and Hydrogen Technology during 22-23 November 2011, Kuala Lumpur, Malaysia. The title of the paper was 'Efficient Composite Bipolar Plate Reinforced with Graphene for Proton Exchange Membrane Fuel Cell'.

FACULTY MEMBERS

D. Bandyopadhyay

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Colloid and Interfacial Phenomena, Computational Fluid Dynamics, Micro and Nano Fluidics, Complex Flow and Fluids, Clean Energy – Fuel and Solar cells

T. Banerjee

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Phase equilibria of ionic liquids, Molecular Simulations, Global Optimisation, Statistical Thermodynamics

C. Das

PhD (IIT Kharagpur)

Assistant Professor

Areas of Interest: Wastewater Treatment, Bioremediation, Membrane based Separation Process

M. De

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Catalysis and Reaction Engineering, Adsorption, Hydrocarbon Processing

P. Ghosh

PhD (IIT Bombay)
Associate Professor

Areas of Interest: Interfacial Phenomena, Interfacial Reactions, Membrane Separation, Randomised Algorithms

A. K. Ghoshal

PhD (IIT Kharagpur)
Professor

Areas of Interest: Advanced Separation Technology, Modeling and Simulation, Environmental Pollution Control, Pyrolysis of Waste Plastics

A. K. Golder

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Electroremediation of water/wastewater, Physicochemical water/wastewater Treatment Techniques, Bioremediation, Electrochemical corrosion

V. V. Goud

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Heterogeneous Reactions, Bio-energy and Green Engineering, Biolubricant, Utilisation of Lignocellulosic Biomass for Fuel/Chemicals, Supercritical Fluids

S. Gumma

PhD (Cleveland State University, USA)
Associate Professor

Areas of Interest: Multiphase flow and reactor, CFD in down-flow bubble column, Mineral Processing, Bio-separation

V. Katiyar

PhD (IIT Bombay)
Associate Professor

Areas of Interest: Synthetic and Natural Polymers, Polymer Processing, Biothermoset, Nanobiocomposite, Organic Solar Cells

N. Kishore

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: CFD, Bubbles, Drops and Particles Dynamics, Non-Newtonian Fluids

P. Kotecha

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Optimization, Process Control, Artificial Intelligence, Planning and Scheduling

A. Kumar

PhD (University of Delaware, USA)
Assistant Professor

Areas of Interest: Gas Transport in Nanoporous Materials, Molecular Simulation, Statistical Mechanics

A. K. D. Mahapatra

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Complex fluids, Phase transition in polymers (Nucleation, crystallisation, collapse transition, etc.), Structure-property Relations, Molecular Simulations, Biological Physics

B. P. Mandal

PhD (IIT Kharagpur)
Associate Professor

Areas of Interest: Separations with Chemical Reaction, Molecular based Membrane Separation, Modeling and Simulation of Separation Processes, Environmental Pollution Control

T. K. Mandal

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Multiphase flow and Measurement in multiphase flow, Bio-diesel

S. K. Mazumdar

PhD (IIT Kharagpur)
Associate Professor

Areas of Interest: Multiphase flow and reactor, CFD in down-flow bubble column, Mineral Processing, Bio-separation

K. Mohanty

PhD (IIT Kharagpur)
Associate Professor

Areas of Interest: Industrial Pollution Control, Environmental Biotechnology, Bioseparation, Membrane Technology

V. S. Moholkar

PhD (University of Twente, Netherlands)
Associate Professor and Head of the Department

Areas of Interest: Bubble Dynamics, CFD, Sono-process Engineering, Bio-mass Gasification

G. Pugazhenti

PhD (IIT Kanpur)
Associate Professor

Areas of Interest: Membrane Separation, Polymer Nanocomposites, Nanomaterials, Catalysis and Refinery Processes

M. K. Purkait

PhD (IIT Kharagpur)

Associate Professor

Areas of Interest: Surfactant based Separation Techniques, Membrane Reactors**P. Saha**

PhD (IIT Madras)

Associate Professor

Areas of Interest: Process Modelling, Optimisation and Control, Membrane Based Separation Process**A. Singh**

PhD (IISc Bangalore)

Associate Professor

Areas of Interest: Computational and experimental fluid dynamics, Microfluidics/Nanofluidics, Material processing, Flow through porous media**R. K. Upadhyay**

PhD (IIT Delhi)

Assistant Professor

Areas of Interest: Multiphase Flow Reactor, Multiphase Flow Measurements, Computational Fluid Dynamics, Residence Time Distribution, Novel Reactors**R. V. S. Uppaluri**

PhD (UMIST, Manchester, UK)

Associate Professor

Areas of Interest: Major: Computer Aided Process Design and Integration, Composite Materials, Membrane Technology, Surfactant based Enhanced Oil Recovery and Electroless Plating. Minor: Refinery Engineering, Bio-systems Engineering, Techno-economic analysis
Extracurricular: Synthesis of Science and Spirituality**A. Verma**

PhD (IIT Delhi)

Associate Professor

Areas of Interest: Fuel Cells, Hydrogen Production, Wastewater Treatment

DEPARTMENT OF CHEMISTRY

INTRODUCTION

The Department of Chemistry, with faculty strength of 31 at various levels, is engaged in pursuing excellence in higher learning through teaching and research in modern topics in Chemistry and related interdisciplinary fields of interest. The faculty members of the Department are implementing a large number of research and development sponsored projects. A sizeable number of students who obtained various degrees from the Department are pursuing research across the globe. The Department is implementing a project under FIST-Programme (Level-II) of the Department of Science and Technology, New Delhi. The students and faculty members of the Department have been receiving prestigious national and international fellowships and awards.

ACADEMIC ACTIVITIES

The Department of Chemistry has BTech Core (Theory and Laboratory) and elective courses in Chemistry, BTech in Chemical Science and Technology, MSc and PhD programmes.

STUDENT INTAKE

BTech (Chemical Science and Technology) students enrolled in 2011-2012	: 38
MSc students enrolled in 2011-2012	: 31
PhD students enrolled in 2011-2012	: 42

FACULTY STRENGTH

Professors	: 08 (1 in lien)
Associate Professors	: 07
Assistant Professors	: 16
Total	: 31

MAJOR EQUIPMENT AND FACILITIES

The Department of Chemistry has sophisticated

instrumentation facility to support research and teaching at various levels. The following is a list of important instruments, which are currently available in the Department:

- (i) FT-IR- Spectrophotometer: Thermo Scientific
- (ii) Fluorescence Spectrophotometer: Varian
- (iii) Elemental Analyzer: Perkin Elmer
- (iv) High Performance Liquid Chromatogram and Gel Permeation Chromatogram: Waters
- (v) Electrochemical Analyzer: CH Instruments
- (vi) Magnetic Susceptibility Balance: Sherwood Scientific
- (vii) Fluorescence life-time measurement equipment: IBM
- (viii) Pressure Reactor: ICT make
- (ix) Langmuir –Blodgett Film maker
- (x) Thermogravimetric analyzer and differential scanning calorimeter: Mettler Toledo
- (xi) Fourier Transform Infrared spectrophotometer: Perkin Elmer
- (xii) Cryocooler: Julabo
- (xiii) Polarimeter: Perkin Elmer
- (xiv) UV- Visible Spectrophotometer: Perkin Elmer (Lambda 25 and Lambda 35)
- (xv) Single Crystal X-Ray Diffractometer: Bruker Nonius
- (xvi) GC- MS: Perkin Elmer
- (xvii) H₂, N₂, O₂ gas generator: Peak Scientific Laboratory
- (xviii) Hydrogenation Apparatus: ICT
- (xix) Cryostat: Oxford
- (xx) Fourier Transform-Infrared Spectrophotometer: Varian
- (xxi) High Speed Centrifuge: Sigma
- (xxii) Fluorescence Spectrophotometer: Horiba Jobin Fluoromax-4
- (xxiii) Thermogravimetric analyzer and differential scanning calorimeter: TA Instruments (SDTQ600 and Q20)
- (xxiv) UV-VIS-NIR Spectrophotometer: Perkin Elmer Lambda 750

(xxv) Power X-ray Diffractometer: Bruker D2 Phaser
 (xxvi) High Resolution Mass Spectrometer (HRMS): Agilent

RESEARCH AND DEVELOPMENT ACTIVITIES

The Department is engaged in various research and Development activities such as:

Catalysis, Supramolecular Chemistry, Nanoscale Science and Technology, Synthesis, structure and reactivity of Inorganics, Newer reagents, Protocols and Newer methodologies, Synthesis of natural products and Carbohydrate Chemistry, Bio-organic Chemistry, Bio-inorganic Chemistry and Co-ordination Chemistry & Organometallics, Polymer synthesis, Organic Photochemistry, Molecular dynamics, Quantum Molecular dynamics, Physical Chemistry – Spectroscopic and Theoretical investigations on Novel Materials,

peptide chemistry, Development of new theoretical approaches to: Laser Assisted Control of Chemical Reactions, and, Resonances in Electron – Molecule Scattering, Biomimetic Chemistry and Chemical Biology, Computational Biophysics and Chemistry, Oxidation Catalysis, Molecular Magnetism, Synthesis of Single-Molecule Magnets (SMMs), MRI Contrast agents, Water Oxidation Chemistry, Experimental & Theoretical Physical Chemistry, Self-organization and Nonlinear dynamics, Liquid crystals, Functional Materials, Molecular Electronics, Self Assembly, Supramolecular dynamic aggregates, peptides, lipids, Time Resolved Absorption and Fluorescence Spectroscopy, SHG, MUPPETS, Synthetic organic chemistry, Natural product synthesis with the emphasis of new synthetic methodology; development of new reactions, asymmetric organocatalysis and transition metal catalysis with new catalyst design; mechanistic study etc.

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
T. Punniyamurthy	Study of C-H activation for the synthesis of benzofused azoles	DST	50.00	-	3 years
M. Ray	Chiral recognition and separation of amines and amino alcohols inside Ni(II) based metal-locality	DST	50.80	-	3 years
V. Manivannan	Synthesis, Characterization of New Nitrogenous Ligands and Their Transition Metal Complexes	DST	35.90	-	3 years
P. K. Iyer	Developing new conjugated materials for optoelectronic devices	DST, India and MPG, Germany	Euro 20,000 per annum and matching grant from DST	-	5 years
G. Krishnamoorthy	Developing Simple Fluorescence Sensors for Chemical applications	DST	45.10	-	3 years
C. V. Sastri	Reactivity of Metal-Nitrogen Multiple Bonded Non-Heme Iron(IV) Complexes Towards Organic Substrates	CSIR	9.00	-	3 years
L. M. Kundu	Synthesis of Nucleobases with Modified Base-Pairing Properties and Synthesis of Non-Natural Oligonucleotides to Develop FRET Based Probes for the Detection of Single Nucleotide Polymorphisms and DNA Lesions	CSIR	12.50	-	3 years

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Dept. of Chemistry	DST-FIST Project under level-II category	DST	215.00	-	5 Years
A. Paul	Newer methods of growth, assembly and patterning of nanoparticles	DST	22.67	-	3 Years
A. K. Saikia	Stereoselective synthesis of substituted tetrahydropyran and their nitrogen and sulfur analoges	CSIR	13.15	-	3 Years
D. Manna	Mechanistic Insights into the Phosphatidyl Inositol (IP) Binding Properties of Human Protein Lamellipodin and its Pleckstrin Homology (PH) Domain	BRNS (YSR)	17.00	-	3 Years
D. Manna	Interaction of Phosphatidyl Inositol with Phox Homology (PX) Domain: Elucidation of Mechanistic Principal and Strategies for Therapeutic Intervention	DBT (RGYI)	14.85	B. Mondal, S. S. Bag	3 Years
S. Paul	The Role of aqueous solution of tri-methyl-amine-N-Oxide on the pressure induced hydrophobic interactions and the pressure induced hydrogen bond properties and dynamics	DST	18.38	-	3 Years
C. V. Sastri	Dioxygen activation and haloperoxidase activity by mononuclear non-heme iron (II) complexes	DST-SERC	39.44	-	3 Years
M. Qureshi	Synthesis and characterization of highly efficient fluorescent and phosphorescent molecular materials having hetero atoms for optoelectronics device application	DST	33.00	-	3 Years
S. S. Bag	Toward the Expansion of the Genetic Alphabet: Design, Synthesis and Study of Physical/Photophysical Properties of Unnatural Nucleoside Base Analogues and Incorporation into Short Oligonucleotide Sequences	DST	37.62	-	3 Years
S. S. Bag	Toward the Expansion of the Genetic Code: Design, Synthesis and Study of Photophysical Properties of Fluorescent Unnatural Amino Acids (FUAA) for Site-Specific Incorporation into Proteins	CSIR	14.31	-	3 Years
T. Punniyamurthy	Development of novel Processes for removing sulfur from diesel	IOCL	10.32	-	2 Years
A. K. Gupta	Study of High Harmonic generation beyond dipole approximation	DST	18.00	-	3 Years
A. Chattopadhyay	Stimuli Responsive Materials with Nanoscale Components	CSIR	10.96	-	3 Years

B. K. Patel	Development of Green Organic Synthetic Methodologies using Thiophilic Reagents	CSIR	12.00	-	3 Years
B. K. Patel	Group transfer and mechanistic investigation of some unprecedented reactions	DST	31.00	-	3 Years
G. Das	Precursor synthesis of inorganic mineral through complexes of mixed donor ligands	DST	23.00	-	3 Years
A. N. Panda	Quantum dynamical simulation of four atomic reactions	DST	19.26	-	3 Years
B. Mandal	Beta Breaker Dipeptides: Development of a Novel Approach for Amyloid Disruption	DAE, YRSA	16.50	-	3 Years
P. K. Iyer	Development Design and Development of Organic Light Emitting Diodes (OLED) and Photovoltaic (PV) Devices	DST, India	40.15	-	3 Years
P. K. Iyer	Development of Metallo-supra-molecular polymers	DST	35.23	-	3 years
B. Mandal	Nitric oxide reactivity of copper (II) complexes	DST	33.34	-	3 Years
M. Qureshi	Core-shell/Core-spacer-Shell approach to nano magnetic fluorescent molecules	BRNS	25.00	-	3 Years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. In Lakh)	Co-Investigator	Duration
M. Ray	Synthesis and electrochemistry of functionalized oligoaniline optimized for metal binding at the terminal end	CSIR	12.00	-	3 Years
T. Punniyamurthy	Chiral Main Chain Polymer Catalysts for Asymmetric Catalysis	DST	38.76	-	3 Years
T. Punniyamurthy	New Chiral Dendritic Catalysts for Asymmetric Catalysis	CSIR	13.10	-	3 Years
M. Sarma	Investigation of Strand Breaks in DNA Induced by Low Energy Electron Scattering using Time Dependent Wave Packet Approach	DST	17.81	-	3 years
B. Mandal	Synthesis and Biological Evaluation of a Novel Class of Multi-Target-Directed-Ligands as Potential Leads against Amyloid Diseases	DST	19.20	-	3 Years
B. Mandal	A New, Cost Effective and green development of Solid Phase Peptide Synthesis	IITG start up grant	4.95	-	2 years
P. K. Iyer	Nanoscale optoelectronics materials and devices	DST/ MPG, Germany	2.00 and 12,000 Euro	-	4 years

CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
M. Ray	General consultancy in Inorganic Chemistry	Hindustan Unilever Limited	6.00	-	3 year

RESEARCH PUBLICATIONS**International Journal**

S. Bondalapati, U. C. Reddy, P. Saha and A. K. Saikia

'An efficient synthesis of dihydro- and tetrahydropyrans via oxonium-ene cyclisation reaction', *Organic Biomolecular Chemistry*, vol.9 (9), pp 3428-3438, 2011

P. Saha, P. Gogoi and A. K. Saikia

'Synthesis of oxabicyclo[3.3.1]nonenes and substituted tetrahydropyrans via (3,5)-oxonium-ene reaction', *Organic Biomolecular Chemistry*, vol. 9 (12), pp 4626-4634, 2011

A. K. Saikia, S. Bondalapati, K. Indukuri and P. Gogoi

'Axial-selectivity in Prins Cyclisation Reaction: Synthesis of 4-Iodotetrahydropyrans', *Chemistry Letters*, vol. 40 (10), pp 1176-1178, 2011

P. Saha and A. K. Saikia

'Stereoselective synthesis of 6-oxabicyclo[3.2.1]octene via (3,5)-oxonium-ene reaction', *Tetrahedron*, vol. 68(10), pp 2261-2266, 2012

P. Saha, A. Bhunia and A. K. Saikia

'Synthesis of 2,3,5,6-tetrasubstituted tetrahydropyrans via (3,5)-oxonium-ene reaction', *Organic Biomolecular Chemistry*, vol. 10 (12), pp 2470-2481, 2012

S. Bondalapati, P. Gogoi, K. Indukuri and A. K. Saikia

'Diastereoselective Synthesis of Substituted Tetrahydrothiopyrans via (3,5)-Thionium-Ene Cyclisation Reaction', *Journal of Organic Chemistry*, vol. 77 (5), pp 2508-2512, 2012

K. Indukuri, S. Bondalapati, T. Kotipalli, P. Gogoi and A. K. Saikia

'Stereoselective, One-pot, Three-component Synthesis of 4-Aryltetrahydropyrans from Epoxides via Prins Cyclisation Reaction', *Synlett*, pp 233-238, 2012

R. Begum and A. Chattopadhyay

'In Situ Reversible Tuning of Photoluminescence of Mn²⁺-Doped ZnS Quantum Dots by Redox Chemistry',

Langmuir, vol. 27 (10), pp 6433-6439, 2011

K. K. Dey, K. K. Senapati, P. Phukan, S. Basu and A. Chattopadhyay

'Stable Magnetic Chemical Locomotive with Pd Nanoparticle Incorporated Ferromagnetic Oxide', *Journal of Physical Chemistry C*, vol. 115 (26), pp 12708-12715, 2011

A. K. Sahoo, Md P. Sk, S. S. Ghosh and A. Chattopadhyay

'Plasmid DNA linearisation in the antibacterial action of a new fluorescent Ag nanoparticle-paracetamol dimer composite', *Nanoscale*, vol. 3 (10), pp 4226-4233, 2011

S. K. Gogoi, S. M. Borah, K. K. Dey, A. Paul and A. Chattopadhyay

'Optically Definable Reaction-Diffusion-Driven Pattern Generation of Ag-Au Nanoparticles on Templated Surfaces', *Langmuir*, vol. 27 (20), pp 12263-12269, 2011

M. Banerjee, S. Sharma, A. Chattopadhyay and S. S. Ghosh

'Enhanced antibacterial activity of bimetallic gold-silver core-shell nanoparticles at low silver concentration', *Nanoscale*, vol. 3, pp 5120-5125, 2011

A. Jaiswal, S. S. Ghosh and Arun Chattopadhyay

'One step synthesis of C-dots by microwave mediated caramelisation of poly(ethylene glycol)', *Chemical Communications*, vol. 48, pp 407-409, 2012

A. Jaiswal, A. Chattopadhyay and S. S. Ghosh

'Functional chitosan nanocarriers for potential applications in gene therapy', *Materials Letters*, vol. 68, pp 261-264, 2012

S. Mallick, S. Sharma, M. Banerjee, S. S. Ghosh, A. Chattopadhyay and A. Paul

'Iodine-Stabilised Cu Nanoparticle Chitosan Composite for Antibacterial Applications', *Materials and Interfaces*, vol. 4, pp 1313-1323, 2012

M. D. Adhikari, B. R. Panda, U. Vudumula, A. Chattopadhyay and A. Ramesh

'A facile method for estimating viable bacterial cells in solution based on "subtractive-aggregation" of gold

- nanoparticles', *RSC Advances*, vol. 2, pp 1782-1793, 2012
- A. K. Sahoo, S. Sharma, A. Chattopadhyay and S. S. Ghosh 'Quick and simple estimation of bacteria using a fluorescent paracetamol dimer–Au nanoparticle composite', *Nanoscale*, vol. 4, pp 1688-1694, 2012
- D. Barpuzary, Z. Khan, N. Vinothkumar, M. De and M. Qureshi 'Hierarchically Grown Urchinlike CdS@ZnO and CdS@Al₂O₃Heteroarrays for Efficient Visible-Light-Driven Photocatalytic Hydrogen Generation', *Journal of Physical Chemistry C*, vol. 116, pp 150–156, 2012
- Z. Khan, D. Barpuzary, S. Sutradhar, O. Bhaswant and M. Qureshi 'Directed growth of 1D Cadmium sulphide by chemically anchored Al₂O₃ and ZnO nanoparticles', *Materials Letters*, vol. 65, pp 1168-1173, 2011
- R. Sahu, V. K. Fulwa, H. S. Jena and V. Manivannan 'Copper (II) Acetate Mediated Conversion of Ortho Aminomethyl Substituted Isoquinolines to Their Bis(isoquinolylcarbonyl)amides', *Polyhedron*, vol. 33, pp 9-12, 2012
- S. Mohanty, S. Ravi, H. S. Jena and V. Manivannan 'Structural and Magnetic Properties of Nanocrystalline Sn_{0.98}Co_{0.02}O₂ Under Different Annealing Conditions', *International Journal of Nanoscience*, vol. 10, pp 1-5, 2011
- S. K. Padhi, R. Sahu, D. Saha and V. Manivannan 'Protonated 4-(2-Pyridyl)-2,2:6,2-Terpyridine and Its Fe(II) Bischelates: Syntheses and Molecular Structures', *Inorganica Chimica Acta*, vol. 372, pp 383–388, 2011
- P. Saha, Md. A. Ali and T. Punniyamurthy 'Ligand-Free Copper(II) Oxide Nanoparticles Catalysed Synthesis of Substituted Benzoxazoles', *Organic Synthesis*, vol. 8, pp 398-408, 2011
- M. M. Guru, Md. A. Ali and T. Punniyamurthy 'Copper-Mediated Synthesis of Substituted 2-Aryl-N-benzylbenzimidazoles and 2-Arylbenzoxazoles via C-H Functionalisation/C-N/C-O Bond Formation', *Journal of Organic Chemistry*, vol. 76(13), pp 5295-5308, 2011
- T. Ramana and T. Punniyamurthy 'Copper-Catalysed Domino One-Pot Synthesis of 2-(Arylselanyl) arylcyanamides', *European Journal of Organic Chemistry*, vol. 25, pp 4757- 4759, 2011
- R. K. Kumar, Md. A. Ali and T. Punniyamurthy 'Pd-Catalysed C–H Activation/C–N Bond Formation: A New Route to 1-Aryl-1H-benzotriazoles', *Organic Letters*, vol. 13(8), pp 2102-2105, 2011
- M. Sengoden and T. Punniyamurthy 'Role of temperature in [3+2]-cycloaddition of isoselenocyanates with oxiranes using BF₃·Et₂O', *RSC Advances*, vol. 2, pp 2736-2738, 2012
- S. Sakthivel, S. Jammi and T. Punniyamurthy 'Fluorescent Non-Linear Chiral Polymer Chemosensor Bonded Alternatively with 1,4-Diethynyl-2,5-Dioctyloxybenzene and (R,R)-Salen for Zn²⁺ Recognition', *Tetrahedron: Asymmetry*, vol. 23, pp 101, 2012
- D. J. Kalita, A. Rao, I. Rajvanshi and A. K. Gupta 'Application of Parametric Equations of Motion to Study the Multiphoton Dissociation of H₂⁺', *Journal of Chemical Physics*, vol. 134, pp 224309, 2011
- D. J. Kalita and A. K. Gupta 'Study of Laser Induced Multiphoton Dissociation of H₂⁺ as a Function of Field Frequency using Parametric Equations of Motion', *Physical Review A*, vol. 85, pp 033413, 2012
- A. T. Khan, S. Basha R. and M. Lal 'Bromodimethylsulfonium bromide (BDMS) catalysed synthesis of imidazo [1,2-a]pyridine derivatives and their fluorescence properties', *Tetrahedron Letters*, vol. 53, pp 2211-2217, 2012
- A. T. Khan, M. Lal, S. Ali and Md. M. Khan 'One-pot three-component reaction for the synthesis of pyran annulated heterocyclic compounds using DMAP as a catalyst', *Tetrahedron Letters*, vol. 52, pp 5327-5332, 2011
- A. T. Khan, S. Ali, A. A. Dar and M. Lal 'New three-component condensation reaction: Synthesis of 1-[(alkylthio)(phenyl)methyl]-naphthalene-2-ol catalysed by bromodimethylsulfonium bromide (BDMS)', *Tetrahedron Letters*, vol. 52, pp 5157-5160, 2011
- A. T. Khan, D. K. Das and Md. M. Khan 'Ferric sulfate [Fe₂(SO₄)₃.xH₂O]: an efficient heterogeneous catalyst for the synthesis of tetrahydroquinoline derivatives using Povarov reaction', *Tetrahedron Letters*, vol. 52, pp 4539-4542, 2011
- A. T. Khan and Md. M. Khan 'Sequential three-component reactions: synthesis, regioselectivity and application of functionalised dihydropyridines (DHPs) for the creation of fused naphthyridines', *Tetrahedron Letters*, vol. 52, pp 3455-3459, 2011

- A. T. Khan, S. Ali, S. Basha R, Md. M. Khan and M. Lal
'VO(acac)₂/H₂O₂/NaI: a mild and efficient combination for the cleavage of dithioacetal derivatives of sugars', *Carbohydrate Research*, vol. 346, pp 2629-2632, 2011
- A. T. Khan and D. Das
'Michael Initiated Ring Closure (MIRC) reaction on in situ generated benzylidenecyclohexane-1,3-diones for the construction of chromeno[3,4-b]quinoline derivatives', *Tetrahedron Letters*, vol. 53, pp 2345-2351, 2012
- S. S. Bag and R. Kundu
'Installation/Modulation of the Emission Response via Click Reaction', *Journal of Organic Chemistry*, vol. 76 (9), pp 3348–3356, 2011
- S. S. Bag, R. Kundu and M. Das
'Click-Reagent Version of Sonogashira Coupling Protocol to Conjugated Fluorescent Alkynes with No or Reduced Homocoupling', *Journal of Organic Chemistry*, vol. 76 (7), pp 2332–2337, 2011
- B. Renjith, S. Bhowmick, M. K. Mishra and M. Sarma
'Low-Energy Electron-Induced Single Strand Breaks in 2'-Deoxycytidine-3'-monophosphate Using the Local Complex Potential Based Time-Dependent Wave Packet Approach', *Journal of Physical Chemistry A*, vol. 115 (47), pp 13753-13758, 2011
- B. K. Shandilya, M. Sarma, S. Adhikari and M. K. Mishra
'Vibrational Excitation Resulting from Electron Capture in LUMO of F₂ and HCl – A Treatment Using the Time-Dependent Wave Packet Approach', *Journal of Chemical Sciences*, vol. 124 (1), pp 141-148, 2012
- N. Dash and G. Krishnamoorthy
'Modulation of the photophysics of 2-(4'-dimethylaminophenyl) imidazo[4,5-b] pyridine by long chain N-alkylations', *Photochemical and Photobiological Sciences*, vol. 10, pp 939-946, 2011
- N. Dash, A. Mishra and G. Krishnamoorthy
'Comment on The interaction of 5-(alkoxy)naphthalen-1-amine with bovine serum albumin and its effect on the conformation of protein', *Journal of Physical Chemistry B*, vol. 115, pp 6806-6807, 2011
- S. Dey, B. Ojha and G. Das
'A subtle interplay of C-H hydrogen bonds in complexation of anions of varied dimensionality by a nitro functionalised tripodal podand', *Crystal Engineering Communications*, vol. 13, pp 269-278, 2011
- J. Saikia, B. Saha and G. Das
'Efficient removal of chromate and arsenate from individual and mixed system by malachite nanoparticles', *Journal of Hazardous Materials*, vol. 186, pp 575-582, 2011
- B. Ojha and G. Das
'Role of Hydrophobic and Polar Interactions for BSA-Amphiphile Composites', *Chemistry and Physics of Lipids*, vol. 164, pp 144-150, 2011
- S. Dey and G. Das
'Binding of HgCl₂ by a nitro functionalised tripodal receptor and its decomplexation controlled by anion complexation', *European Journal of Inorganic Chemistry*, vol. 3, pp 429-438, 2011
- A. Pramanik and G. Das
'Interplay of solvent in flexible behavior of cyclohexane dinaphthyl bis-thiourea system: Conformational aspects', *Supramolecular Chemistry*, vol. 23 (6), pp 425-434, 2011
- C. Kar, S. Dey and G. Das
'ESPT induced TURN ON fluorescent chemosensor for selective detection of Phosphate anion', *Sensor Letters*, vol. 9, pp 1430-1434, 2011
- B. Ojha and G. Das
'Environment-sensitive amphiphilic fluorophore for selective sensing of protein', *Photochemical and Photobiological Sciences*, vol. 10, pp 554-560, 2011
- S. Dey, A. Pramanik and G. Das
'Anion specificity induced conformational changes in cresol-based tripodal podands controlled by weak interactions: Structural and Hirshfeld surface analysis', *Crystal Engineering Communications*, vol. 13, pp 1664-1675, 2011
- H. Thakuria and G. Das
'Polycarboxylate derivative of alpha-Amino acid as growth modifier of sulphide minerals', *Bulletin of Material Sciences*, vol. 34, pp 97-104, 2011
- A. Basu and G. Das
'Oxidative cyclisation of thiosemicarbazone: an optical and turn-on fluorescent chemodosimeter for Cu(II)', *Dalton Transactions*, vol. 40, pp 2837-2843, 2011
- A. Basu and G. Das
'Zn(II) and Hg(II) complexes of naphthalene based thiosemicarbazone: structure and spectroscopic studies', *Inorganica Chimica Acta*, vol. 372, pp 394-399, 2011
- S. Dey and G. Das
'Selective fluoride encapsulated neutral tripodal receptor

- capsule: Solvatochromism and solvatomorphism', *Chemical Communications*, vol. 47, pp 4983-4985, 2011
- B. Saha, S. Das, J. Saikia and G. Das
'Preferential and Enhanced Adsorption of Different Dyes on Iron Oxide Nanoparticles: A Comparative Study', *Journal of Physical Chemistry C*, vol. 115 (16), pp 8024-8033, 2011
- B. M. Borah, S. Dey and G. Das
'Crystal to Calcite: Fabrication of Pure Calcium Carbonate Polymorph in Solid State', *Crystal Growth and Design*, vol. 11, pp 2773-2779, 2011
- S. Dey and G. Das
'Fluoride selectivity induced transformation of charged anion complexes into unimolecular capsule of a π -acidic triamide receptor stabilised by strong N-H...F- and C-H...F- hydrogen bonds', *Crystal Growth and Design*, vol. 11, pp 4463-4473, 2011
- S. Dey and G. Das
'Encapsulation of trivalent phosphate anion within a rigidified π -stacked dimeric capsular assembly of tripodal receptor', *Dalton Transactions*, vol. 40 (45), 12048-12051, 2011
- A. Basu and G. Das
'A Neutral Acyclic Anion Receptor with Thiadiazole Spacer: Halide Binding Study and Halide Directed Self Assembly in Solid State', *Inorganic Chemistry*, vol. 51 (2), pp 882-889, 2012
- S. Dey, R. Chutia and G. Das
'Oxyanion encapsulated caged supramolecular frameworks of a tris(urea)receptor: Evidences of hydroxide and fluoride ion induced fixation of atmospheric CO₂ as trapped CO₃²⁻ anion', *Inorganic Chemistry*, vol. 51 (3), pp 1727-1738, 2012
- M. Sarma and B. Mondal
'Nitric oxide reactivity of copper(II) complexes of bidentate amine ligands: Effect of substitution on ligand nitrosation', *Dalton Transactions*, vol. 41, pp 2927-2934, 2012
- A. Kalita, P. Kumar, R. C. Deka and B. Mondal
'First example of Cu(I)-(η^2 -O,O)nitrite complex derived from Cu(II)-nitrosyl', *Chemical Communications*, vol. 48, pp 1551-1553, 2012
- A. Kalita, P. Kumar, R. C. Deka and B. Mondal
'Role of ligand to control the mechanism of nitric oxide reduction of copper(II) complexes and ligand nitrosation', *Inorganic Chemistry*, vol. 50, pp 11868-11867, 2011
- P. Kumar, A. Kalita and B. Mondal
'Reduction of copper(II) complexes of tridentate ligands by nitric oxide and fluorescent detection of NO in methanol and water media', *Dalton Transactions*, vol. 40, pp 8656-8663, 2011
- P. Kumar, B. Baidya, S. K Chaturvedi, R. H. Khan, D. Manna and B. Mondal
'DNA binding and nuclease activity of copper(II) complexes of tridentate ligands', *Inorganica Chimica Acta*, vol. 376, pp 264-270, 2011
- N. B. Palakurthy and B. Mandal
'Sulfonamide synthesis using N-hydroxybenzotriazole sulfonate: an alternative to pentafluorophenyl (PFP) and trichlorophenyl (TCP) esters of sulfonic acids', *Tetrahedron Letters*, vol. 52, pp 7132-7134, 2011
- K. C. Nadimpally, K. Thalluri, N. B. Palakurthy, A. Saha and B. Mandal
'Catalyst and solvent-free amidation of inactive esters of N-protected amino acids', *Tetrahedron Letters*, vol. 52, pp 2579-2582, 2011
- R. Sarma and S. Paul
'The Effect of Pressure on the Hydration Structure Around Hydrophobic Solute: A Molecular Dynamics Simulation Study', *Journal of Chemical Physics*, vol. 136, pp 114510, 2012
- R. Sarma and S. Paul
'Association of Small Hydrophobic Solute in Presence of Osmolytes Urea and Trimethylamine-N-Oxide', *Journal of Physical Chemistry B*, vol. 116, pp 2831, 2012
- R. Sarma and S. Paul
'Hydrophobic Interactions in presence of osmolytes urea and trimethylamine-N-Oxide', *Journal of Chemical Physics*, vol. 135, pp 174501, 2011
- R. Yella, N. Khatun, S. K. Rout and B. K. Patel
'Tandem regioselective synthesis of tetrazoles and related heterocycles using iodine', *Organic and Biomolecular Chemistry*, vol. 9, pp 3235, 2011
- L. Jamir, N. Khatun and B. K. Patel
'The oxidative cleavage of an anti-Hugerschoff product: a mild environmentally benign one pot synthesis of ureas from isothiocyanates', *RSC Advances*, vol. 1, pp 447, 2011
- S. Guin, T. Ghosh, S. K. Rout, A. Banerjee and B. K. Patel
'Cu(II) Catalysed Imine C-H Functionalisation Leading to Synthesis of 2,5-Substituted 1,3,4-Oxadiazoles', *Organic Letters*, vol. 13, pp 5976, 2011

S. K. Sahoo, A. Banerjee, S. Charaborty and B. K. Patel
'Regioselective Intramolecular arylthiolations by Ligand free Cu and Pd catalysed reaction', *ACS Catalysis*, vol. 2, pp 544, 2012

R. Yella, R. K. Singh, G. Majji and B. K. Patel
'It is "thiazolidine-2,4-dione" and not thiohydantoins as the reaction product of monosubstituted thioureas and chloroacetyl chloride', *Journal of Sulphur Chemistry*, vol. 33, pp 43, 2012

P. K. Giri, S. Bhattacharyya, B. Chetia, S. Kumari, D. K. Singh and P. K. Iyer
'High-Yield Chemical Synthesis of Hexagonal ZnO Nanoparticles and Nanorods with Excellent Optical Properties', *Journal of Nanoscience and Nanotechnology*, vol. 12, pp 201-206, 2012

A. K. Dwivedi, G. Saikia and P. K. Iyer
'Neutral Conjugated Polymer Demonstrates Remarkable Activity as Non-invasive Sensor for Inorganic Phosphate Detection', *Polymer Preprints*, vol. 52 (2), pp 963-964, 2011

D. K. Singh, P. K. Giri and P. K. Iyer
'Evidence for Defect-enhanced Photoluminescence Quenching of Fluorescein by Carbon Nanotubes', *Journal of Physical Chemistry C*, vol. 115, pp 24067–24072, 2011

D. K. Singh, P. K. Iyer and P. K. Giri
'Improved chemical synthesis of graphene using a safer solvothermal route', *International Journal of Nanoscience*, vol. 10 (1/2), pp 39-42, 2011

D. K. Singh, P. K. Iyer and P. K. Giri
'Defect evolution and structural improvement in low energy ion irradiated carbon nanotubes: Microscopic and spectroscopic studies', *International Journal of Nanoscience*, vol. 10 (1/2), pp 49-53, 2011

B. Chetia and P. K. Iyer
'Acetate recognition by 2,6-bis(2-benzimidazolyl) pyridine', *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, vol. 81 (1), pp 313-316, 2011

P. J. Goutam, D. K. Singh, P. K. Giri and P. K. Iyer
'Enhancing the Photostability of Poly(3-hexylthiophene) by Preparing Composites with Multiwalled Carbon Nanotubes', *Journal of Physical Chemistry B*, vol. 115, pp 919-924, 2011

A. K. Vardhaman, C. V. Sastri, D. Kumar and S. P. De Visser
'Nonheme ferric hydroperoxo intermediates are efficient oxidants of bromide oxidation', *Chemical Communication*, vol. 47, pp 11044-11046, 2011

A. K. Vardhaman, S. Sikdar and C. V. Sastri
'Oxidation of dibenzothiophene by mononuclear non-heme iron complexes: A biomimetic approach for oxidative desulphurisation', *Indian Journal of Chemistry*, vol. 50, pp 427-431, 2011

R. R. Koner, Md. S. H. Faizi and M. Ray
'Tuning one dimensional chiral channel interior in mixed ligand Cu(II) complexes of l-histidine derivative and substituted pyridine', *Inorganica Chimica Acta*, vol. 372, pp 367, 2011

Conference/Workshop/Seminar/Symposia

International

K. Indukuri, S. Bondalapati, T. Kotipalli, P. Gogoi and A. K. Saikia
'Stereoselective, One-pot, Three-component Synthesis of 4-Aryltetrahydropyrans from Epoxides via Prins Cyclization Reaction', 6th CRSI – RSC Symposium in Chemistry, National Institute for Interdisciplinary Science and Technology, Trivandrum, 2-5 Feb 2012

P. Gogoi, T. Kotipalli, K. Indukuri, S. Bondalapati and A. K. Saikia
'A novel 1,3-Diol with a Benzyl backbone as a chiral ligand for the Asymmetric Oxidation of Prochiral Sulfides', 18th International Conference (Post: ISCBC-2012) Perspective and Challenges in Chemical and Biological Sciences, Institute of Advanced Study in Science and Technology Guwahati, 28-30 Jan 2012

H. S. Jena and V. Manivannan
'Coligand Dependent Chirality Selective Dimetallic Core Formation by Monochelated Racemic Tridentate Ligands', Asian Conference on Coordination Chemistry, ACCC3–2011, IIT Kanpur and IIT Delhi, 17-20 Oct 2011

S. Sakthivel and T. Punniyamurthy
'Chiral polymer Bonded Alternatively (R,R)-Salen and 1,4-Dioctyloxybenzene: Synthesis and Application as OFF-ON Fluorescent Chemosensor for Zn²⁺ and Chiral Recognition', Conference on Photochemistry and Luminescence, IIT Guwahati, Guwahati, 9-10 March 2012

M. M. Guru, M. A. Ali and T. Punniyamurthy
'Copper-Mediated Synthesis of Substituted 2-Aryl-N-benzylbenzimidazoles and 2-Arylbenzoxazoles via C-H Functionalization/C-N/C-O Bond Formation', International Symposium on Advances in Chemical Sciences, IIT Guwahati, Guwahati, 30 Jan 2012

Z. Khan and Md. Qureshi
'Synthesis of Novel 3D SrS/CdS Photocatalyst with

Excellent Performance for Dye Photodegradation', Conference on Photochemistry and Luminescence, IIT Guwahati, Guwahati, 9-10 Mar 2012

Z. Khan and Md. Qureshi
'Synthesis of Novel Hyperbranched 3D SrS/CdS Microstructures: Application towards Efficient Hydrogen Generation and Dye Degradation', International Symposium on Advances in Chemical Sciences, IIT Guwahati, Guwahati, 30 Jan 2012

Z. Khan and Md. Qureshi
'Synthesis of novel pompom-like 3D CdS/metal oxide (ZnO, Al₂O₃) hierarchical microstructures and their application towards efficient hydrogen generation', International Conference on Nanoscience and Technology (ICONSAT), Hyderabad, 20-23 Jan 2012

Z. Khan, D. Barpuzary and Md. Qureshi
'Directed Growth of 1D-Cadmium Sulfide by Chemically Anchored Metal Oxide Nanoparticle for Photocatalytic Water Reduction', 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN), IIT Guwahati, Guwahati, 8-10 Dec 2011

Z. Khan and Md. Qureshi
'Synthesis of 3D CdS/metal oxide (ZnO, Al₂O₃) and its application for hydrogen production by water splitting', Indo-US Bilateral Workshop on Nanoparticle Assembly: from Fundamentals to Applications, IIT Delhi, 12-14 Dec 2011

L. N. Burgula, K. Radhakrishnan and L. M. Kundu
'Towards New Genetic Alphabets: Microwave-Assisted Synthesis of Pyrimidine Nucleobases with Altered Base Pairing Properties', International symposium on advances in chemical sciences, IIT Guwahati, Guwahati, 30 Jan 2012

D. J. Kalita and A. K. Gupta
'Application of smooth exterior scaling method to study the time dependent dynamics of H₂⁺', Gordon Research Conference on Quantum Control of Light and Matter 2011 (GRC 2011), MA, USA, 31 Jul – 5 Aug 2011

D. J. Kalita and A. K. Gupta
'Application of Parametric Equations of Motion to Study The Resonance Coalescence in H₂⁺', Gordon Research Conference on Quantum Control of Light and Matter 2011 (GRC 2011), MA, USA, 31 Jul – 5 Aug 2011

S. S. Bag and R. Kundu
'Studies Toward the Photophysical and Material Properties of Napthalimide Derivative and Its Conjugated Fluorescent Nucleoside', Diamond Jubilee Symposium

on Recent Trends in Chemistry (DJSRTC), IIT Kharagpur, 21-23 Oct 2011

S. Dey and G. Das
'Anion encapsulated neutral tripodal receptor capsules', 3rd Asian Conference on Coordination Chemistry, New Delhi, 17-20 Oct 2011

A. Saha, K. C. Nadimpally and B. Mandal
'A rapid repetitive and cost effective chemoselective ligation protocol for peptide Synthesis', International symposium on advances in chemical sciences, IIT Guwahati, Guwahati, 30 Jan 2012

P. K. Iyer
'Aqueous Polyfluorene Probe for Iron(III) and Inorganic Phosphate Estimation in Blood Serum', F-pi-10 meeting, 10th International Symposium on Functional π -Electron Systems, Institute of Chemistry, Chinese Academy of Sciences and Tsinghua University, Beijing, China, 13-17 Oct 2011

N. Khatun, R. Yella, S. K. Rout and B. K. Patel
'Tandem regioselective synthesis of tetrazoles and related heterocycles using iodine', International Symposium on Recent Trends of Research In Chemistry (RTRC-2011), Midnapore College, WB, 31 Oct – 1 Nov 2011

S. K. Rout, S. Guin, T. Ghosh, A. Banerjee and B. K. Patel
'Cu(II) Catalyzed Imine C-H Functionalization Leading to Synthesis of 2,5-Substituted 1,3,4-Oxadiazoles', International Symposium on Advances in Chemical Sciences, IIT Guwahati, Guwahati, 30 Jan 2012

National

P. Saha and A. K. Saikia
'A stereoselective synthesis of 2,3,5,6-Tetrasubstituted Tetrahydropyrans via (3, 5)-Oxonium-Ene Reaction', 7th J-NOST Conference, Indian Institute of Scientific Education and Research Mohali, Mohali 15-18 Dec 2011

H. S. Jena, R. Sahu, V. K. Fulwa and V. Manivannan
'Syntheses of Some Bis(carbonyl)amides and Iron(III) Chloride Mediated Reduction of Bis(1-isoquinolylcarbonyl) amide to an Amide', Modern Trends in Inorganic Chemistry, MTIC – XIV, University of Hyderabad, 10-13 Dec 2011

M. M. Guru, M. A. Ali and T. Punniyamurthy
'Copper-Mediated Synthesis of Substituted 2-Aryl-N-benzylbenzimidazoles and 2-Arylbenzoxazoles via C-H Functionalization/C-N/C-O Bond Formation', 7th Junior National Organic Symposium Trust, IISER Mohali, Mohali, 15-18 Dec 2011

S. Sakthivel and T. Punniyamurthy
'Fluorescent OFF-ON Polymer Chemosensor Bonded Alternatively 1,4-Dioctyloxybenzene and (R,R)-Salen for Cascade Zn²⁺ and Chiral Recognition', 7th Junior National Organic Symposium Trust, Indian Institute for Science and Educational Research Mohali, Mohali, 15-18 Dec 2011

S. S. Bag, R. Kundu and M. Das
'Click-Reagent Version of Sonogashira Coupling: A Versatile Protocol to Conjugated Fluorescent Alkynes', Chemical Research Society of India (Kolkata Chapter) Symposium (IX) on Chemical Research in the First Decade of 21st Century, Department of Chemistry, Visva-Bharati, August 06, 2011

A. Saha, K. C. Nadimpally, K. Thalluri and B. Mandal
'One pot protocol for amide synthesis of unprotected

amino acids', National Symposium on Recent Trends in Chemical Science and Technology (RTCST 2012), IIT Patna, 3-4 Mar 2012

K. Thalluri, K. C. Nadimpally, A. Saha and B. Mandal
'Reagent economized and waste minimized approach of amide syntheses by one pot', National Symposium on Recent Trends in Chemical Science and Technology (RTCST 2012), IIT Patna, 3-4 Mar 2012

K. C. Nadimpally, K. Thalluri, A. Paul, N. B. Palakurthy and B. Mandal
'Catalyst and solvent free amidation of inactive esters of N-protected amino acids: A green chemistry perspective', CRSI-2012 (14th National Symposium in Chemistry), Indian Institute of Science Education and Research, Trivandrum & National Institute for Interdisciplinary Science and Technology, Trivandrum, 3-5 Feb 2012

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
A. K. Saikia	International Congress of Organic chemistry	Kazan, Russia	18-23 Sep 2011	International
G. Krishnamoorthy	Recent Trends in Synthetic methods and Chemistry of Natural products	Chidambaram	14-15 Oct 2011	National
G. Krishnamoorthy	Asian Chemical Congress 2011	Bangkok, Thailand	5-8 Sep 2011	International
G. Krishnamoorthy	National Seminar on New Vista in Catalysis and Surface Science	Annaimalainagar	16-17 Mar 2012	National

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
A. Chattopadhyay	Chemical Approaches to Functional Nanomaterials	IIT Bombay	Goa	12 Aug 2011
A. Chattopadhyay	Versatile Chemical Approaches to Nanobiotechnology	ICTP-KFAS	Italy	10 Oct 2011
A. Chattopadhyay	Principles of Chemistry for Nanomaterials and Nanostructures	IACS	Kolkata	29 Oct 2011
A. Chattopadhyay	Chemical Approaches to Assembled Nanoparticles	IIT Delhi and Columbia University, New York	New Delhi	12 Dec 2011
A. Chattopadhyay	Chemical Means for Nanoscale Patterning and Chemical Locomotion	Department of Chemistry, IIT Kanpur	Kanpur	3 Dec 2011
A. Chattopadhyay	Chemical Reactions and Light for Patterned Nanoparticles	BARC	Mumbai	4 Jan 2012

A. Chattopadhyay	Chemical Approaches to Nanotechnology	IASST, Guwahati and Indian Society of Chemists and Biologists, Lucknow	Guwahati	28 Jan 2012
T. Punniyamurthy	Recent Advances in Enantioselective Processes	Graduate School of Science and Engineering, Kagoshima University	Japan	10 Jun 2011
T. Punniyamurthy	New Strategies for the Synthesis of Biologically Important Heterocyclic Compounds	Graduate School of Engineering, Kyoto University	Japan	9 Jun 2011
T. Punniyamurthy	Recent Development in Carbon-Carbon and Carbon-Heteroatom Cross-Coupling Reactions	Graduate School of Science, Osaka Prefecture University	Japan	8 Jun 2011
T. Punniyamurthy	Recent Development in Carbon-Heteroatom Cross-Coupling Reactions	Graduate School of Natural Science and Technology, Okayama University	Japan	6 Jun 2011
T. Punniyamurthy	Recent Advances in the Synthesis of Heterocyclic Compounds	Department of Applied Chemistry, Nagasaki University	Japan	8 Apr 2011
T. Punniyamurthy	Recent Advances in Carbon-Heteroatom Cross-Coupling Reactions and Macromolecular Catalysis	Department of Chemistry, Kyushu University	Japan	7 Apr 2011
T. Punniyamurthy	Recent Development in Carbon-Carbon and Carbon-Heteroatom Cross-Coupling Reactions	Graduate School of Engineering, Osaka University	Japan	7 Jun 2011
T. Punniyamurthy	Recent Advances in Enantioselective Processes	Graduate School of Science and Technology, Kumamoto University	Japan	June 2, 2011
T. Punniyamurthy	Recent Development in Carbon-Carbon and Carbon-Heteroatom Cross-Coupling Reactions	Graduate School of Science and Technology, Nagasaki University	Japan	June 1, 2011
T. Punniyamurthy	Recent Development in Carbon-Carbon and Carbon-Heteroatom Cross-Coupling Reactions	Graduate School of Science, Kyoto University	Japan	May 30, 2011
T. Punniyamurthy	Recent Development in Carbon-Carbon and Carbon-Heteroatom Cross-Coupling Reactions	Graduate School of Pharmaceutical Sciences, Kyushu University	Japan	May 27, 2011
T. Punniyamurthy	New Strategies for the Synthesis of Biologically Important Heterocyclic Compounds	Institute of Materials Chemistry and Engineering, Kyushu University	Japan	May 26, 2011
T. Punniyamurthy	New Strategies for the Synthesis of Biologically Important Heterocyclic Compounds	Graduate School of Sciences, Kyushu University	Japan	May 24, 2011
T. Punniyamurthy	C-H Functionalization/C-N/C-O Bonds Formation for Heterocycles Synthesis, IFCOS-2011	National Chemical Laboratory, Pune	Pune	December 8-9, 2011

T. Punniyamurthy	New Strategies for the Synthesis of Heterocyclic Compounds	3rd International Conference on Heterocyclic Chemistry, University of Rajasthan	Jaipur	December 10-13, 2011
A. T. Khan	Multicomponent reaction in organic synthesis	Department of Chemistry, University of Kashmir	Hazratbal, Srinagar	4th October, 2011
A. T. Khan	Exploration of 1,3-dicarbonyl compounds for multicomponent reactions (MCRs) based syntheses of heterocycles	National Symposium on Recent Trends in Chemical Science and Technology (RTCST 2012), IITP	IIT Patna	March 3-4, 2012
S. S. Bag	Fluorescent Oligonucleotide Probe for Homogeneous DNA Detection	The 5th China Medical Biotech Forum, Beijing	Beijing, China	November 07-09, 2011
G. Das	Inorganic nanomaterials: towards fabrication of different strategic tools for biological and environmental application	3rd Asian Conference on Coordination Chemistry, IHC, New Delhi	New Delhi, India	October 17-20, 2011
A. S. Achalkumar	Two-Component Liquid Crystals as Organic Zeolites: Recognition and Transformation of Molecules within Constrained Environments	18th National Conference on Liquid Crystals, NERIST	Itanagar, Arunachal Pradesh	November 5 – 17, 2011
A. S. Achalkumar	Recognition and Transformation of Molecules within Constrained Environments of Two-Component Liquid Crystals	Conference on Photochemistry & Luminescence, IITG	Guwahati	March 9-10, 2012
S. Paul	Hydrophobic Interactions in Presence of The role of Osmolytes Urea and Trimethylamine-N-Oxide on Hydrophobic Interactions of Neopentane Molecules	Current Trends in Computational Chemistry, NEHU	Shillong, Meghalaya	March 16-17, 2012
P. K. Iyer	Fluorescent conjugated polymers for optoelectronics, healthcare and environment applications	Advanced in Polymer Science and Nanotechnology: Design and Structure (PSNDS-11), Society of Polymer Science, M.S. University	Vadodara	December 16-17, 2011
P. K. Iyer	From light to life: Diverse applications of fluorescent conjugated polymers	Chemical Research Society of India, North Zone Meeting, Jammu University	Jammu	September 22-24, 2011
P. K. Iyer	Neutral Conjugated Polymer Demonstrates Remarkable Activity as Non-invasive Sensor for Inorganic Phosphate Detection	242nd ACS meeting, Organized by American Chemical Society, Denver	Colorado, USA	August 28-September 1, 2011
P. K. Iyer	Fluorescent polyphenylene derivatives for sensor and diagnostic applications	Symposium on Polymer Science-2011, Organized by Society of Polymer Science, IISER Kolkata	Kolkata	December 10, 2011

L. M. Kundu	Modified nucleic acids: development and their applications in chemical biology	Chemical Informatics workshop, Tezpur University	Tezpur	March 24, 2012
M. Ray	Chiral recognition of amines and amino alcohols inside metallocavity	Dept. of Chemistry, IIT Kanpur	Kanpur	August 12, 2011
M. Ray	Three point chiral recognition of amines and amino alcohols inside metallocavity	3rd Asian Conference on Coordination Chemistry, New Delhi, India	New Delhi	October 17-20, 2011
M. Ray	Chiral Recognition inside Metallocavity Synthesized using Amino Acid Derivative Ligands and Divalent Metal Ions	Modern Trends in Coordination Chemistry (MTIC-XIV), University of Hyderabad	Hyderabad	December 10-13, 2011
M. Ray	Chiral recognition inside metallocavity	Dept. of Chemistry, A. B. N. Seal College, Cooch Behar	Cooch Behar, WB	March 1-2, 2011
M. Ray	Three point vs less than three point chiral recognition inside Ni(II) based Metallocavity	Conference on Photochemistry & Luminescence, IITG	Guwahati	March 9-10, 2012

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS

Name	Name of Inst./Univ./Org.	Purpose	Date
Prof. A. K. Nandi	IACS Kolkata	Viva-voce	April 21, 2011
Prof. Santanu Bhattacharya	IISC Bangalore	Viva-voce	April 26, 2011
Prof. Anindya Dutta	IIT Bombay	Viva-voce	April 28, 2011
Prof. A. K. Ganguli	IIT Delhi	Viva-voce	May 6, 2011
Prof. A. K. Mishra	IIT Madras	Viva-voce	May 16, 2011
Prof. A. Ramanan	IIT Delhi	Viva-voce	May 16, 2011
Prof. V. K. Singh	IIT Bombay	Viva-voce	June 2, 2011
Prof. Uday Maitra	IISC Bangalore	Viva-voce	July 13, 2011
Prof. M. Periasamy	University of Hyderabad	Viva-voce	July 29, 2011
Prof. M. V. Rajasekharan	University of Hyderabad	Viva-voce	January 13, 2012

SEMINARS/WORKSHOPS/CONFERENCES/ SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
Convener: A. N. Panda and D. Das	International symposium on Advances in Chemical Sciences – 2012 (Jointly organized by IIT Guwahati and RSC, UK)	DBT, DST	January 30, 2012	International
G. Krishnamoorthy	Conference on Photochemistry and Luminescence	Industrial Sponsorship	March 9-10, 2012	National with international participation

AWARDS AND HONOURS

1. Prof. Arun Chattopadhyay has joined as a member of the Advisory Board of *Nanoscale* (a journal of the Royal Society of Chemistry, UK).
2. Dr. M. Sarma was awarded BOYSCAST Fellowship, currently availing at the University of Heidelberg, Germany under Professor Lorenz S. Cederbaum.
3. Dr. P. K. Iyer has been nominated as Head of the Max Planck Partner Group from 2012 upto 5 years by the Max Planck Society, Germany.

ANY OTHER (SPECIAL MENTION)

1. Prof. A. T. Khan was selected as Council member for Chemical Research Society of Inida (CRSI).
2. Dr. S. S. Bag was selected as Editorial Board Member of (a) Biological and Biomedical Reports (BBR) and (b) Lead Guest Editor of Journal of Nucleic acids (Special issue).

FACULTY MEMBERS**A. S. Achalkumar**

PhD (CLCR, Bangalore)
Assistant Professor

Areas of Interest: Liquid crystals, Functional Materials, Molecular Electronics, Self Assembly, Green Chemistry

S.S. Bag

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Bioorganic Chemistry and Chemistry of Nucleic Acid

J.B. Baruah

PhD (IISc Bangalore)
Professor

Areas of Interest: Homogeneous Catalysis, Supramolecular Chemistry, Material Design

A. Chattopadhyay

PhD (Columbia University)
Professor and Head of the Department

Areas of Interest: Nanoscale Science and Technology

M.K. Chaudhuri (On deputation as Vice Chancellor,
Tezpur University)

PhD (IIT Kharagpur)
Professor

Areas of Interest: Synthesis, Structure and Reactivity of Inorganics, Newer Materials and Methodologies, Newer Reagents and Protocols

D. Das

PhD (IACS, Kolkata)
Assistant Professor

Areas of Interest: Supramolecular dynamic aggregates, peptides, lipids

G. Das

PhD (IIT Kanpur)
Associate Professor

Areas of Interest: Supramolecular, Bioorganic Chemistry, Biomineralisation

S. Dutta

PhD (IACS, Kolkata)
Assistant Professor

Areas of Interest: Experimental and Theoretical Physical Chemistry / Self-organization and Nonlinear dynamics

A.K. Gupta

PhD (University of California, Los Angeles)
Associate Professor

Areas of Interest: Quantum Molecular Dynamics

P.K. Iyer

PhD (CSMCRI, Bhavnagar)
Associate Professor

Areas of Interest: Polymer Synthesis, Inorganic/Organometallic Chemistry and Device Fabrication, Sensors

C.K. Jana

PhD (WWU Muenster, Germany)
Assistant Professor

Areas of Interest: Total Synthesis/ Natural Product Based Drug Discovery/ Synthetic Methodology/ Development of New Reaction

A.T. Khan

PhD. (Kalyani University, West Bengal)
Professor

Areas of Interest: Synthesis of Natural Products, Heterocycles and Carbohydrate Chemistry, Newer Methodologies

G. Krishnamoorthy

PhD (IIT Kanpur)
Associate Professor

Areas of Interest: Organic Photochemistry and Spectroscopy

L.M. Kundu

PhD (LMU Munich, Germany)

Assistant Professor

Areas of Interest: Nucleic Acid/Peptide Chemistry, DNA/RNA Damage and Repair, DNA Hybrid Materials**B. Mandal**

PhD (EPFL, Lausanne, Switzerland)

Assistant Professor

Areas of Interest: Peptide Chemistry**V. Manivannan**

PhD (IACS, Calcutta)

Associate Professor

Areas of Interest: Coordination Chemistry**D. Manna**

PhD (University of Illinois at Chicago)

Assistant Professor

Areas of Interest: Lipid-Protein Interaction, Lipid Synthesis**B. Mondal**

PhD (IIT Bombay)

Associate Professor

Areas of Interest: Bioinorganic Chemistry**C. Mukherjee**

PhD (Max-Planck Institute of Bioinorganic Chemistry, Muelheim, Germany)

Assistant Professor

Areas of Interest: Oxidation Catalysis / Molecular Magnetism / Synthesis of Single-Molecule Magnets (SMMs) / MRI Contrast agents / Water Oxidation Chemistry**S.C. Pan**

PhD (Max-Planck-Institut fuer Kohlenforschung, Muelheim an der Ruhr, Germany)

Assistant Professor

Areas of Interest: Synthetic organic chemistry; Natural product synthesis with the emphasis of new synthetic methodology; development of new reactions, asymmetric organocatalysis and transition metal catalysis with new catalyst design; mechanistic study**A.N. Panda**

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Dynamics of Bimolecular Scattering Processes**B.K. Patel**

PhD (IIT Kanpur)

Professor

Areas of Interest: Bio-Organic Chemistry and Newer Methodologies**A. Paul**

PhD (Columbia University)

Associate Professor

Areas of Interest: Surface Science, Catalysis, Thin Films**S. Paul**

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Computational Biophysics and Chemistry**T. Punniyamurthy**

PhD (IIT Kanpur)

Professor

Areas of Interest: Synthetic Organic Chemistry**Md. Qureshi**

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Materials Chemistry**M. Ray**

PhD (IIT Kanpur)

Professor

Areas of Interest: Bioinorganic and Coordination Chemistry**K. Sahu**

PhD (IACS, Kolkata)

Assistant Professor

Areas of Interest: Time Resolved Absorption and Fluorescence Spectroscopy, SHG, MUPPETS**A.K. Saikia**

PhD (RRL Jorhat)

Professor

Areas of Interest: New Synthetic Methodology, Natural Product Synthesis**M. Sarma**

PhD (IIT Bombay)

Assistant Professor

Areas of Interest: Development of new theoretical approaches to Laser Assisted Control of Chemical Reactions and Resonances in Electron-Molecule Scattering**C.V. Sastri**

PhD (University of Hyderabad)

Assistant Professor

Areas of Interest: Biomimetic Chemistry, Chemical Biology

DEPARTMENT OF CIVIL ENGINEERING

INTRODUCTION

The Department of Civil Engineering, established in the year 1998 has shown remarkable progress in academic, research and consultancy works. Faculty members continued to take the lead in strengthening their respective specializations through further development of the laboratories and research facilities. Faculty members published their cutting-edge research work in leading journals or presented papers in international/national conferences. The department has been involved in several sponsored R&D and consultancy projects in the last few years. The department has organized many workshops, short term courses and conferences. Obtaining Ministry of Urban Development, Govt. of India sponsored Centre of Excellence project for “Integrated Land use Planning and Water Resources Management” is another remarkable achievement of the Department. The department has received a grant of Rs. 3.05 Crore from the Department of Science & Technology, Government of India under FIST programme for further strengthening of the state of the art experimental facilities.

ACADEMIC ACTIVITIES

The Department is currently having BTech, MTech and PhD Programmes. The MTech programme includes the following specialization:

- Structural Engineering
- Water Resources Engineering and Management
- Geotechnical Engineering
- Environmental Engineering
- Transportation Systems Engineering
- Infra-structure Engineering and Management

Our 11th (2008 year) batch of 43 BTech students is graduating in May this year. Most of the outgoing BTech students were selected for recruitment in various reputed organization through campus interview. Most of the graduating students have undergone practical training during summer in leading technical universities abroad.

The PhD programme includes all areas of specialization in Civil Engineering.

STUDENT INTAKE

BTech students enrolled in 2011-2012	: 73
MTech students enrolled in 2011-2012	: 89
PhD students enrolled in 2011-2012	: 40

FACULTY STRENGTH

Professor	: 6
Associate Professor	: 10
Assistant Professor	: 19
Total	: 35

MAJOR EQUIPMENT AND FACILITIES

Structural Engineering Laboratory

Overhead EOT Crane for Structural test hall, Universal Test frame, Several new NDT equipment like Corrosion analyzing, Rebar locator. Permeability tester, Resistivity meter, extraction tester, Dynamic Actuator system, Earthquake simulator, Pseudo Dynamic Test Facility, FFT analyzer for vibration testing of structural elements, Resonant frequency meter, HBM-48 channel data acquisition system, Hydraulic Fork Lift, A-Frame Aluminium Ladder (16ft high), Automatic Vicat’s apparatus for SC, Initial and Final Setting of Cement, 300 LPM in Powerpack for MTS test system, Reaction Mass Assembly for Electoseis Long Stroke Shaker Model 113 etc. HBM Data Acquisition System, MTS Actuator, Abaqus V 6.8 software, ANSYS – v13, SAP 2000 – v14 , MIDAS , Primavera, GID Version 10 etc.

Environmental Engineering Laboratory

Laser particle size analyzer, Atomic Absorption Spectrophotometer, Ultra-pure water System Abmient, Ambient air pollutant measurement sampler, The fine particular sampler, Micro-meteorological monitoring equipment with required accessories and data logging

system and software (automatic), Trinocular laboratory microscope complete with essential accessories and digital camera etc. are in working condition. Ozone analyzer, Automative gas analyzer, Cascade Impactor, BOD incubator, Electric muffle furnace, Drying oven, Air compressor etc.

Geotechnical Engineering Laboratory

De-airing apparatus for triaxial testing, Multi-channel data logging , relative density apparatus, Rock testing equipments, GeoStudio 2007 products are pc software for analysis of earth structures subjected to earthquake shaking and design are available., Rock Triaxial Set up, Digital Traxial Setup etc.

Miniature Pressure Transducer Tensiometer, Refilling kit for T-5 tensiometer, Research Centrifuge with rotor, Cross permeability test apparatus, HygoclipCP302 XXPVC, Humidity Temp Controller Model – 902 Duel Channel, Guelph Permeameter kit, Upgrading of Block vibration to computerized block vibration test equipment, Direct Q-3 Ultrapure water purification system, Plaxis 2D etc.

Transportation Engineering Laboratory

Bump integrator for pavement management, Brooke Field Viscometer for testing of bituminous material as well as marshall Design of flexible pavement facilities, HDM4 for highway development model, MXROADS for highway geometric design, rolling thin file oven, TRANSYT, ISIS, HCS software, plate compactor, CBR field apparatus, Driver vision screen tester, Universal Penetrometer for bitumen testing including automatic pnetrometer timer, Eletric plate compactor for preparation of triaxial sample, Testing equipment for falling Weight Deflectometer etc. are in working condition. Radar Gun, Video VBox 10Hz system, PTV vision software VISSIM, Standard TransCAD software (V-5), Trazer Online etc.

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Sreedeeep S.	Hydro-chemical evaluation of bentonite-fly ash as backfill material in near surface hazardous waste disposal facility	DST	40	-	-
Ajay Kalamdhad	Composting of water hyacinth using different composting technologies	SERC - DST	18.5	-	3 years
Saswati Chakraborty	Application of amine based polymers for removal and recovery of acid azo dyes from wastewater	CSIR	10.00	-	3 years

Hydraulic and Water Resources Engineering Laboratory

An in-situ hillslope experiment set up (size =250 m2) with fully automatic subsurface flow measurement system was designed and fabricated at the field site. The experimental set-up will quantify both subsurface and surface flow in a hillslope under high intensity storm events. 5 and 10 m tilting flume long channel, rainfall simulation apparatus for study rainfall for various studies flow, Auto-weather station, Turbines, Pump ring etc. are in working condition.

Hydraulic Tilting Flume 20m x 1.0 m x 60. Cm length, Construction of Storage tank, Micro ADV 16-MHz Splash-Proof System etc.

Surveying Laboratory

Survey equipment / modern equipment like EDM, Total station, Electronic Theodolite, GIS for remote-sensing, Digitizer, GPS etc for various studies topographic, Volumetric bench with set of weir and Notchs, Impact of Jet, Free and Force Vertex flow, Losses in Pipe system are in working condition.

Engineering Geology

Trinocular Stereo zoom Microscope, Petrographic Microscope with digital image capturing facility, hardness box kit are available.

Centre of Excellence (Integrated Landuse Planning and Water Resources Management)

Runoff Sediment Sampler, Digital Water Level Recorder, Soil Moisture Profile Probe, Oxy Top IS 6, Digital BOD Analyser, Oxi3205 Dissolved Oxygen Meter, Digital Rainfall Recorder, Ground Penetrating Radar, Scanner, Plotter, ArcGIS Master Lab Kit 9.3.1 – 3 license

A. Murali Krishna	Seismic Requalification of Geotechnical Structures	UKIERI	32.00	Subhamoy Bhattacharya, University of Bristol, UK	2 years
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Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Mohammad Jawed (Institute Coordinator)	Preparation of Ganga River Basin Environment Management Plan (GRBEMP)	Ministry of Environment and Forests	160	S Dutta, S A Kartha, Ajay Kalamdhah, Utpal Bora, Ranjan Tamuli, M K Dutta	18 months
Kaustubh Dasgupta	Analytical Investigation of Geometric Configuration of Reinforced Concrete Wall-Footing for Earthquake Resistant Design	IIT Guwahati	5	-	2 years
Ajay Kalamdhad	Potential of aerobic digestion (composting) and anaerobic digestion of kitchen waste	Ministry of Drinking Water and Sanitation	21	-	3 years
A.K. Sarma	Integrated Land use Planning and Water Resource Management	MoUD	277	-	
A. Murali Krishna	Evaluation of Seismic Earth Pressures on Retaining Structures: A Comprehensive Study	BRNS (DAE)	9.7	-	2 years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Sharad Gokhale	Performance evaluation of air quality models at traffic intersections of urban areas for regulatory compliance	DST	12.72	-	3 years (completed in July 2011)
A.K. Sarma	A Modelling Based Study Towards Mitigating Fluoride Contamination Hazards in the Affected Areas of Guwahati City	NRDMS (DST)	-	-	-
A.K. Sarma	Climatic Data Collection from Tea Garden and other Sources of North-east India for Climate Change Study	Directorate of MoWR, GoI	-	-	-

CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
B. Singh	Scrutiny of project proposals for the state of Assam under PMGSY	NRRDA, New Delhi	-	-	-
Kaustubh Dasgupta	Evaluation of Safety of Overhead Water Tanks at Agartala	Directorate of Urban Development, Govt. of Tripura	5.00	-	6 months
Ajay Kalamdhad	Quantity and characteristics analysis of solid waste generated from Guwahati city	Guwahati Municipal Corporation	9.8	C. V. Sastri, Chemistry	6 Months
S.K. Dash	Recommendation for foundation of the zonal office building, Door-darsan, Guwahati	Prasar Bharati, Guwahati	1.1	-	-
A.K. Sarma	Review of the Report on Mishap at Myntdu Leshka hydroelectric project	MSEB	-	-	-
A.K. Sarma	Mitigating River Bank Erosion of Kalong River	Water Resources Department, Govt. of Assam	-	-	-
A.K. Sarma	Detail hydrologic study of the Dikrong-Panyor river basin and its impact on the downstream	NEEPCO	-	-	-
A.K. Sarma	Mathematical Modelling of River Brahmaputra for evaluating bank protection measures proposed from Dhing to Hiloikhunda	Water Resources Department, Govt. of Assam, 2011	-	-	-
S. Talukdar	Proof checking of Structural Drawings of new project of NEMCARE Hospital Pvt Ltd	NEMCARE Hospital, Guwahati	4	-	-
S. Talukdar	Vetting of Structural Design of proposed construction of students and scientists home at IASST campus at Guwahati	IASST, Guwahati	5.07	-	-
S. Talukdar	Assessment of RCC Bridge across New Chawldhowa Nallah Near Pasani Camp for NHPC Limited at Gerukamukh, Dhemaji through Nondestructive Evaluation	NHPC	3.31	-	-
Rajan Choudhary	Proof Check of Pavement Design	M/s Ramky Infrastructure Ltd.	6.82	A.K. Maurya	5 months
Rajan Choudhary	Proof check of Plan and Profile	M/s Ramky Infrastructure Ltd.	9.10	A.K. Maurya	2 months

Rajan Choudhary	Proof check of road alignment	Shillong Expressway Pvt. Ltd.	7.80	A.K. Maurya	3 months
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RESEARCH PUBLICATIONS

International Journal

B. Mistri and B. Singh

'Pullout behavior of plate anchors in cohesive soils', *Elect. Jnl. of Geotech. Engg.*, vol. 16/K, pp 1173-1184, 2011

B. Singh and R. K. Goswami

'Compaction characteristics of lateritic soil mixed with fly ash and lime', *Int. Jnl. of Geotech. Engg.*, vol. 6 (4), 2011

B. Singh and V. Vinot

'Influence of waste tire chips on strength characteristics of soils', *Jnl. of Civil Engg. and Arch.*, vol. 5 (9), pp 819-827, 2011

B. Singh and B. Mistri

'Uplift behaviour of plate anchors embedded in cohesionless soils', *Int. Review of Civil Engg.*, vol. 2 (6), pp 294-302, 2011

K. U. Ahamad and M. Jawed

'Breakthrough studies with mono- and binary-metal ion systems comprising of Fe(II) and As(III) using community prepared wooden charcoal packed columns', *Desalination*, vol. 285, pp 345-351, 2012 (doi:10.1016/j.desal.2011.10.025)

D. Deka, P. Bhargavi, A. Sharma, D. Goyal, M. Jawed and A. Goyal

'Enhancement of cellulase activity from a new strain of *Bacillus subtilis* by medium optimisation and analysis with various cellulosic substrates', *Enzyme Research*, vol. 2011, Article ID 151656, 2011 (8 pages) (doi:10.4061/2011/151656)

K. U. Ahamad and M. Jawed

'Breakthrough column studies for iron(II) removal from water by wooden charcoal and sand: A low-cost approach', *International Journal of Environmental Research*, vol. 5 (1), pp 127-138, 2011

C. Malaya and S. Sreedeeep

'A study on the change in SWCC parameters of a local soil due to fly ash addition', *Journal of Environmental Research and Development, G.SEED*, vol. 5 (4), pp 972-977, 2011

S. Sreedeeep and D. N. Singh

'A critical review of the methodologies employed for soil suction measurement', *International Journal of Geomechanics, ASCE*, vol. 11 (2), pp 99-104, 2011

C. Malaya and S. Sreedeeep

'A laboratory procedure for measuring high soil suction', *Geotechnical Testing Journal, ASTM*, vol. 34 (5), page count: 11, 2011

C. Malaya and S. Sreedeeep

'Critical review on the parameters influencing soil-water characteristic curve', *Journal of Irrigation and Drainage Engineering, ASCE*, vol. 138 (1), page count: 8, 2012

C. Malaya and S. Sreedeeep

'Critical evaluation on the drying water retention characteristics of a class F Indian fly ash', *Journal of Materials in Civil Engineering, ASCE*, vol. 24 (4), 451-459, 2012

M. M. Younus and S. Sreedeeep

'Evaluation of bentonite-fly ash mix for its application in landfill liners', *Journal of Testing and Evaluation, ASTM*, vol. 40 (3), page count: 6, 2012

S. Gokhale

'Impacts of traffic-flows on vehicular-exhaust emissions at traffic junctions', *Transportation Research – Part D Transport and Environment*, vol. 17 (1), pp 21-27, 2012

S. Gokhale

'Traffic-flow pattern and meteorology at two distinct urban traffic junctions with impacts on air quality', *Atmospheric Environment*, vol. 45 (10), pp 1830-1840, 2011

S. Pandian, S. Gokhale and A. K. Ghoshal

'An open-terrain line source model coupled with street-canyon effects to forecast carbon monoxide at traffic roundabout', *Science of the Total Environment*, vol. 409 (6), pp 1145-1153, 2011

A. Das and A. S. Kalamdhad

'Evaluation of Water Hyacinth Compost Stability using Respirometric Technique', *International Journal of Research in Chemistry and Environment (IJRCE)*, vol. 1 (1), pp 109-113, 2011

J. Singh and A. S. Kalamdhad

'Effects of heavy metals on soil, plants, human health and aquatic life', *International Journal of Research in Chemistry*

and Environment (IJRCE), vol. 1 (2), pp 15-21, 2011

M. Khwairakpam and A. S. Kalamdhad
'Vermicomposting of vegetable wastes amended with cattle manure', *Research Journal of Chemical Sciences (RJCS)*, vol. 1 (8), pp 1-7, 2011

A. S. Kalamdhad, M. Khwairakpam and A. A. Kazmi
'Drum composting of municipal solid waste (MSW)', *Environmental Technology*, vol. 33 (3), pp 299-306, 2012

G. S. Dhal, W. R. Singh, M. Khwairakpam and A. S. Kalamdhad
'Composting of water hyacinth using saw dust/rice straw as a bulking agent', *International Journal of Environmental Sciences*, vol. 2 (3), pp 1223-1238, 2012

S. N. Sahoo and P. Sreeja
'Total and Effective Impervious Area from low resolution satellite imageries', *International Journal of Earth Sciences and Engineering*, vol. 4 (6), pp 334-337, 2011

Chandan Kumar and P. Sreeja
'Evaluation of selected equations for predicting scour at downstream of ski-jump spillway using laboratory and field data', *Engineering Geology*, 2012

N. K. Sahoo, P. K. Ghosh and K. Pakshirajan
'Kinetics of 4-bromophenol degradation using calcium alginate immobilised *Arthrobacter chlorophenicus* A6', *International Journal of Earth Sciences and Engineering*, vol. 4 (6), pp 663-668, 2011

N. K. Sahoo, K. Pakshirajan and P. K. Ghosh
'Batch biodegradation of para-Nitrophenol Using *Arthrobacter Chlorophenicus* A6', *Applied Biochemistry and Biotechnology*, vol. 165 (7-8), pp 1587-96, 2011

N. K. Sahoo, K. Pakshirajan and P. K. Ghosh
'Biodegradation of para-nitrophenol using *Arthrobacter chlorophenicus* A6 in a novel upflow packed bed reactor', *Journal of Hazardous Materials*, vol. 190, pp 729-737, 2011

N. K. Sahoo, K. Pakshirajan and P. K. Ghosh and A. Ghosh
'Biodegradation of 4-chlorophenol by *Arthrobacter chlorophenicus* A6: Effect of culture conditions and degradation kinetics', *Biodegradation*, vol. 22 (2), pp 275-286, 2011

S. T. G. Raghukanth, J. Dixit, and S. K. Dash
'Ground motions for scenario earthquakes at Guwahati city', *Acta Geodaetica et Geophysica Hungarica*, vol. 46 (3), pp 326-346, 2011

Kumar Pallav, S. T. G. Raghukanth and K. D. Singh
'Liquefaction hazard scenario of Imphal City for 1869 Cachet and a hypothetical earthquake', *International Journal of Geotechnical Earthquake Engineering*, vol. 3 (1), pp 34-56, 2012

R. R. Maya and A. K. Sarma
'Minimizing Diurnal Variation of Downstream Flow in Hydroelectric Projects to Reduce Environmental Impact', *Journal of Hydro-environment Research*, vol. 5, pp 177-185, 2011

S. Bhattacharya, A. Murali Krishna, D. Lombardi and A. Crewe
'Economic MEMS based 3-axis water proof accelerometer for dynamic geo-engineering applications', *Soil Dynamics and Earthquake Engineering*, vol. 36, pp 111-118, 2012

A. Murali Krishna and G. Madhavi Latha
'Modeling the dynamic response of wrap faced reinforced soil retaining walls', *International Journal of Geomechanics*, doi:10.1061/(ASCE)GM.1943-5622.0000128, 2012

A. Bhattacharjee and A. Murali Krishna
'Behavior of gravity retaining walls subjected to seismic excitation using FLAC 3D', *International Journal of Earth Sciences and Engineering*, vol. 4 (6), pp 71-74, 2011

S. Bhattacharya, A. Murali Krishna, D. Lombardi and A. Crewe
'Economic MEMS based 3-axis water proof accelerometer for dynamic geo-engineering applications', *Soil Dynamics and Earthquake Engineering*, vol. 36, pp 111-118, 2012

M. Chakraborty, A. Murali Krishna and A. Chakraborty
'Reliability based performance evaluation of earth retaining structures', *Georisk 2011: Risk Assessment and Management*, ASCE Geotechnical Special Publication No. 224, pp. 762-769, 2011

Thiyam Thamphasana Devi and Bimlesh Kumar
'Analysing Flow Hydrodynamics in Stirred Tank with CD-6 Impeller and Rushton Turbine', *International Review of Chemical Engineering*, vol. 3 (4), pp 440-448, 2011

Thiyam Thamphasana Devi, Banoth Malsur and Bimlesh Kumar
'Stirred Tank with Arrowhead Impeller- Influence of Submergence Depth on Power Consumption', *Chemical Engineering Research Bulletin*, vol. 15 (1), pp 45-47, 2011

Thiyam Thamphasana Devi and Bimlesh Kumar
'Turbulent Modelling of Stirred tank with CD-6 Impeller', *Advances and Applications in Fluid Mechanics*, vol. 10 (2),

pp 141-155, 2011

Bimlesh Kumar and Thiyam Tamphasana Devi
'Microscale of turbulence and oxygen transfer in surface aerator', *Journal of Environmental Research and Development*, vol. 6 (3), pp 569-574, 2012

Achanta Ramakrishna Rao, Gopu Sreenivasulu and Bimlesh Kumar
'Geometry of sand-bed channels with Seepage', *Geomorphology*, vol. 128, (3-4), pp 171-177, 2011

Bimlesh Kumar
'Flow Resistance in Alluvial Channel', *Water Resources Springer*, vol. 38 (6), pp 745-754, 2011

Sumit Talukdar, Bimlesh Kumar and Subashisa Dutta
'Predictive Capability of Bedload Equations using Flume Data', *Journal of Hydrology and Hydromechanics*, vol. 60 (1), pp 45-56, 2012

Bimlesh Kumar
'Design consideration for circulating water conductor system of a power plant', *Dam Engineering*, vol. 22 (2), pp 103-116, 2012

R. B. Hiremath, Bimlesh Kumar, P. Deepak, P. Balachandra and N. H. Ravindranath
'Decentralised Sustainable Energy Planning of Tumkur District, India', *Environmental Progress and Sustainable Energy*, vol. 38 (2), pp 248-258, 2011

R. B. Hiremath and Bimlesh Kumar
'Low cost bioenergy options for rural India', *ASCE Journal of Management in Engineering*, vol. 28 (1), pp 70-80, 2012

A. Dey and P. K. Basudhar
'Flexural response of surface strip footing resting on reinforced viscoelastic foundation beds', *International Journal of Geotechnical Engineering*, J. Ross Publications, vol. 5 (2), pp 165-179, 2011

Anil Kumar Mishra, M. Ohtsubo, Loretta Li, T. Higashi
'Influence of various factors on the difference in the liquid limit values determined by Casagrande's and fall cone method', *Journal of Environmental Earth Science*, 65, pp. 21-27, 2012

Anil Kumar Mishra, M. Ohtsubo, Loretta Li, T. Higashi
'Controlling factors of the swelling of various bentonites and their correlations with the hydraulic conductivity of soil-bentonite mixtures', *Journal of Applied Clay Science*, 52, pp. 78-84, 2011

Anil Kumar Mishra, A. Ridlo, M. Ohtsubo, T. Higashi
'Comparison between ASTM and Japanese standard for the determination of clay fraction of Ariake clay', *Marine Georesource and Geotechnology*, 29(2), pp. 110-116, 2011

Snehasis Tripathy, Anil Kumar Mishra
'On the use of Skempton's compression index equation', *Geotechnical and Geological Engineering*, 29(1), pp. 129-135, 2011

H.B. Kaushik and K.S. Ravindra Babu
'Assam-type House', *World Housing Encyclopedia Report No. 154*, Published by Earthquake Engineering Research Institute (EERI) and International Association for Earthquake Engineering (IAEE), March, 2012

Rupak Sarkar and Subashisa Dutta
'Field Investigation and Modelling of Rapid Subsurface Stormflow through Preferential Pathways in a Vegetated Hillslope of Northeast India', *Journal of Hydrologic Engineering*, 17 (2), pp. 333-341, February 2012

Pori Das and S. Dutta
'A trend analysis study on the flashiness of floods of hilly headwater catchments in the Brahmaputra Basin', *International Journal of Earth Sciences and Engineering*, 4 (6), pp. 298-300, October 2011

S. Ghosh and S. Dutta
'Impact of climate and land use changes on the flood characteristics of the Brahmaputra basin', *ISH Journal of Hydraulic Engineering*, 17 (1), pp. 32-42, 2011

Tapas Karmaker and Subashisa Dutta
'Erodibility of fine soils from the composite bank of the Bharmaputra river in India', *Hydrological Processes*, 25, pp. 104-111, 2011

S. A. Kartha
'Non-ideal solute transport model on heap leaching of oxide copper ores', *International Journal of Earth Sciences and Engineering*, 4(6 SPL), pp. 451-458, 2011

National Journal

H. B. Kaushik
'Importance of Effective Stiffness Properties of RC Members in Seismic Analysis and Design of Structures', *Annals of the Indian National Academy of Engineering (INAE)*, vol. VIII, pp 191-196, 2011

A. Dey, P. K. Basudhar and S. Chandra
'Distribution of subgrade modulus beneath beams on reinforced elastic foundations', *Indian Geotechnical Journal*, vol. 41 (2), pp 54-63, 2011

Conference/Workshop/Seminar/Symposia**International**

V. Vinot and B. Singh

'Strength characteristics of a local red soil reinforced with tyre chips', 14th Asian Regional Conference of Soil Mechanics and Geotechnological Engineering, Hong Kong, Paper no.142, 6 pp, 23-27 May 2011

R. Patel, M. Achmus, B. Singh and K. Abdel-Rahman

'DEM simulations of soil-pile interface under static and cyclic loading', 2nd International Conference on Particle-Based Methods (PARTICLES 2011), Barcelona, Paper no. 139, 9 pp, 26-28 Oct 2011

V. Vinot and B. Singh

'Shredded tyre-sand as fill material for embankment applications', 4th International Congress of Environmental Research (ICER-11), Surat, 7 pp, 15-17 Dec 2011

A. Kalita, B. Singh and B. D. Saikia

'A study on stability of urban slopes under static and seismic conditions', International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), IIT Guwahati, Guwahati, 7 pp, 24-26 Feb 2012

H. Bala and M. Jawed

'Domestic wastewater treatment in north eastern region of India through facultative lagoon-polishing pond system', CD-Proceedings of 2nd International Conference on Environmental Technology and Construction Engineering for Sustainable Development (ICETCESD2012), Sylhet, Bangladesh, 10-12 Mar 2012.

H. Bala and M. Jawed

'Feasibility of facultative lagoon-polishing system of domestic wastewater treatment in north eastern region of India', CD-Proceedings of 27th National Convention of Environmental Engineers, Mangalore, 24-25 Jan 2012

B. Mahto and M. Jawed

'Impact of phosphate on coagulation and flocculation processes at optimum coagulant dosage in presence of Ca²⁺ cation', 4th International Congress of Environmental Research (ICER-11), Surat, 15-17 Dec 2011

H. Bala and M. Jawed

'Design assessment of facultative lagoon system of domestic wastewater treatment in north-eastern region – A case study', Proceedings of the National Conference on Water, Energy and Biodiversity with Special Reference to North-East Region (NCWEB2011), Agartala, 20-22 Aug 2011

K. U. Ahamad and M. Jawed

'Kinetics, equilibrium and continuous column studies for As(III) removal with river sand of Assam (India)', Proceedings of the National Conference on Water, Energy and Biodiversity with Special Reference to North-East Region (NCWEB2011), Agartala, 20-22 Aug 2011

M. Chetia and Sreedeeep S.

'Effect of measurement procedures on water retention characteristics of sand-fly ash admixture', International Conference on Advances in Civil Engineering (ACE-2011), K L University, Vijayawada, 21-23 Oct 2011

M. Chetia, A. Deka and Sreedeeep S.

A study on the influence of measuring methodologies on soil-water characteristic curve of a locally available soil', 3rd International Postgraduate Conference on Infrastructure and Environment, The Hong Kong Polytechnic University, Hong Kong, 11-12 Jul 2011

M. Chetia, A. Deka and Sreedeeep S.

'Parameterization of drying water retention characteristics of fly ash-soil mix', 4th International Congress of Environmental Research (ICER-11), Surat, 15-17 Dec 2011

M. Chetia. and Sreedeeep S.

'A critical review on the methodologies employed for soil-moisture measurements' 4th International Congress of Environmental Research (ICER-11), Surat, 15-17 Dec 2011

M. Chetia. and Sreedeeep S.

'A critical review on water retention curve', 4th International Congress of Environmental Research (ICER-11), Surat, 15-17 Dec 2011

M. Chetia. and Sreedeeep S.

'Soil-water characteristic curve for hill soil of North-East India', International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), IIT Guwahati, Guwahati, 24-26 Feb 2012

A. Dey, and R. K. Bhattacharjya

'Image processing based methodology to obtain width and centre line of a river using satellite imageries', Proceedings of the International Conference on the Status and Future of the World's Large Rivers, Vienna, Austria, 11-14 Apr 2011

A. Sarma, H.M. Kalita, and R. K. Bhattacharjya

'Mathematical model study for controlling bank erosion of Brahmaputra river', Proceedings of the International Conference on the Status and Future of the World's Large Rivers, Vienna, Austria, 11-14 Apr 2011

- R. Buragohain, D. Das, R. Sultana and R.K. Bhattacharjya
'Stability analysis of earthen embankment of Kollong river, near Raha, Nogaon, Assam', Proceedings of the International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), Guwahati, 24-26 Feb 2012
- T. Borah, and R.K. Bhattacharjya
'Coastal aquifer management models: A comprehensive review on model development', Proceedings of the International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), Guwahati, 24-26 Feb 2012
- S.R. Gentela and K. Dasgupta
'Influence of soil-structure interaction on seismic design of reinforced concrete integral bridge', Proceedings of International Symposium on Engineering under Uncertainty: Safety Assessment and Management (ISEUSAM – 2012), Kolkata, 4-6 Jan 2012
- S. Dhar and K. Dasgupta
'Parametric Study of Lateral Load Resisting System in Reinforced Concrete Frame Building', Proceedings of International Symposium on Engineering under Uncertainty: Safety Assessment and Management (ISEUSAM – 2012), Kolkata, 4-6 Jan 2012
- A. Kashliwal and K. Dasgupta
'Simplified Modeling of Reinforced Concrete Flat Plate Systems under Seismic Behaviour', Proceedings of International Symposium on Modeling and Simulation in Civil Engineering, ICMSC – 2011, Kollam, 8-10 Dec 2011
- N. Payala and K. Dasgupta
'Axial Force-Bending Moment Interaction of Earthquake-Resistant Reinforced Concrete Flanged Structural Walls', Proceedings of International Conference on Advances in Civil Engineering, ACE – 2011, Vijayawada, 21-23 Oct 2011
- R. Sudarshan Brahma and K. Dasgupta
'Influence of Structural Wall Area Ratio on Seismic Design of Reinforced Concrete Wall-Frame Buildings', Proceedings of International Conference on Advances in Civil Engineering, ACE – 2011, Vijayawada, 21-23 Oct 2011
- M. Ali, K. S. Duba, A. S. Kalamdhad, A. Bhatia, A. Khursheed, A. A. Kazmi and N. Ahmed
'High rate composting of herbal pharmaceutical industry solid waste', Proceedings of 8th IWA International Symposium on Waste Management Problems in Agro-Industries (Agro 2011), Radisson Blu Resort and Spa Çesme-Ilica, Izmir, Turkey, 22-24 June 2011
- A. S. Kalamdhad
'Decentralized composting of institutional; wastes', Proceedings of ISWA World Congress (ISWA 2011), Exco, Daegu, Korea, 17-20 Oct 2011
- W. R. Singh, A. Das and A. S. Kalamdhad
'Evaluating compost stability of water hyacinth: Agitated pile verses rotary drum composting', Proceedings of 2nd International Conference on Solid Waste Management (IconSWM 2011), Jadavpur University, Kolkata, 9-11 Nov 2011
- J. Singh and A.S. Kalamdhad
'Effects of heavy metals on the environment by utilization of urban waste compost for land application: A review', Proceedings of the International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), Guwahati, 24-26 Feb 2012
- W. R. Singh, A. Das and A. S. Kalamdhad
'Role of urban local bodies and opportunities in municipal solid waste management', Proceedings of the International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), Guwahati, 24-26 Feb 2012
- C. Marthong, S. K. Deb and A. Dutta
'Performance of rehabilitated RC beam-column sub-assembly under cyclic loading', 36th Conference on OUR WORLD IN CONCRETE and STRUCTURES, Singapore, 14-16 Aug 2011
- Kheni Dhaval Govindbhai, S. K. Deb, A. Dutta
'Studies on Toughness of Hybrid Fibre-Reinforced Cementitious Composite Beam', in the International Conference on Structural Engineering Construction and Management 2011 at Kandy, Sri Lanka, 15-17 Dec 2011
- S. N. Sahoo and Sreeja P.
'Indirect Determination of Effective Impervious Area (EIA) of an urban city in North East India', Proceedings of World Environmental Water Resources Congress, EWRI, ASCE, California, 22-26 May 2011
- S. N. Sahoo and Sreeja P.
'Determination of Effective Impervious Area in Guwahati city: A Case Study', International Conference on Advances in Materials and Techniques for Infrastructure Development (AMTID 2011), NIT Calicut, 28-30 Sep 2011
- S. N. Sahoo and Sreeja P.
'Total and Effective Impervious Area from low resolution satellite imageries', International Conference on Advances in Civil Engineering (ACE-2011), KL University,

Vijayawada, 21-23 Oct 2011

S. N. Sahoo and Sreeja P.

'Impact of total and effective imperviousness on runoff prediction', International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), Guwahati, 24-26 Feb 2012

S. P. Abraham, N. K. Sahoo, K. Pakshirajan and P. K. Ghosh
'Batch and Column Study on 4-CP Removal Using Calcium Alginate Immobilized Arthrobacter Chlorophenolicus A6', International Conference on Future Environment and Energy (ICFEE 2012), Singapore, 26-28 Feb 2012

B. Brahmacharimayum and P. K. Ghosh

'Biological sulfate reduction', International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), Guwahati, 27-28 Feb 2012

A. Ghosh, A. Shakya, V. V. Kulkarni and P. K. Ghosh
'Environmental Significance of Perchlorate in Aqueous Systems and its Removal Technologies', International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), IIT Guwahati, 27-28 Feb 2012

B. Brahmacharimayum, and P. K. Ghosh

'A study on efficiency of five different carbon sources on Sulfate Reduction', 4th International Congress of Environmental Research (ICER-11), Surat, 15- 17 Dec 2011

R. Vinnarasi and A. K. Sarma

'Statistical downscaling of GCM for predicting seasonal rainfall with short duration historical data', Proceedings of 2nd International Conference on Advances in Mechanical, Manufacturing and Building Sciences (ICAMB 2012), pp 1622-1626, 9-11 Jan 2012

M. R. Ray and A. K. Sarma

'Importance of input parameter selection for synthetic streamflow generation of different time step using ANN techniques', Proceedings of International Conference on Neural Computation Theory and Application, NCTA 2011, Paris, France, ISBN: 978-989-8425-84-3., pp-211-217, 24-27 Oct 2011

B. Sarma, A. K. Sarma and C Mahanta

'Optimal Ecological Management Practices (EMPs) For Controlling Sediment and Water Yield from Hilly Urban Watersheds', Proceedings of International Conference on Advances in Materials and Techniques for Infrastructure Development (AMTID 2011), NIT Calicut, 28-30 Sep 2011

C Mahanta, A. K. Sarma and B. Sarma

'Water Quality Degradation in the Tributaries of the

Brahmaputra-Barak Basin and Their Environmental Management Strategy, World Environmental and Water Resources Congress 2011: Bearing Knowledge for Sustainability', Proceedings of the 2011 World Environmental and Water Resources Congress ASCE Conference Proceedings doi:10.1061/41173(414)483,

B. Sarma, A K Sarma and C Mahanta

'Geographic Information System for Environmental Management of Large River Systems', Abstract Book of International Conference on the Status and Future of the World's Large Rivers, Vienna, Page No: 110, ISBN: 978-80-7399-518-8, 11-14 Apr 2011

A. Chakraborty, P. Mittal and S. Kameshwar

'Wavelet Based Linearization of Duffing Oscillator Subjected to Non-Stationary Excitation', Engineering Mechanics Institute 2011, Boston, USA, 2-4 Jun 2011

M. Chakraborty, A. M. Krishna and A. Chakraborty

'Reliability based performance evaluation of earth retaining structures', GEORISK 2011, Atlanta, GA, USA, 26-28 Jun 2011

S. Das and A. Chakraborty

'Generation of Elastic as well as Inelastic Design Spectrum Compatible Accelerogram Using Time-Frequency Analysis', 15th World Conference on Earthquake Engineering 2012, Lisbon, Portugal, 24th - 28th September 2012.

A. Dey and P. K. Basudhar

'Burger model parameter estimation: An inverse formulation', 13th International Conference of the International Association for Computer Methods and Advances in Geomechanics (IACMAG), Melbourne, Australia, pp. 195-200, 9-13 May 2011

A. Dey and P. K. Basudhar

'Load-Settlement behavior of elastic-perfectly plastic GRFB', 14th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Hong Kong, China, pp. 1-6, 23-27 May 2011

C. Rainieri, C. Laorenza, A. Dey, F. S. D. Magistris and G. Fabbrocino

'Dynamic response analysis of an embedded retaining wall: Full-scale instrumentation, monitoring and data interpretation' 8th International Symposium on Field Measurements in Geomechanics (8FMGM), Berlin, Germany, pp. 1-20

A. Dey and P. K. Basudhar

'Parameter-estimation of four-parameter viscoelastic

Burger model by Inverse Analysis', 3rd International Symposium on Computational Mechanics-2nd Symposium on Computational Structural Engineering (ISCM III-CSE II), Taiwan, Extended Abstract: CD-ROM.

A. Dey and P. K. Basudhar

'Inverse formulation for Burger model parameter estimation', International Symposium on Advances in Ground Technology and Geo-Information (IS-AGTG), Singapore, pp. 483-491

A. Murali Krishna, and M. R. Madhav

'Seismic Risk Mitigation of Loose Saturated Sands with Granular Inclusions', First Indo-Japan Workshop on Geotechnical Engineering (Theme: Earthquake Geotechnical Engineering), Kochi, 14 Dec 2011

V. Prashanth, A. Bhattacharjee and A. Murali Krishna

'Soil-Geosynthetics Interaction Behavior in Oblique Direction', In International Conference on Advances in Geotechnical Engineering, Perth, Australia, 7-9 Nov 2011

A. Bhattacharjee and A. Murali Krishna

'Numerical modeling of wrap faced reinforced soil walls under seismic shaking', Proceedings of 14th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Hong Kong, 23-27 May 2011

S. Reddy and S. Talukdar

'Dynamic response of vehicle considering axle flexibility travelling over series of potholes', Proceedings of 9th International Conference in Mechanical Engineering, Dhaka, paper No. ICME-2011-AM/046, 18-20 Dec 2011

R. Lalthlamuana and S. Talukdar

'Rating of bridges incorporating dynamic effect of moving loads', Proceedings of IABSE-IASS Symposium held in London, (UK) during, p 576, 20-23 Sep 2011

C.P. Parchuri, and H.B. Kaushik

'Use of RC Shear Walls in Strengthening of Open Ground Story RC Buildings', Proceedings of the 8th International Conference on Structural Dynamics, EURO DYN 2011, The European Association for Structural Dynamics (EASD), and The Technological Institute of the Royal Flemish Society of Engineers (TI KVIV), Leuven, Belgium, Paper No. 960, pp. 419-426, 4-6 Jul 2011

Sanjay Deori, Rajan Choudhary, Devesh Tiwari and B. M. Sharma

'A critical review of flexible pavement performance prediction models', International Conference on Advances in Materials and Techniques for Infrastructure

Development (AMTID 2011) NIT Calicut, India, 28-30 September 2011

Dr. Rajan Choudhary, Abhijit Mondal and Harshad S. Kaulgud

'Use of Cold Mixes for Rural Road Construction', International Conference On Emerging Frontiers in Technology for Rural Area (EFITRA-2012), Wardha, Maharashtra, India, 17 -18 March 2012

Rajan Choudhary, E. Obulu Reddy and Amit Kumar Rathi

'Inadequate drainage leading to failure of flexible pavements', International Conference on Advances in Materials and Techniques for Infrastructure Development (AMTID 2011) NIT Calicut, India, 28-30 September 2011

Rajan Choudhary and Ashok Julaganti

'Effect of Mixing and Compaction Temperatures on HMA with WMA Additives', 11th Annual International Conference on Pavement Engineering and Infrastructure, Liverpool John Moores University, February 15-16, 2012, Liverpool, UK

Anil Kumar Mishra

"Effect of bentonite quality on the hydraulic and compressibility behaviour of soil-bentonite mixtures in the presence of salt solution", 5th Asia-Pacific conference on unsaturated soils, Pattaya, Thailand, 2012

A. K. Maurya

'Comprehensive approach for modeling of traffic streams with no lane discipline', 2nd Conference on Models and Technologies for ITS, Leuven, 22-24 June 2011

P.S. Bokare and A. K. Maurya

'Acceleration modeling of vehicles in developing countries', 2nd conference on Models and Technologies for ITS, Leuven, 22-24 June 2011

P.S. Bokare and A. K. Maurya

'Effect of driver behaviour on vehicle acceleration', 1st conference of Transportation Research Group of India (CTRG), Bangalore, 7-10 December 2011

A. K. Maurya and R. A. Bondre

'Simulation of traffic rotary using VISSIM', 1st conference of Transportation Research Group of India (CTRG), Bangalore, 7-10 December 2011

A. Anusha, A. K. Maurya and S. Gokhale

'Vehicular's emission modelling – a review', International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), IIT Guwahati, 27-28 February 2012

A. A. Anantrao, A. M.V.S. Kumar, and A. K. Maurya
'Economic evaluation of transportation project – a case study of ferry system for IIT Guwahati', International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), IIT Guwahati, 27-28 February 2012

M. Sreekumar and A. K. Maurya
'Need for a Comprehensive Traffic Simulation Model in Indian Context', International Conference on Emerging Frontiers in Technology for Rural Area (EFITRA-2012), Wardha, Maharashtra, 17-18 March 2012

M. Metkari, A. K. Budhkar and A. K. Maurya
'Review of Passenger Car Equivalence Studies in Indian Context', International Conference on Emerging Frontiers in Technology for Rural Area (EFITRA-2012), Wardha, Maharashtra, 17-18 March 2012

S. Ghosh and S. Dutta
'Implication of climate changes on floods in Brahmaputra basin', Proceedings of the International conference on Sustainable water resources management and climate change adaptation, NIT Durgapur, Durgapur, 17-19 February 2011

S. Dutta and S. Ghosh
'Impact of climate and land use changes on the flood hazard of the middle Brahmaputra reach', 5th International Conference on Flood Management (ICFM5), Tsukuba-Japan, 27-29 September 2011

S. Ghosh and S. Dutta
'Impact of climate and land use changes on the flood vulnerability of the Brahmaputra basin', Proceedings of Geospatial world forum, Hyderabad, 18-21 January 2011

Pori Das and Subashisa Dutta
'Quantification of flashiness index in hilly headwater catchments of the Brahmaputra basin', International seminar on River, Society and Sustainable development, Dibrugarh University, Dibrugarh, Assam, 26-29 May 2011

Arpit Chouksey, Pori Das and Subashisa Dutta
'Simulation of Flash Flood in hilly headwater catchments using the SWAT hydrological model', International seminar on River, Society and Sustainable development, Dibrugarh University, Dibrugarh, Assam, 26-29 May 2011

National

A. K. Maurya, S. Sharma and S. Biswas
'Modelling Heterogeneous Traffic using VISSIM', National Conference on Recent Advances in Civil Engineering (RACE 2011), IT-BHU, Varanasi, 14-16 October 2011

B. Brahmacharimayum and P. K. Ghosh
'Acid mine drainage (AMD) treatment to remove sulfate into elemental sulfur by microaerobic process', National Conference on Forestry, Environment and climate change: Issues and Challenges 2012, Bilaspur, 30-31 Jan 2012

R. S. Bisht and B. Singh
'Factors affecting behaviour of piled raft foundation', National Conference on Recent Advances in Civil Engineering (RACE-2011), Varanasi, pp. 144-150, 14-16 Oct 2011

M. Sumesh and B. Singh
'Strength properties of clayey silt-fly ash-cement mixtures based on laboratory testing', Indian Geotechnical Conference, IGC-2011, Kochi, Vol. 1, pp. 473-476, 15-17 Dec 2011

A. Bhosale, P. Barman and B. Singh
'Influence of cement on triaxial response of fly ash-admixed sand', Indian Geotechnical Conference, IGC-2011, Kochi, Vol. 1, pp. 425-428, 15-17 Dec 2011

T. Das and B. Singh
'Deformation and strength characteristics of lime/cement added soils', National Conference on Recent Advances in Civil Engineering and Infrastructure Development (RACE-Ind 2011), Guna, pp. G47-52, 21-22 Dec 2011

M. Chetia, A. Deka, and Sreedeeep S.
'Evaluation of estimated suction-water content relationship of a locally available soil', Indian Geotechnical Conference, IGC 2011, Kochi, 15-17 Dec 2011

M. Chetia, V. Srikanth and Sreedeeep S.
'A cost effective methodology for measuring high suction in soils', Indian Geotechnical Conference, Kochi, 15-17 Dec 2011

M. Chetia and Sreedeeep S.
'Recent developments in the measurement of wetting SWCC', National Conference on Recent Advances in Civil Engineering, Banaras Hindu University, Varanasi, 14-16 Oct 2011

A. Dey
'Calibration of a PLAXIS finite element dynamic model: Effect of domain width and meshing schemes/AES', 3rd Indian Young Geotechnical Engineers Conference: 3IYGEC, IIT Delhi, New Delhi, India, pp. 127-132, 2011

A. Dey and P. K. Basudhar
'Inverse analysis: A tool for model parameter optimization', GeoChallenges: Indian Geotechnical Conference (IGC-

2011), Kochi, pp. 843-846, 15-17 Dec 2011

A. Dey, C. Rainieri, C. Laorenza, D. Gargaro, D. Brigante, G. Piccolo, G. Fabbrocino and F. Santucci de Magistris 'Dynamic analysis of a fully instrumented embedded retaining wall: Preliminary interpretation', *GeoChallenges: Indian Geotechnical Conference (IGC-2011)*, Kochi, pp. 347-350, 15-17 Dec 2011

A. Murali Krishna and S. Bhattacharya 'Seismic Design Considerations for Pile Foundations', *Indian Geotechnical Conference 2011*, Kochi, Vol. 1, pp. 321-324, 15-17 Dec 2011

A. Bhattacharjee, V. Prashanth and A. Murali Krishna 'Numerical Modelling Of Pullout Test For Reinforcement In Oblique Direction', *Indian Geotechnical Conference 2011*, Kochi, Vol. 2, pp. 891-894, 15-17 Dec 2011

K. C. Awdhesh and A. Murali Krishna 'Soil-Geosynthetics Interaction Properties For Different Types of Soil', *Indian Geotechnical Conference 2011*, Kochi, Vol. 1, pp. 585-588, 15-17 Dec 2011

Rajan Choudhary, Eleena Gao and Ashok Julaganti 'Performance history of warm mix asphalt', *National Conference on Recent Advances in Civil Engineering*, Institute of Technology, BHU, 14-16 Oct 2011

Sumit Talukdar, Bimlesh Kumar and S. Dutta

'Comparative Analysis of Bed Load Formulas for Intense Bedload Channels', *National Conference on Recent Advances in Civil Engineering*, IT-BHU, 14-16 October 2011

Book, Chapter, etc.

A. Mukherjee and A. K. Sarma *2D flow simulation in alluvial river using MIKE software: A modelling approach*, Lambert Academic Publishing, UK, 2011 (ISBN: 9783844384086)

S. Gokhale 'Traffic in developing countries – an environmental perspective', *Traffic Safety—Transportation Issues, Policies and R&D*, Ed. Cristina Ferraro, Nova Science Inc., 2011 (ISBN: 9781617611209)

Arindam Dey *Lumped Parameter Modeling and Model Parameter Estimation: Analysis of Elastic, Elastoplastic and Viscoelastic Unreinforced and Reinforced Foundation Beds*, Lambert Academy Publishing, Germany, pp. 504, 2011 (ISBN: 9783844312102)

A. Dey and P. K. Basudhar 'Inverse Formulation for Burger Model Parameter Estimation', *Advances in Ground Technology and Geo-Information*, Eds. K. K. Phoon, S. H. Goh, R. F. Shen and H. Zhu, Research Publishing, Singapore, pp. 483-491, 2011 (ISBN: 9789810701888)

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
Mohammad Jawed	2nd International Conference on Environmental Technology and Construction Engineering for Sustainable Development (ICETCESD2012)	Sylhet, Bangladesh	10-12 Mar 2012	International
Mohammad Jawed	27th National Convention of Environmental Engineers	Mangalore,	24-25 Jan 2012	National
Mohammad Jawed	4th International Congress of Environmental Research (ICER-11)	Surat,	15-17 Dec 2011	International
Mohammad Jawed	National Conference on Water, Energy and Biodiversity with Special Reference to North-East Region (NCWEB2011)	Agartala, India	20-22 Aug 2011	National
Hemant B. Kaushik	International Conference on Structural Dynamics, EURO DYN 2011	Leuven, Belgium	4-6 Jul 2011	International
Rajib Kumar Bhattacharjya	International Conference on the Status and Future of the World's Large Rivers	Vienna, Austria	11-14 Apr 2011	International

Kaustubh Dasgupta	International Symposium on Engineering under Uncertainty: Safety Assessment and Management (ISEUSAM – 2012)	Bengal Engg. and Science Univ., West Bengal	4-6 Jan 2012	National
Ajay Kalamdhad	ISWA World Congress (ISWA 2011)	Daegu, Korea	17-20 Oct 2011	International
A. Murali Krishna	14th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering	Hong Kong, China	23-27 May 2011	International
A. Murali Krishna	Indian Geotechnical Conference 2011	Kochi	15-17 Dec 2010	National
Rajan Choudhary	11th International Conference on Pavement Engineering and Infrastructure	Liverpool, UK	15-16 Feb 2012	International
A. K. Maurya	2nd conference on Models and Technologies for ITS, Leuven	Leuven, Belgium	22-24 Jun 2011	International
A. K. Maurya	1st conference of Transportation Research Group of India (CTRG), Bangalore	Bangalore	7-10 Dec 2011	International

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Kaustubh Dasgupta	Earthquake Resistant Practices for Architects	Indian Institute of Technology Kanpur	Kanpur	05 Jul 2011
Kaustubh Dasgupta	Design of RC Structures in Severe Seismic Zones: Basic Issues	National Symposium on Sustainable Development of Urban Infrastructure IGS BuildCon 2011	Guwahati	22 Jul 2011
Ajay Kalamdhad	Municipal solid waste management in India	Guwahati Regional Centre, Indian Institute of Chemical Engineers	Indian Institute of Technology Guwahati	28 Oct 2011
Arindam Dey	Seismic Health Monitoring: A Tool for Sustainable Development	BUILDICON 2011, IGS Guwahati Chapter in collaboration with Max Cement	Guwahati	22 Jul 2011
Rajan Choudhary	Road Safety Issues in North Eastern States	Engineering Staff College of India	Institute of Engineers, Guwahati	9 Nov 2011
Rajan Choudhary	Road Engineering Measures for Improving Road Safety	Engineering Staff College of India	Institute of Engineers, Guwahati	9 Nov 2011
Rajan Choudhary	Granular Pavement Courses	PWD (Highways), Arunachal Pradesh and Administrative Training Institute, Govt. of Arunachal Pradesh	Administrative Training Institute, Naharlagun, Arunachal Pradesh	19 Nov 2011
A. K. Maurya	Traffic Management Measures	Engineering Staff College of India	Institute of Engineers, Guwahati	9 Nov 2011
A. K. Maurya	Road Safety Audit	Engineering Staff College of India	Institute of Engineers, Guwahati	9 Nov 2011

A. K. Maurya	Rural road in India	International Conference at BDCE, Sewagram	BD College of Engineering, Sewagram, Maharashtra	17 March 2012
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VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. Taiichi Hayashi	Disaster Prevention Research Institute (DPRI), Kyoto University, Japan	Recent Trends of Rainfall Research in North Eastern Region of Indian Subcontinent	24 Aug 2011
Mr. M. S. Chawla	General Manager (EMG, Ash Utilization and Afforestation) NTPC Limited, NOIDA	Fly Ash- A Resource Material	10 Sep 2011
Mr. Sandeep Sahu	Geotechnology Division of Maccaferri Environmental Solutions	Engineered Solutions for the Frequent Problems Faced in the North Eastern Region	20 Aug 2011
Dr. Subhamoy Bhattacharya	University of Bristol, UK	Experience of a magnitude 9 earthquake (2011 Tohoku earthquake) and lessons learnt	3 Jan 2012
Prof. Hosoda Takashi	Kyoto University, Japan	Introduction of Research Activities in the Laboratory of River Basin Management and River Engineering, Dept. of Urban Management, Kyoto University	15 Mar 2012
Dr. H.W. Graf	Professor of Hydraulics, Lausanne, Switzerland	Transport and Mixing of Matter	16-18 Jun 2011
Dr. T.G. Sitharam	Professor, IISc Bangalore	Seismic Microzonation: Principle and Practices	28 Jun 2011

SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
A.K. Sarma	ENSURE 2012	COE (IL-PWRM)	24-26 Feb 2012	International
Rajib Kr. Bhattacharjya	Engineering optimization using MATLAB and Excel	AICTE	29 Feb - 3 Mar 2012	National
Rajib Kr. Bhattacharjya	Mitigation of river bank erosion problems	DONER	23 Jan - 3 Feb and 13-23 Mar 2012	National
Ajay Kalamdhad	QIP-STC on 'Integrated Solid Waste Management'	AICTE	9-13 Jan 2012	National
A.K. Sarma	Need of Watershed based planning for hazard mitigation	-	24 Jan 2012	-
S. Dutta and Bimlesh Kumar	River Basin Management and Fluvial Disaster	-	16 Jan 2012	-
Bimlesh Kumar and S. Dutta	QIP-Large River Management: Hydraulics, Hydrology and Ecology	-	16-21 Jan 2012	-

AWARDS AND HONOURS

A. Kalamdhad

IEI Young Engineers Award 2011–2012 in Environmental Engineering discipline from Institute of Engineers (India).

B. Kumar

Young Environmentalist Award 2011 for paper Application of standard $k-\epsilon$ turbulence model for designing of stirred tanks along with Thiyam Tamphasana Devi at the 4th International Congress of Environmental Research, 15–17 December 2011, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat.

M. Jawed

Awarded the first prize in the category of post graduate research for the paper 'Domestic wastewater treatment in north eastern region of India through facultative lagoon-polishing pond system', co-author H. Bala at the 2nd International Conference on Environmental Technology and Construction Engineering for Sustainable Development (ICETCESD2012), Sylhet, Bangladesh, 10–12 March 2012.

A. Muralikrishna

BOYSCOST fellowship 2010–11 for visiting Bristol University, UK.

A. Dey

Selected and appointed as editorial board member from 10 October 2011 for 3 years in the *Journal of Civil Engineering*, Scientific and Academic Publishing.

ANY OTHER (SPECIAL MENTION)

Effects of the recent earthquake in Sikkim (18 September 2011; Magnitude 6.9) on built environment was studied by faculty members of the Department of Civil Engineering. Prof. S. K. Deb, Dr. H. B. Kaushik, Dr. K. Dasgupta, and Dr. A. Muralikrishna were part of larger National Reconnaissance Teams that visited several areas in Sikkim after the severe earthquake shaking.

Technical Reports

C.V.R. Murty, S.T.G. Raghukanth, A. Menon, R. Goswami, A.R. Vijayanarayanan, S.R. Gandhi, K.N. Satyanarayana, A. Sheth, D.C. Rai, G. Mondal, V. Singhal, N. Parool, T. Pradhan, A. Jaiswal, H.B. Kaushik, K. Dasgupta, A. Chaurasia, S. Bhushan, D. Roy, and R. Pradeep Kumar 'The Mw 6.9 Sikkim-Nepal Border Earthquake of September 18, 2011', *Earthquake Engineering Research Institute Special Earthquake Report, Learning From Earthquakes Project*, EERI, USA, 14p, February 2012

A.K. Sarma

'Impact of climate change on a southern tributary of Brahmaputra Basin', Report submitted to Climate Change Directorate Ministry of Water Resources, December 2011

A.K. Sarma

'Impact of climate change on precipitation characteristics of Brahmaputra Basin', Report submitted to Climate Change Directorate Ministry of Water Resources, July 2011

FACULTY MEMBERS**G. Barua**

PhD (IIT Kharagpur)

Associate Professor

Areas of Interest: Flow through Porous Media

R.K. Bhattacharya

PhD (IIT Kanpur)

Associate Professor

Areas of Interest: Water Resources System Management, Genetic Algorithms, Artificial Neural Networks

A. Chakraborty

PhD (Trinity College, Dublin, Ireland)

Assistant Professor

Areas of Interest: Dynamic and Random Vibration, System Identification and Damage Detection, Wavelet Analysis

S. Chakraborty

PhD (IIT Bombay)

Associate Professor

Areas of Interest: Water and Wastewater Treatment, Biodegradation of Industrial Wastewater, Removal of Heavy Metals from Wastewater

R. Choudhary

PhD (IIT Roorkee)

Assistant Professor

Areas of Interest: Pavement Analysis and Design, Highway Construction and Quality Control, Pavement Material Characterisation, Pavement Evaluation and Maintenance, Traffic Engineering

S. Das

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Earthquake Engineering, Structural Dynamics, Random Vibration, Structural Reliability

K. Dasgupta

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Earthquake Engineering, Design of Reinforced Concrete Structures, Retrofitting of Structures

S.K. Dash

PhD (IIT Madras)
Associate Professor

Areas of Interest: Reinforced Soil Structures, Shallow and Deep Foundations, Ground Improvement Techniques

S.K. Deb

PhD (IIT Roorkee)
Professor and Head of the Department

Areas of Interest: Passive and Semi-active Control, Performance based Seismic Design, System Identification and Structural Health Monitoring, Seismic damage Assessment

A. Dey

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Modelling of Reinforced Foundation Beds, Model Parameter Estimation, Seismic Health Monitoring

A. Dutta

PhD (IIT Delhi)
Professor

Areas of Interest: Finite Element Mesh Generation, Optimisation, Control, Health Monitoring and Retrofitting of structures

S. Dutta

PhD (IIT Kanpur)
Associate Professor

Areas of Interest: Meso-Scale Distributed hydrological modelling, Satellite Remote Sensing and GIS for Water resources Management, Computational river hydraulics and its applications, Watershed and Irrigation Management

P.K. Ghosh

PhD (IIT Kharagpur)
Associate Professor

Areas of Interest: Water treatment for Domestic and Industrial use, Domestic and Industrial Wastewater Treatment, Sludge treatment by Physicochemical and Biological Process

S. Gokhale

PhD (IIT Delhi)
Associate Professor

Areas of Interest: Urban Vehicular Pollution, Industrial Stack Pollution, Indoor Air Pollution, Environmental Impact Assessment

M. Jawed

PhD (IIT Kanpur)
Professor

Areas of Interest: Biological Processes, Anaerobic Wastewater Treatment, Heavy Metal Removal and Recovery, Water Treatment and Supply, Domestic and Industrial Wastewater Treatment

A. Kalamdhad

PhD (IIT Roorkee)
Assistant Professor

Areas of Interest: Solid Waste Management, Mechanical Composting and Vermicomposting, Analysis of Solid Wastes

S.A. Kartha

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Flow and transport through porous media, Heap leaching, Hydrology, Numerical modelling

H.B. Kaushik

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Earthquake Resistant Design, Nonlinear Behaviour of Structures, Retrofitting of Structures, Finite Element Modelling

B. Kumar

PhD (IISc Bangalore)
Assistant Professor

Areas of Interest: Small scale studies of mixing tanks, Experimental Studies of Aeration Systems, Sediment Transport analysis, Pipeline analysis, CFD simulation, Surge analysis

C. Mahanta

PhD (Jawaharlal Nehru University, New Delhi)
Professor

Areas of Interest: Water Quality, Sediment Dynamics in Fluvial Systems, Environmental Impact, Risk Assessment and Management, Environmental Geo-informatics, Engineering Geology

C. Mallikarjuna

PhD (IIT Delhi)
Assistant Professor

Areas of Interest: Traffic flow theory and Modelling, Traffic Data Collection and Analysis, Travel demand Modelling

A.K. Maurya

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Driver Behaviour, Traffic flow theory and modelling, Traffic Engineering

A. K. Mishra

PhD (Kyushu University, Fukuoka, Japan)
Assistant Professor

Areas of Interest: Chemical compatibility studies of soil-bentonite mixtures, Waste (municipal, industrial and hazardous) management and disposal and Unsaturated soil mechanics

A. Murali Krishna

PhD (IISc Bangalore)
Assistant Professor

Areas of Interest: Soil Investigation, Reinforced Soil Structures, Geosynthetics and Ground Improvement, Earthquake Geotechnical Engineering

Sreeja P.

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Urban Hydrology and Hydraulics, Computational Fluid Dynamics, Multi-Objective Water Resources Systems Analysis, Stochastic Hydrological Modelling, Coastal Hydrodynamics

B. Pradhan

PhD (IIT Delhi)
Assistant Professor

Areas of Interest: Durability studies in concrete, Corrosion of Steel Reinforcement and Protection Measures, High performance concrete, Mass transport in Cementitious Materials, Non-destructive testing of concrete structures, Construction management

T.L. Ryntathieng

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Pavement Materials, Precast Concrete Block Pavement, Cast In-Situ Concrete Block Pavement

Sreedeeep S.

PhD (IIT Bombay)
Associate Professor

Areas of Interest: Behavioral Studies of Unsaturated Porous Media, Characterisation of Geomaterials, Contaminant Transport and Retainment in Geomaterials, Soil stabilisation, Dynamic behavior and Study on liquefaction potential of soil

A.K. Sarma

PhD (Gauhati University, Guwahati)
Professor

Areas of Interest: Modelling and simulation in Free Surface Flow, Heuristic Method in Reservoir Optimisation, GIS based Watershed Modelling

H. Sharma

PhD (Texas A&M University, USA)
Assistant Professor

Areas of Interest: Impact and Blast Resistant Design, Reliability Analysis and Performance Based Engineering, Design and Optimization of Protection Measures

A.K. Singh

PhD (IISc Bangalore)
Associate Professor

Areas of Interest: Information Technology in Construction Engineering, Object-Oriented Programming, Constitutive Modelling

B. Singh

PhD (IIT Delhi)
Associate Professor

Areas of Interest: Marine Geotechnology, Modelling of Onshore and Offshore Foundations, Soil Stabilisation and Ground Modification, Pavement Subgrade and Site Characterisation

K.D. Singh

PhD (Southampton University)
Assistant Professor

Areas of Interest: Structural Analysis and Design, Finite Element Method, Fracture and Fatigue Mechanics

L.B. Singh

PhD (IIT Madras)
Assistant Professor

Areas of Interest: Public Private Partnerships, Risk Management, Construction Management

S. Talukdar

PhD (IIT Kanpur)
Professor

Areas of Interest: Structural Dynamics, Bridge Engineering, Wind induced Vibration and Control, Non Destructive Techniques

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INTRODUCTION

The Department of Computer Science and Engineering was established in 1995. Since its inception, the Department has always been recognized for excellence in research and teaching. The Department provides an outstanding research environment complemented by quality teaching for its students. In March 2012, the Department has 25 faculty members, 7 supporting staff members, 336 students in the BTech programme, 105 students in the MTech programme and 53 students in the PhD programme. Till date, degrees have been awarded to 518 BTech students, 303 MTech students, and 8 PhD students. In the 13th Convocation of the Institute, 53 students were awarded BTech degree, 35 students were awarded MTech degree and 2 students were awarded PhD degree in Computer Science and Engineering.

ACADEMIC ACTIVITIES

The Department provides individual workspace with a high-end PC, accessible round the clock, to each and every student of Computer Science and Engineering. The Department arranges for summer training of the second and third year BTech students at industries and educational institutions all over the country and abroad.

The Computer Science and Engineering Association (CSEA), a student group in the Department, has conducted a series of lectures and organized workshops on different topics during this period. Some students of the Department took part in the ACM-ICPC contest. A Linux User Group is active and is conducting several workshops and seminars to promote Linux throughout the institute. A Solaris User Group is also working in the same direction.

During the summer of 2011, the Department provided summer training to 40 students from different institutions around the country.

Keeping in view the current industry trends, a large

number of specially designed courses were offered by the Department during this period. Students were offered courses in Wireless Networks, Internet Protocols, Speech Processing, Computational Number Theory and Cryptography, Computer and Network Security, Optimization, Intelligent Systems & Interfaces, Distributed Systems, Parallel Algorithms, Information and Randomness, Computational Geometry, VLSI Design, Advanced Computer Architecture, Embedded Systems, Formal Verification, Mobile Robotics, Enterprise Systems, Human-Computer Interaction and Multimedia Systems, in addition to a set of courses in core areas. Innovative approaches to teaching traditional courses such as Operating Systems and Databases were also adopted. For instance, the students were taught how to study and modify an Operating System using the PintOS instructional software, the use of Network Simulators in the Networks course and the use of QualNet simulators for networking projects. They were also trained extensively in using Oracle RDBMS. The students used the RATIONAL suite in the Software Engineering course.

STUDENT INTAKE

BTech students enrolled in 2011-2012	: 72
MTech students enrolled in 2011-2012	: 53
PhD students enrolled in 2011-2012	: 17

FACULTY STRENGTH

Professor	: 03
Associate Professor	: 08
Assistant Professor	: 14
Total	: 25

MAJOR EQUIPMENT AND FACILITIES

The Department has separate laboratories for each semester and provides one computer (business class machines with quad-core and minimum 4GB RAM) to each enrolled student. These laboratories provide state-of-the-art computing facility for the students of

the Department. All the Laboratories are connected to the Gigabit Network of the Department which in turn is connected to the Institute Gigabit Network on optical fibre. The Labs are supported by many dual processor servers running Red Hat Enterprise Linux 5.2 including a High Availability (HA) File Server Cluster implementation with central LDAP authentication, running on IBM eServer Intel Xeon / AMD Opteron based processors and Terabyte capacity central storage. A HP Storage Works MSL5000 Series tape library is available for the departmental backup requirements. There is a local repository mirror server (maintained by the students of the Department) for Ubuntu and Fedora Linux to provide the most recent updates to users of the Department. Nearly every contemporary software and developing platform is made available to the students, so that they can keep up with the fast paced world of Information Technology.

Various Microsoft products and the Rational Rose software development suite are used to familiarize the students with different software development models. Many software packages and environments are available on the servers including MATLAB with libraries, Oracle RDBMS, Nachos OS package, NS2, GlomoSim, PHIGS graphics library, Java compiler and applet viewer, C++ compilers and Lisp interpreters. Development environments like MS Visual Studio 2008, MS Visual Studio .NET, Visual Prolog, MS Office 2003 developer, etc. are actively used for development purposes in the Department. Other software like Network Query Language - Workstation (NQL), Qualnet with libraries, CADP are also available. The Department is a partner in the Oracle Academic Initiative and the MSDN Academic Alliance.

The Department hardware laboratory is equipped with educational tools to promote a thorough understanding of computer hardware and peripherals among the students. 8085/86 Microprocessor Trainer kits and 8033 Microcontroller kits are used to provide hands on experience to students about basic hardware. These are supported by Colour Logic Analyzer and Pattern Generator, Function/Arbitrary wave generator, digital oscilloscopes, Wireless Transmitter/Receiver pairs, Data acquisition/ Switch units, TDM pulse code modulator/transmitter and demodulator/receiver and other

similar essentials. Universal Robotics Trainer kits and Lego robots are actively used by students interested in robotics. Students working on various projects have developed microcontroller controlled arms and robots. The Department also has a campus wide WLAN Test bed, a CROSSBOW Wireless Sensor Network Test bed and Tablet PCs for E-Classroom.

The Department has an exclusive library cum reading room equipped with more than 4000 books/CDs and journals published by IEEE, ACM etc.

USP of the Department—

- The Department encourages an open interaction between the students and faculty members and non-teaching staff.
- The Department provides an individual workspace for each and every student along with a computer.
- The Department offers 24 × 7 × 365 access to all the facilities.

RESEARCH AND DEVELOPMENT ACTIVITIES

The major research areas of the Department are Computer Networks, Computer & Network Security, Operating Systems, Distributed Systems, Software Engineering, Speech Processing, Artificial Intelligence, Mobile Robotics, Algorithms, Natural Language Processing, Formal Verification, Embedded Systems, Electronic CAD, Pattern Recognition, Optimization, Multimedia Networking and Security, Information Hiding, Machine Learning, Computational Geometry, Information Retrieval, Data Mining, and Multicore Parallel Programming, Human-Computer Interaction, and Systems Biology. The Department's faculty members actively involve in sponsored research and consultancy in these areas.

The Department functions as a nodal centre for the ERNET, a resource centre for Indian Language Technology Solutions (RCILTS) and a resource centre for the Information Security Education & Awareness Programme.

The Department collaborates with the following entities in Industry/Academia: Microsoft University Relations, IBM, Oracle Academic Initiative, TCS, Red Hat, HP, ISI Kolkata, IIT Kanpur, IIT Delhi, IIT Madras, IIT Kharagpur, University of Oldenburg, Germany, Macquarie University, Australia and CDAC Kolkata.

RESEARCH PROJECTS**New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs in Lakhs)	Co-Principal Investigators	Duration
Arijit Sur	Shot based Video Watermarking for Very low bit Rate Video	DST	11.58	-	2012
Arijit Sur, J. Deka, Santosh Biswas	Remote Triggered Digital System Laboratory under Remote Triggered Lab	MHRD	49	-	2011

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs in Lakhs)	Co-Principal Investigators	Duration
Sukumar Nandi	Design, Development and Verification of Network Specific Intrusion Detection System using Failure Detection and Diagnosis of Discrete Event Systems.	DIT	111.78	Santosh Biswas, Arijit Sur	2009-2012
S. R. Mahadeva Prasanna	Development of Text to Speech System in Indian Language Phase II	DIT	108.14	Ranbir Sanasam	2011-2014
P. Bhaduri HOD, CSE	Intelligent Robot Human Interaction and Embedded Systems	DST	50	J.K. Deka, S. B. Nair, P.K. Das	2009-2014
Sukumar Nandi	Information Security Education and Awareness (ISEA) Project	MCIT	38	G Sajith	May 2006 – Apr 2013
D. Goswami	ERNET Nodal Agent	ERNET India	-	-	1996 -

CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs in Lakhs)	Co-Principal Investigators	Duration
Santosh Biswas	Development of Framework for Logging and Analysis of Network Traffic to secure IT infrastructure	MCIT at Manipur University, Guwahati University, Assam University	15	Arijit Sur, Sukumar Nandi	2009-
Gautam Barua	ERP Consultancy for OPTCL	Orissa Power Transmission Corporation Limited	7	Sukumar Nandi	2006-

RESEARCH PUBLICATIONS

International Journal

N. Hubballi, S. Biswas and S. Nandi

'Network Specific False Alarm Minimisation', *Journal of Security and Communication Networks*, vol. 4 (11), pp 1339-1349, 2011

Ferdous A. Barbhuiya, Santosh Biswas and Sukumar Nandi

'An active host-based intrusion detection system for ARP-related attacks and its verification', *International Journal of Network Security & Its Applications (IJNSA)*, vol. 3 (3), pp 163-180, 2011

N. Sarma and S. Nandi

'Enhanced Service Differentiation using Priority based MAC Protocol for MANETs', *International Journal of Communication Networks and Distributed Systems*, vol. 8 (1/2), pp 149-187, 2012

B. K. Patra, S. Nandi and P. Viswanath

'A distance based clustering method for arbitrary shaped clusters in large datasets', *Pattern Recognition*, vol. 44 (12), pp 2862-2870, 2011

S. Nandi and A. Yadav

'Cross Layer Adaptation for QoS in WSN', *International Journal of Computer Networks and Communications*, vol. 3 (5), pp 287-301, 2011

A. Sarma, S. Joshi and S. Nandi

'Context Aware Mobile Initiated Handoff For Performance Improvement In IEEE 802.11 Networks', *International Journal of Computer Networks and Communications*, vol. 3 (3), pp 48-66, 2011

S. Kumar, S. Kumar and S. Nandi

'Stage Staffing Scheme for Copyright Protection in Multimedia', *International Journal of Network Security and Its Application*, vol. 3 (2), pp 135-147, 2011

B. K. Patra and S. Nandi

'Tolerance Rough Set Theory based Data Summarisation for Clustering Large Datasets', *International Journal of Transactions on Rough Sets XIV, Lecture Notes in Computer Science*, vol. 6600, pp 139-158, 2011

Shrinivasa Naika C. L., Vibhor Nikhra, Shashishekhar Jha, Pradip K. Das and Shivashankar B. Nair

'An Intelligent Face Tracking System for Human-Robot Interaction using Camshift Tracking Algorithm', *International Journal of Machine Intelligence*, vol. 3 (4), pp 263-267, 2011

W. Godfrey and Shivashankar B. Nair

'A Bio-inspired Technique for Servicing Networked Robots', *International Journal of Rapid Manufacturing, Inderscience Enterprises Ltd.*, vol. 2 (4), pp 258-279, 2011

Shivashankar B. Nair, W. Godfrey and D. H. Kim

'On Realising a Multi-Agent Emotion Engine', *International Journal of Synthetic Emotions (IJSE)*, IGI Global, vol. 2 (2), pp 1-27, 2011

A. Sur, R. Vignesh, and J. Mukherjee

'Secure Steganography using Randomised Cropping', *LNCSTransactions on Data Hiding and Multimedia Security*, vol. 7110, pp 82-95, 2012

Pinki Roy and Pradip K. Das

'Language Identification of Indian Languages based on Gaussian Mixture Models', *International Journal of Wisdom based Computing*, vol. 1 (3), pp 54-59, 2011

V. Bimal, T. Venkatesh and C. Siva Ram Murthy

'A stochastic model for the behavior of multiple TCP NewReno sources over optical burst switching network', *Photonic Network Communications*, vol. 22 (2), pp 109-122, 2011

J. Ma, H. K. Kapoor, T. Krilavicius, K. L. Man

'Specification and Analysis of NCL Circuits', *Engineering Letters*, vol. 19 (3), pp 215-222, 2011

A. K. Singh and J. K. Deka

'A Study of Bandwidth Measurement Technique in Wireless Mesh Networks', *International Journal of Ad hoc, Sensor and Ubiquitous Computing*, vol. 2 (3), 2011

Guruprasad Khataniar and Diganta Goswami

'Avoidance of churn rate through temporal centralisation in Chord', *International Journal of Peer-to-Peer Networking and Applications*, vol. 4 (3), pp 251-258, 2011

Pinaki Mitra

'A Comparative Analysis of Huffman Coding', *The IUP Journal of Computer Sciences*, vol. VI (1), pp 17-22, 2012

Conference/Workshop/Seminar/Symposia

International

S. Jain and S. Bhattacharya

'Predictive Error Behavior Model of On-Screen Keyboard Users', *Proceedings of ACM Conference on Human Factors in Computing Systems (CHI 11)*, Vancouver, Canada, pp.1435-1440, 7-12 May 2011

S. Biswas

'On use of Petri-nets for Diagnosing Nonpermanent Failures', *Proceedings of 19th Mediterranean Conference on Control and Automation*, Greece, 2011, pp 606-611 (IEEE), 20-23 Jun 2011

F. Barbhuiya, S. Biswas, N. Hubballi and S. Nandi
'A Host Based DES Approach for Detecting ARP Spoofing', *Proceedings of IEEE Symposium on Computational Intelligence in Cyber Security*, France, pages 114 – 121, 11-15 Apr 2011

F. A. Barbhuiya, N. Hubballi, S. Biswas and S. Nandi
'Completeness of LAN Attack Detection Using Discrete Event Systems', *Proceedings of Advances in Network Security and Applications*, CCIS, Vol. 196, Part 1, 131-139, 2011

G. Bansal, N. Kumar, F. A. Barbhuiya, S. Biswas and S. Nandi
'Scalable Implementation of Active Detection Mechanism for LAN Based Attacks', *Proceedings of Advances in Network Security and Applications*, CCIS, Vol. 196, Part 1, pp. 258-267, 2011

F.A. Barbhuiya, S. Biswas and S. Nandi
'An Active DES Framework to Intrusion Detection System for ARP Spoofing', *Proceedings of IEEE International Conference on System, Man and Cybernetics*, Pages 2743 – 2748, USA, 9-12 Oct 2011

A. Bose Paul, U. Gogoi, S. Konwar, S. Nandi and S. Biswas
'E-AODV for Wireless Mesh Networks and its Performance Evaluation', *Proceedings of 6th International Conference on Broadband and Wireless Computing, Communication and Applications*, Spain, pages 26-33, 26-28 Oct 2011

F.A. Barbhuiya, S. Biswas and S. Nandi
'Detection of Neighbor Solicitation and Advertisement Spoofing in IPv6 Neighbor Discovery Protocol', *Proceedings of ACM International Conference on Security of Information and Networks*, Australia (ACM SIGSAC), pages 111-118, 2011

A. Rai, F. Barbhuiya, A. Sur, S. Biswas, S. Chakraborty and S. Nandi
'Exploit Detection Techniques for STP using Distributed IDS', *Proceedings of the World Congress on information and Communication Technologies*, pages 939-944, 11-14 Dec 2011

S. Konwar, A. Bose Paul, S. Nandi and S. Biswas
'MCDM based Trust Model for Secure Routing in Wireless Mesh Networks', *Proceedings of the World Congress on information and Communication Technologies*, pages 910 – 915, 2011

P. Swain, S. Chakraborty, S. Nandi and P. Bhaduri
'Performance Analysis of IEEE 802.11 IBSS Power Save Mode using Discrete-Time Markov chain', *Proceedings of the 27th ACM Symposium on Applied Computing*, 25-29 Mar 2012

S. Budhkar, A. Mishra, F. Barbhuiya and S. Nandi
'Security In Mobile Agent Systems With Locator Mechanism', *Proceedings of Recent Advances on Information Technology* (RAIT 2012), 15-17 Mar 2012

S. Chakraborty and S. Nandi
'MAC Layer Fairness in IEEE 802.11 DCF Based Wireless Mesh Networks', *Proceedings of International Conference on Computing, Networking and Communication*, 30 Jan – 2 Feb 2012

D. Devi and S. Nandi
'PE file features in Detection of Packed Executables', *Proceedings of International Conference on Information Security and Artificial Intelligence*, 28-30 Dec 2011

M. Barooah, S. Ahuja, S. Chakraborty and S. Nandi
'TCP Performance for WLAN-GPRS Handover in an Intermediate Switching Network based Framework', *Proceedings of the 5th IEEE International Conference on Advanced Networks and Telecommunication System*, 18-21 Dec 2011

P. Choudhury, K. R. P. Kumar, G. Athithan and S. Nandi
'A mechanism to recover voice from logged VoIP sessions based on RTP', *Proceedings of IEEE International Conference on Internet Multimedia Systems Architecture and Application*, 12-14 Dec 2011

F. Barbhuiya, S. Dastidar, S. Mandal and S. Nandi
'Detecting Metamorphic Virus using Hidden Markov Model and Genetic Algorithm', *Proceedings of International Conference on Soft computing for Problem Solving*, 20-22 Dec 2011 (Best paper award)

P. Banerjee, M. Mitra, F. Barbhuiya, S. Chakraborty and S. Nandi
'An Efficient Decentralized Rekeying Scheme to Secure Hierarchical Geographic Multicast Routing in Wireless Sensor Networks', *Proceedings of the Seventh International Conference on Information Systems Security*, 15-19 Dec 2011

S. Chakraborty and S. Nandi
'Achieving MAC Layer Fairness in Wireless Mesh Backbone based Vehicular Network', *Proceedings of International Conference on Computer and Communication Technology*, Oct 2011

- S. Chakraborty, S. Chakraborty, S. Nandi and S. Karmakar
'A Reliable and Total Order Tree Based Broadcast in Wireless Sensor Network', *Proceedings of International Conference on Computer and Communication Technology*, Oct 2011
- S. Chakraborty, S. Chakraborty, S. Nandi and S. Karmakar
'A Tree-Based Local Repairing Approach for Increasing Lifetime of Query Driven WSN', *Proceedings of 11th International Symposium on Parallel Architecture, Algorithms, and Networks (I-SPAN)*, Aug 2011
- S. Kumar, S. Kumar and S. Nandi
'Distributed Smart Camera Network and Mobile Devices', *Proceedings of International Conference on Advances in Computing and Artificial Intelligence (ACAI 2011)*, CCIS, pp. 21-24, Jul 2011
- S Kumar, S. Kumar and S. Nandi
'Multi-density Clustering Algorithm for Anomaly Detection using KDD'99 Dataset', *Proceedings of International Conference On Advances In Computing And Communications*, Jul 2011
- S. Nandi and A. Yadav
'Adaptation of MAC Layer for QoS in WSN', *Proceedings of Trends in Network and Communications*, CCIS, Vol. 197, Part 1, pp. 1-10, 2011
- V. S. Kumar, T. Dutta, A. Sur and S. Nandi
'Secure Network Steganographic Scheme Exploiting TCP Sequence Numbers', *Proceedings of Advances in Network Security and Applications*, CCIS, Vol. 196, Part 1, pp. 281-291, 2011
- K. Sreenivasan and S. Nandi
'On A Frame Work for Analysing Cloud Computing System Performance', *Proceedings of the 2nd Annual International Conference on Cloud Computing and Virtualization*, Malaysia, 25-26 Apr 2011
- N. Hubballi, B. K. Patra and S. Nandi
'NDoT: Nearest Neighbor Distance Based Outlier Detection Technique', *Proceedings of Pattern Recognition and Machine Intelligence*, LNCS, Volume 6744/2011, pp. 36-42, 2011
- B. K. Patra and S. Nandi
'Neighborhood Based Clustering Method for Arbitrary Shaped Clusters', *Proceedings of Foundations of Intelligent Systems LNCS*, Vol. 6804/2011, pp. 306-315, 2011
- A. Sarma and S. Nandi
'Zone Based Seamless Vertical Handoff Technique between WiFi and WiMax', *Proceedings of Recent Trends in Wireless and Mobile Networks*, CCIS, Vol. 162, Part 2, 305-314, 2011
- W. Wilfred Godfrey, S. B. Nair
'A Mobile Agent Cloning Controller for Servicing Networked Robots', *Proceedings of International Conference on Future Information Technology*, IPCSIT vol.13 (2011), pp.91-95, 16-19 Sep 2011
- J. Matani, S. B. Nair
'Typhon – A Mobile Agents Framework for Real world Emulation in Prolog', In C. Sombatheera et al. (Eds.): *Proceedings of 5th Multi-disciplinary International Workshop in Artificial Intelligence (MIWAI-2011)*, LNAI 7080, pp 261-273, 7-9 Dec 2011
- Shrinivasa Naika C.L, P. K. Das, S. B Nair
'Asymmetric Region Local Binary Pattern for Person-dependent Facial Expression Recognition', *Proceedings of International Conference on Computing, Communication and Applications*, ICCCA-2012, Dindigul, 22–24 Feb 2012
- W. Godfrey, S. S. Jha, S. B. Nair
'On A Mobile Agent Framework for an Internet of Things', Special Session on Intelligent Multi-Agent Systems, *Proceedings of 4th International Conference on Agents and Artificial Intelligence*, ICAART 2012, Villamoura, Algarve, Portugal, 6-8 Feb 2012
- P. Swain, S. Chakraborty, S. Nandi and P. Bhaduri
'Throughput Analysis of the IEEE 802.11 Power Save Mode in Single Hop Ad hoc Networks', *Proceedings of 10th International Conference on Wireless Networks*, ICWN 2011, CSREA Press
- A. S. Nair, A. Kumar, A. Sur and S. Nandi
'Length Based Network Steganography using UDP Protocol', *Proceedings of International Conference on Computer and Communication Devices (ICCCD 2011)*, pp. 726 – 730, Bali Island, Indonesia, 1-3 Apr 2011
- A. Sur, P. Goel and J. Mukhopadhyay
'Adaptive Pixel Swapping Based Steganography Reducing Embedding Noise', *Proceedings of 4th International Conference on Pattern Recognition and Machine Intelligence (PReMI'11)*, Moscow, Russia, Lecture Notes in Computer Science, Volume 6744/2011, pp. 299-304, 27 Jun-1 Jul, 2011
- O. Meena, S. Basavaraju and A. Sur
'DCT block location based data hiding', *Proceedings of World Congress on Information and Communication Technologies (WICT)*, 2011, Mumbai, pp. 886 – 891, 11-14 Dec 2011

- S. Chakraborty, S. Nandi and S. Karmakar
'A Novel Crash-Tolerant Data Gathering in Wireless Sensor Networks', *Proceedings of 13th IEEE/IFIP Network Operations and Management Symposium (NOMS)*, Maui, Hawaii, April 16-20, 2012
- S. Chakraborty and S. Karmakar
'A Novel Approach for Adaptive Data Gathering in Sensor Networks by Dynamic Spanning Tree Switching', *Proceedings of International Conference on Advances in Computing and Communications (ACC 2011)* Kochi, Springer, 2011
- S. Chakraborty and S. Karmakar
'Adaptive Convergecast by Distributed Topology Switching', *Proceedings of 29th Brazilian Symposium on Computer Networks and Distributed Systems (SBRC 2011)*, Campo Grande, Mato Grosso do Sul, Brazil, 30 May-3 June 2011
- S. Katiyar and S. Karmakar
'Termination Detection in Delay Tolerant Distributed Systems', *Proceedings of International Conference on Network and Computer Science (ICNCS)*, Kanyakumari, 8-10 Apr 2011
- S. Katiyar and S. Karmakar
'A Simple Scheme for Termination Detection in Distributed Systems under Single Link Failure', *Proceedings of International Conference on Computing and Communication Devices (ICCCD)*, Bali Island, Indonesia, 1-3 Apr 2011
- P. Roy and P. K. Das
'Automatic Language Identification of three Indian Languages using Vector Quantization', *Proceedings of 4th International Conference on Computer and Electrical Engineering (ICCEE-2011)*, Singapore, pp. 293-297, 14-16 Oct 2011
- T. Venkatesh and K. Phani Prakash
'A Deadline-aware Rate-adaptive Packet Pacing Algorithm for Small Buffer Networks', *Proceedings of 17th IEEE International Conference on Networks*, Singapore, Dec 2011
- K. Wan, H. K. Kapoor, S. Das, B. Raju, T. Krilavicius and K. L. Man
'Modelling and Verification of Compensating Transactions using the Spin Tool', *Proceedings of International MultiConference of Engineers and Computer Scientists (IMECS)*, Hong Kong, Mar 2012
- H. K. Kapoor and K. Sajeesh
'An Authenticated Encryption based Security Framework for NoC Architectures', *Proceedings of International Symposium on Electronic System Design (ISED)*, pp. 134-139, Dec 2011
- K. L. Man, K. Yedluri, H. K. Kapoor, C-U Lei, E. G. Lima and J. Ma
'Highly Resilient Minimal Path Routing Algorithm for Fault Tolerant Network-on-Chips', *Proceedings of International Conference on Advances in Control Engineering and Information Science (CEIS)*, Volume 15, pp 3406-3410, 2011
- R. Yarlagadda, S. R. Kuppannagari and H. K. Kapoor
'Performance Improvement by N-Chance Clustered Caching in NoC based Chip Multi-Processors', *Proceedings of International Conference on Computer Design (CDES)*, 2011
- H. K. Kapoor, L. Chatterjee and R. Yarlagadda
'Clustered Caching for Improving Performance and Energy requirements in NoC based Multiprocessors', *Proceedings of International Conference on Computer Design (CDES)*, 2011
- G. V. Sekhar and J. K. Deka
'Connectivity Based Dual Vdd Assignment Algorithm for Power Reduction in FPGA', *Proceedings of the 2011 International Conference on Embedded Systems and Applications*, Las Vegas, USA, 18-21 Jul 2011
- K. M. Reddy and J. K. Deka
'Demand Based Routing in Network-on-Chip (NoC)', *Proceedings of the 2011 International Conference on Embedded Systems and Applications*, Las Vegas, USA, 18-21 Jul 2011
- A. K. Singh and J. K. Deka
'Bandwidth Probe: An End-to-End Bandwidth Measurement Technique in Wireless Mesh Networks', *Proceedings of the 3rd International Conference on Wireless, Mobile Networks and Application*, Dubai, UAE, 25-27 May 2011
- B. Aggrawal and J. K. Deka
'Dynamic Task Allocation in Network-on-Chip', *Proceedings of the 3rd International Conference on Wireless, Mobile Networks and Application*, Dubai, UAE, 25-27 May 2011
- D. Goswami and S. Majumder
'A Global Snapshot Collection Algorithm with Concurrent Initiators with Non-FIFO Channels', *Proceedings of the 11th International Conference on Algorithms and Architecture for Parallel Processing*, 24-26 October, 2011, LNCS, Springer, Vol. No. 7016, pp. 338-348, 24-26 Oct 2011

S. K. Mohanty and G Sajith
 "I/o Efficient Algorithms for QR Decomposition",
 Proceedings of the 4th International Conference on
 Mathematical Sciences, Al-Ain, UAE, 11-14 March 2012

National

S. S. Jha, S. B. Nair
 'A Logic Programming Interface for Multiple Robots',
 Proceedings of National Conference on Emerging Trends
 and Applications in Computer Science (NCETACS – 2012),
 Shillong, 30-31 Mar 2012

Book, Chapter, etc.

Ranbir Sanasam, Hema Murthy and Timothy Gonsalves
 'Inference Based Query Expansion using User's Real Time
 Implicit Feedback', *Communications in Computer and
 Information Science*, Volume 272, 2012

H. K. Kapoor, J. Ma, T. Krilavicius, K. L. Man and C-U. Lei
 'Formal Verification and Synthesis of NULL Conventional
 Logic Circuits', *IAENG Transactions on Engineering
 Technologies*, Volume 7, World Scientific, 2012

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
Santosh Biswas	19th Mediterranean Conference on Control and Automation (MED 11)	Greece	20-23 Jun 2011	International
Santosh Biswas	International Conference on Network & Communications Security (Netcom 2011)	Chennai	15-17 Jul 2011	International
Santosh Biswas	ACM International Conference on Security of Information and Networks (SIN) 2011	Australia	14-19 Nov 2011	International
Arjit Sur	4th International Conference on Pattern Recognition and Machine Intelligence (PReMI'11)	Moscow	27 Jun - 1 Jul 2011	International
Arjit Sur	The Fourth International Conference on Network Security & Applications (CNSA-2011)	Chennai	15-17 Jul 2011	International
Arjit Sur	World Congress on Information and Communication Technologies (WICT)	Mumbai	11-14 Dec 2011	International
Sukumar Nandi	26th National Convention of Computer Engineers	Guwahati	3 Feb 2012	National
Shivashankar B. Nair	International Conference on Future Information Technology	Singapore	16-19 Sep 2011	International
Samit Bhattacharya	ACM Conference on Human Factors in Computing Systems (CHI 2012)	Vancouver, Canada	7-12 May 2011	International
T. Venkatesh	17th IEEE International Conference on Networks	Singapore	14-17 Dec 2011	International

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Santosh Biswas	Emerging Trends in Cyber Security-from an IT user's perspective	Tezpur Military Station, Gajraj Corps, Tezpur	Tezpur	12 Jan 2012
T. Venkatesh	Networking Protocols for Cloud Computing	NIT Silchar	Silchar	28 Jan 2012
Krishnamachar Sreenivasan	Cloud Computing	NIT Silchar	Silchar	28 Jan 2012
Saswata Shan-nigrahi	Energy Efficient Algorithms	NIT Silchar	Silchar	28 Jan 2012
Ranbir Sanasam Singh	Introduction to Data Warehousing and Data Mining	National Institute of Rural Development	Guwahati	24 Feb 2012

J. K. Deka	TUTORIAL on Embedded Systems and Formal Methods	ICCCT-2011, Motilal Nehru National Institute of Technology	Allahabad	15-17 Sep 2011
J. K. Deka	Issues related to VLSI and Embedded System Design and Verification	RAIT-2012, Indian School of Mines	Dhanbad	15-17 Mar 2012
Shivashankar B. Nair	Tutorial on Bio-inspired Artificial Intelligence	NCETACS-2012, St. Anthony's College	Shillong	29 Mar 2012

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES

Name	Name of Inst./Univ./Org.	Purpose	Date
Rajeev Barua	University of Maryland, College Park, MD	Visit to IIT Guwahati	11 Jul 2011
Soumya Paul	IMSc Chennai	Visit to IIT Guwahati	9 Aug 2011
Samarjit Chakraborty	Institute for Real-Time Computer Systems, Technical University of Munich, Germany	Visit to IIT Guwahati	12 Aug 2011
R. Ramanujam	Institute of Mathematical Sciences, Chennai	Visit to IIT Guwahati	25 Nov 2011
Arijit Khan	Department of Computer Science, University of California, Santa Barbara	Visit to IIT Guwahati	21 Dec 2011
Unmesh D. Bordoloi	Linköping University, Sweden	Visit to IIT Guwahati	4 Jan 2012
Arnab Basu	IIM Bangalore	Visit to IIT Guwahati	11 Jan 2012
Prasanna Kanagasabai	Mercedes Research	Speaker for ISEA workshop	19 Feb 2012
Nikhil Mittal	PricewaterhouseCoopers	Speaker for ISEA workshop	18 Feb 2012
Amol Naik	Persistent Systems	Speaker for ISEA workshop	21 Feb 2012
Jamal Bandukwala	Royal Bank of Canada	Speaker for ISEA workshop	20 Feb 2012

SEMINARS/WORKSHOPS/CONFERENCES/SHORT- TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
Ranbir Singh, Amit Awekar	Society and the Web	QIP, AICTE	19-23 Sep 2011	National
Krishnamachar Sreenivasan, Santosh Biswas, Arijit Sur	What is common among Cloud Computing, Nanotechnology, and Green Computing?	QIP, AICTE	19-21 Jan 2012	National
Sukumar Nandi, G. Sajith	Sixth Appraisal Workshop of Information Security Education and Awareness	DIT	17-21 Feb 2012	National

AWARDS AND HONOURS

Saswata Shannigrahi was awarded Ramanujan Fellowship constituted by the Department of Science and Technology, Govt. of India for a period of 5 years starting from 2011.

T.Venkatesh received the Best Paper Award for his research paper presented at 17th IEEE International Conference on Networks held at Singapore in December 2011.

FACULTY MEMBERS

A. Anand

PhD (Nanyang Technological University, Singapore)
Assistant Professor

Areas of Interest: Machine Learning and applications in Computational Biology, Systems Biology, Evolutionary Algorithms

A. Awekar

PhD (North Carolina State University, Raleigh)
Assistant Professor

Areas of Interest: Data Mining

Gautam Barua

PhD (University of California, Santa Barbara)
Professor and Director

Areas of Interest: Distributed Systems, Networks,
Operating Systems, Database Management Systems

P. Bhaduri

PhD (Washington State University, Pullman)
Associate Professor and Head

Areas of Interest: Formal Modeling, Synthesis and
Verification of Embedded Systems

S. Bhattacharya

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Human Computer Interaction,
User Modeling, Model Based Evaluation of Interactive
Systems, Rehabilitation Engineering

S. Biswas

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Networking, Fault Tolerance, VLSI
Testing, Embedded Systems

P. K. Das

PhD (Delhi University)
Associate Professor

Areas of Interest: Speech Recognition, Pattern
Recognition, Man-Machine Interaction Systems

J. K. Deka

PhD (IIT Kharagpur)
Associate Professor

Areas of Interest: Formal Verification, VLSI System
Design

D. Goswami

PhD (IIT Kharagpur)
Associate Professor

Areas of Interest: Software Engineering, Distributed
Systems

R. Inkulu

PhD (IIT-Chicago)
Assistant Professor

Areas of Interest: Algorithms, Computational Geometry

B. George

PhD (TIFR Mumbai)
Assistant Professor

Areas of Interest: Word Combinatorics, Algorithms and
Combinatorics

H. K. Kapoor

PhD (London South Bank University, UK)
Assistant Professor

Areas of Interest: Formal Verification of Circuits

S. Karmakar

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Distributed algorithms, fault-
tolerance, distributed algorithms for ad hoc and sensor
networks

D. Kesh

PhD (IIT Kanpur)
Assistant Professor

Computational Commutative Algebra, Data Streaming

P. Mitra

PhD (Simon Fraser University, Canada)
Associate Professor

Areas of Interest: Computational Geometry, Parallel
Algorithms, Randomized Algorithms, Optimization

S. B. Nair

PhD (Amravati University)
Associate Professor

Areas of Interest: Natural Language Processing, Artificial
Intelligence, Intelligent Agents, Robotics

S. Nandi

PhD (IIT Kharagpur)
Professor and Dean of Academic Affairs

Areas of Interest: Networks (QoS, Wireless networks),
Computer and Network Security

S. V. Rao

PhD (IIT Kanpur)
Associate Professor

Areas of Interest: Computational Geometry, Pattern
Recognition, Image Processing

A. Sahu

PhD (IIT Delhi)
Assistant Professor

Areas of Interest: Advanced Computer Architecture,
Multicore Parallel Programming and Compiling,
Embedded Systems, VLSI and FPGA Design

G. Sajith

PhD (IIT Kanpur)

Associate Professor

Areas of Interest: Parallel and Distributed Computing

V. V. Saradhi

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Machine Learning, Kernel Methods, Data Mining and their applications.

S. Shannigrahi

PhD (TIFR Mumbai)

Assistant Professor

Data Structures and Algorithms, Combinatorial Geometry, Analysis of Social networks

K. Sreenivasan

PhD (University of Pennsylvania)

Visiting Professor

Areas of Interest: Performance Evaluation of Computer Systems, Cloud Computing

S. R. Singh

PhD (IIT Madras)

Assistant Professor

Areas of Interest: Web Search, Machine Learning, Information Retrieval, Data Mining especially in the area of Web Search Engine

A. Sur

PhD (IIT Kharagpur)

Assistant Professor

Areas of Interest: Information Hiding: Steganography and Steganalysis. Multimedia Security: Image and Video Watermarking. Network Security: Intrusion Detection System and Network Steganography

T. Venkatesh

PhD (IIT Madras)

Assistant Professor

Areas of Interest: WDM Optical Networks, IP over WDM Networks, Broadband Access Networks, Performance Evaluation of Computer Networks, Network Tomography

DEPARTMENT OF DESIGN

INTRODUCTION

The Department of Design offers 4 year undergraduate programme in Design leading to BDes degree, 2 year postgraduate programme in design leading to MDes degree and Doctoral studies in Design leading to PhD degree.

These Design programmes engage in inter-disciplinary and intra-disciplinary studies that integrate creative pursuits engaging design and technology as applicable to the following thrust areas:

Industrial Design aspects in New Product Development
Usability Engineering and Interaction Design including HCI
Ergonomic Research and Design
Communication Design and New Media

Considering the new opportunities in the domain of information technology that increasingly require designers, the Department has enhanced its design research and development activities in the area of product design and communication design that embrace: Experiential Design, Usability Engineering, User Experience Design, Human Computer Interfaces, Lifestyle and accessories, E-learning, Games, Design for the elderly, Publication Design.

ACADEMIC ACTIVITIES

The Department has BDes, MDes and PhD programmes.

STUDENT INTAKE

BDes students enrolled in 2011-2012	: 45
MDes students enrolled in 2011-2012	: 22
PhD students enrolled in 2011-2012	: 5

FACULTY STRENGTH

Professor	: 04
Associate Professor	: 01
Assistant Professor	: 06
Total	: 14

MAJOR EQUIPMENT AND FACILITIES

Equipment

Eye Movement Recorder
Remote Testing System
Digital White Board
Games Simulator
Digital Photography Equipment
Videography Equipment
Machinery for Product Design and development
EOS Rapid Prototyping Machine
Audio Visual Equipment for presentation

Facilities

CAID Lab (Product Audit lab)
Product Modelling and Simulation Lab
Rapid Prototyping Lab
Workshop (wood, plastic, bamboo, metal)
Graphic / print and Multimedia Studio
Ergonomics (Human factors Lab)
ErgoMaster 3.5, ManneQuinPRO, Ergonomics Modeling Software
Usability Engineering and HCI Lab
Digital Photography and Video Studio
Macintosh Computer Studio
Virtual Reality lab
Embedded Interaction Lab

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Sougata Karmakar	Lecture notes preparatory to a text book: Digital Human Modelling and Simulation in Product and Workstation Design	IIT Guwahati	-	-	2 Years

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Debkumar Chakrabarti	Virtual Lab, Ergonomics	MHRD (mission project component)	-	-	-
Debkumar Chakrabarti	NPTEL video course: Introduction to ergonomics	NPTEL, MHRD	-	-	-
Ravi Mokashi Punekar	Digital learning environment of design education in India	MHRD	15	Keyur Sorathia	-
Sougata Karmakar	Visual and Tactile Information Processing in Product Selection Process	DBT	40.83	Subrata Ghosh	3 Years
Sougata Karmakar	Design and Evaluation of Play Ground for Primary School Children in Virtual Environment	IIT Guwahati	5	-	2 Years
Pradeep Yammiyavar	Virtual Lab-HCI-Creative Design, Prototyping and Experiential Simulation lab	MHRD	12	-	3 Years

CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
D. Udaya Kumar	IIT Hyderabad Logo	IIT Hyderabad	0.3 (Honorary)	-	1 Month
A. K. Das	NIT Meghalaya Logo	NIT Meghalaya	-	Bishnu Tamuli	-

RESEARCH PUBLICATIONS

International Journal

Debkumar Chakrabarti and Nandita Bhattachheriya 'Ergonomic design intervention strategy for work tools development for women agro based workers in Northeast India', *Work: A Journal of Prevention, Assessment and Rehabilitation*, vol. 41, pp 1330-1334, 2012

Swathi Matta Reddy, Chakrabarti and Sougata Karmakar 'Emotion and interior space design: an ergonomic perspective', *Work: A Journal of Prevention, Assessment and Rehabilitation*, vol. 41, pp 1072-1078, 2012

N. Bhattacharyya and D. Chakrabarti 'Ergonomic basket design to reduce cumulative trauma disorders in tea leaf plucking operation', *Work: A Journal*

of Prevention, Assessment and Rehabilitation, vol. 41, pp 1234-1238, 2012

S. Karmakar, M. S. Pal, Deepti Majumdar and D. Majumdar 'Application of Digital Human Modeling and Simulation for Vision Analysis of Pilots in a Jet Aircraft: A Case Study', *Work*, vol. 41, pp 3412-3418, DOI: 10.3233/WORK-2012-0617-3412, 2012

S. M. Reddy, D. Chakrabarti and S. Karmakar 'Emotion and Interior Space Design: An Ergonomic Perspective', *Work*, vol. 41, pp 1072-1078. DOI: 10.3233/WORK-2012-0284-1072, 2012

P. Karmakara, D. Mazumdar, Sarkar (Mondal) and S. Karmakar 'Association Study between Lead and Copper Accumulation at Different Physiological Systems of Goat by Application of Canonical Correlation and Canonical Correspondence Analyses', *Indian Journal of Applied Research*, vol. 1 (5), pp 217-219, 2012

Conference/Workshop/Seminar/Symposia International

S. M. Reddy, A. Chowdhury, D. Chakrabarti and S. Karmakar 'Influence of Visual Fatigue on Eye Movement Pattern for Workers Involved in Work with High Visual Demand', *Proceedings of International Conference on Frontier in Biological Research (ICFBR-2012)*, Vidyasagar University, West Bengal, India, p-75, 26-27 Feb 2012

A. Chowdhury, S. M. Reddy, S. Ghosh, D. Chakrabarti and S. Karmakar 'Effect of Illumination Level on EOG Pattern during Manual Sorting Task', *Proceedings of International Conference on Frontier in Biological Research (ICFBR-2012)*, Vidyasagar University, West Bengal, India, p-74, 26-27 Feb 2012

S. Karmakar, D. Majumdar, M. S. Pal, and D. Majumdar 'Ergonomic Study of Ingress-Egress of an Army Vehicle in Simulated Environment', *Proceedings of International Conference on Trends in Product Lifecycle, Modelling, Simulation and Synthesis (PLMSS)-2011*, Bangalore, 69-74, 5-7 Dec 2011

S. Karmakar 'Design and Spatial Layout of Playing Equipments in Playground for Primary School Children', *Proceedings of International Conference on Molecules to System Physiology: 100 Years Journey*, University of Calcutta, Kolkata, LL-242, 1-23 Sep 2011

P. Yammiyavar and Y. Deshpande 'Usability Evaluation of a Virtual Lab by Adapting Structured and Unstructured Techniques', *Proceedings of IEEE International conference on Technology Enhanced Education (ICTEE2012)*, Paper No 198, Amrita University campus, Kerala, 2 Jan 2012

J. Kaur, R. Bharali and P. Yammiyavar 'Attitudes to Social Networking Sites and their potential as learning platforms in a school environment', *Proceedings of IEEE International conference on Technology Enhanced Education (ICTEE2012)*, Paper No 233, Amrita University campus, Kerala, 2 Jan 2012

National

J. Sanjog, A. Chowdhury and S. Karmakar 'Study of Lower Back and Hamstring Flexibility among College Students' *Proceedings of 99th Indian Science Congress*, KITT University, Bhubaneswar, Part-11, Sl. No. 47, 3-7 Jan 2012

S. M. Reddy, A. Chowdhury, D. Chakrabarti and S. Karmakar 'Visual Behaviour of Indian Consumers in Product Selection' *Proceedings of 99th Indian Science Congress*, KITT University, Bhubaneswar, Part-11, Sl. No. 46, 3-7 Jan 2012

A. Chowdhury, J. Sanjog, S. M. Reddy and S. Karmakar 'Application of Nanomaterial in the field of Design Ergonomics: Present Status and Future Directions', *Proceedings of 99th Indian Science Congress*, KITT University, Bhubaneswar, Part-11, Sl. No. 53, 3-7 Jan 2012

P. Yammiyavar, Kanupriya and G. Kulshrestha 'Designing interaction experiences of shoppers in retail outlets for non pre-packaged goods with a focus on cultural aspects', *Symposium on Human Computer Interaction Design In Virtual Environments*, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

P. Aditya, K. V. Ketan and P Yammiyavar 'Persuasive games and personal development- a case study on user research in Progress', *Symposium on Human Computer Interaction Design In Virtual Environments*, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

N. Meena and K Sorathia 'Today I like: designing positive experiences for mentally ill', *Symposium on Human Computer Interaction Design In Virtual Environments*, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

M. Modi, K. Pandey and P. Yammiyavar
'Co-Sort conceptualization of an online collaborative tool for card sorting technique in usability engineering', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

D. Dhar and P. Yammiyavar
'Evaluating e-learning systems: Can we rely only on usability evaluation Techniques', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

Y. Deshpande and P. Yammiyavar
'Familiarity and task performance relationship in case of children interacting with computers', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

R. Bharali, J. Kaur and P. Yammiyavar
'Icon Design for children - a case study for a social Networking site', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

Arnita, S. Nikhil Siva and P. Yammiyavar
'Features essential in a music tutoring system for learning south Indian classical music', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

N. Meena, P. Joshi and P. Yammiyavar
'A case study on mobile based health management system for diabetic', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

B. Radhakrishna, P. Reddy, M.S.N. Karthik, P. Yammiyavar and S. Ahmed
'Learning aid for autistic children: Development of an interactive toy', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

K. Bharadwaj, Yogesh G. and P. Yammiyavar
'A case study on augmenting interaction experience in consumer electronics retail store in Indian context', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

A. Gupta, P. Kumar and P. Yammiyavar
'Enhancing the experience of a public space through Design interventions', Symposium on Human Computer Interaction Design In Virtual Environments, Department of Design, IIT Guwahati, Guwahati, 16-18 Mar 2012

Book, Chapter, etc.

Ganesh Iyer, Punith Mathur, Pradeep Yammiyavar
Redesign of a Music sharing Website interface for Cross-cultural users, LAP LAMBERT, Germany, 2012 (ISBN: 9783845437811)

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
D. Udaya Kumar	Typography Day 2012	IIT Bombay	3-5 Mar 2012	International
Debkumar Chakrabarti	99th Indian science Congress	Bhubaneswar	Jan 2012	National
Debkumar Chakrabarti	International conference on frontier of biological sciences	Vidyasagar University	Feb 2012	International
Debkumar Chakrabarti	International ergonomics conference, HWWE2011	IIT Chennai	Dec 2011	International
Sougata Karmakar	IEA World Congress 2012	Recife, Brazil	12-16 Feb 2012	International
Utpal Barua	-	Skopje, Macedonia	10-20 Aug 2011	International
Utpal Barua	-	Ehden, Lebanon	4-10 Oct 2011	International

Utpal Barua	International Conference on creating learning material for children	IDC, IIT Mumbai	Nov 2011	International
Utpal Barua	-	Belgrade, Serbia	6-12 Mar 2012	International
Utpal Barua	National conference on learning material for children	IIT Bhubaneswar	2011	National

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
D. Udaya Kumar	Sustainable Development and Future Spaces	National Academy of Direct Taxes (NADT)	Nagpur	24 Oct 2011
Debkumar Chakrabarti	3 Lectures on Ergonomics Design	CAFT- ICAR, ANGRA University	Hyderabad	Jan 2012
Debkumar Chakrabarti	-	ISCA Kolkata Chapter	Calcutta University	Sept 2011

SEMINARS/WORKSHOPS/CONFERENCES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date
D. Udaya Kumar	QIP STC on Graphic Design	AICTE	6-10 Feb 2012
Pradeep Yammiyavar	Workshop on Cultural issues in HCI Curriculum: Invited Faculty Mrs. Ann Austin, University of West London	MHRD	16-17 Mar 2012
Pradeep Yammiyavar	Work Shop on Virtual Lab—Creative Design prototyping & Experiential Simulation in HCI – Demonstration & feedback	MHRD	17 Mar 2012
Pradeep Yammiyavar	Symposia: Human Computer Interaction Design in Virtual Reality (Organised by an Inter Departmental Group from Design, Electronics and Electrical Engineering involved in VR Lab Project)	MHRD	16-18 Mar 2012

AWARDS AND HONOURS

IDF (Indian Design Forum) 'Designer of the Year 2012' Award to D. Udaya Kumar.

Dr. Shankar Dayal Sharma Award (for excellence in Academics and Extra Curricular Activities), IIT Bombay to D. Udaya Kumar.

S. Karmakar received title 'MABMS' from Indian Association of Biomedical Scientists.

FACULTY MEMBERS

I. Avital Iko

PhD
Visiting Professor

N. Avital

PhD
Visiting Associate Professor

U. Barua

PhD (IIT Guwahati)
Associate Professor
Areas of Interest: Basic Design, Design Drawing and Visualisation, Visual Design: Principles and Application, Indian Symbology and Communication

D. Chakrabarti

PhD (Calcutta University)
Professor
Areas of Interest: Ergonomics Research, Human Compatibility Factor, Design Ergonomics, Product: Environment Interface Design, Occupational Health, Participatory Ergonomics and Training

A.K. Das

PhD (IIT Guwahati)
Professor and Head of the Department

Areas of Interest: Industrial Design, Rapid Prototyping and Tooling, Space Design, Facility Design, Environmental Graphics, Design for Disabled

S. Iqbal

MArch (IIT Roorkee)
Assistant Professor

Areas of Interest: Adaptive Reuse, Solar Passive Architecture

S. Karmakar

PhD (Bharathiar University, Coimbatore)
Assistant Professor

Areas of Interest: Ergonomics/Human Factors, Occupational Health

D. Udaya Kumar

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Communication Design

M. Madhukailya

P.G. in Communication Design (National Institute of Design, Ahmedabad)
Assistant Professor

Areas of Interest: Short Film, New Media Theory, Documentary film, Video art, Participatory video

M. Majhi

MDes (IIT Bombay)
Assistant Professor

Areas of Interest: Animation, Special Effects, Cartooning, Animation Movie History, Creation of Traditional Animation

R.M. Punekar

PhD (IIT Bombay)
Professor

Areas of Interest: Product Design and Development, Designing Sustainable Products Services and Systems, Design Education and E-learning, Basic Design, Studies in Design and Material Culture

A. Shende

BE, MDes (Domus)
Assistant Professor

Areas of Interest: Product Design, Furniture Design, Lighting Design

K. B. Sorathia

Assistant Professor

Areas of Interest: Design Research, New Modes of Interaction, Physical Computing, Embodied & Embedded Interaction

P.G. Yammiyavar

PhD (IISc Bangalore)
Professor

Areas of Interest: Human Computer Interaction Design, Innovation, Psychology

DEPARTMENT OF ELECTRONICS AND ELECTRICAL ENGINEERING

INTRODUCTION

The primary objective of the Department is to impart education and training in Electrical Engineering at the undergraduate, postgraduate and research levels. The Department lays special emphasis on understanding the fundamentals of electrical and electronic systems as well as developing know-how. The Faculty is dedicated towards cutting edge research in frontier areas of the discipline. Besides developing the theoretical and analytical skills of the students, the academic programmes also aim at honing their skills for conceptualization and development of different systems. The Department also ensures that the students are trained to become leaders in their chosen professions.

ACADEMIC ACTIVITIES

The Department offers the following programmes at the undergraduate level:

- BTech in Electronics and Communication Engineering
- BTech in Electronics and Electrical Engineering

The following MTech programmes are offered:

- Digital Signal Processing
- VLSI
- Communication Systems
- Applied Control

The Department offers PhD in various areas of Electrical and Electronics Engineering.

STUDENT INTAKE

BTech (ECE) students enrolled in 2011-2012	: 71
BTech (EEE) students enrolled in 2011-2012	: 40
MTech students enrolled in 2011-2012	: 45
PhD students enrolled in 2011-2012	: 41
Total	: 197

FACULTY STRENGTH

Professor	: 7
Associate Professor	: 8
Assistant Professor	: 16
Total	: 31

MAJOR EQUIPMENT AND FACILITIES

The major facilities available in the Department laboratories are listed below.

(a) A sound proof acoustic chamber for sound recording to carryout speech analysis related studies: the equipment includes directional studio quality microphones, server facilities, mobile phones, etc.

(b) EMG and ECG acquisition systems for the biomedical studies: there are six workstations available for executing complex computation tasks.

(c) The Department has Qualnet and Exata Network Simulator Software along with license for different libraries for setting up of a new "Network Laboratory" for BTech, MTech and PhD students. This laboratory is also equipped with CISCO 2811 series business routers, CISCO 2960 series layer-2 switches, CISCO 1300 series 802.11AG wireless router and Crossbow/Memisc Wireless Sensor Network Educational Kit.

(d) The Power Electronics Laboratory has various converters and inverters to perform AC/DC, DC/AC, DC/DC and AC/AC power conversion.

(e) The High Frequency and Communication Laboratory is equipped with X-band microwave test bench with Klystron source, X-band microwave test bench with GUNN source and Parabolic Disc (with feed) 8" diameter 8 to 12 GHz. It also has Spectrum Analyzer, Arbitrary Wave Form Generator and high-end oscilloscopes.

(f) The Advanced DSP and Communication Laboratory is equipped with state-of-the-art test and measurement instruments like DSOs, Function Generators, Pulse Generators, I-Q Generator, Spectrum Analyzer, Logic Analyzer, Frequency Counters/Timers etc. Recent additions to this lab are Tektronix 8GHz 4-channel DSO, Tektronix Arbitrary Waveform Generator (12/24 GSamples/sec), R&SVNA (ZVA 24, 10MHz~24 GHz, 2 port) and Anritsu 6 GHz Hand-held Spectrum Analyzer. Board-level components include high-end DSP boards (TI and Analog Devices), DSP Star RF Transceiver boards (at 2.4 GHz) and Altium Nano boards (FPGA boards).

(g) The hardware facilities in the areas of VLSI consists of FPGA development kits along with high end software tools and packages for VLSI design and synthesis namely Cadence Bundle, Synopsys Tools Bundle, Magma Standard University, CoWare Tools, Mentor Tools Bundle, Xilinx ISE Foundation Software and XUP Spartan - 3E Starter Kits, Altera Quartus design environment along with Nios-II and other IP packages. Additionally, the laboratory is equipped with MEMS design tools such as Coventorware, COMSOL and Intellisuite and nano device tools like QuantumWise Atomistix ToolKit.

RESEARCH AND DEVELOPMENT ACTIVITIES

The Department carries out research in wide areas of electrical engineering such as:

Communication, Networks and Advanced DSP:

DSP based Communication Systems, Wireless Mobile Systems, Communication Networks, Antennas, Microwave Engineering, Sensor Networks

Biomedical and Speech Processing:

Biomedical Signal Processing, Medical Electronics, Biomedical Instrumentation, Medical Image Processing,

Voice Disorders, Stressed Speech Analysis, Speech Synthesis, Biometrics, Speech Recognition, Speaker Recognition

Image and Multimedia Signal Processing:

Image Processing, Computer Vision, Video Processing, Pattern Recognition, Video Surveillance, Biometric Person Authentication: Fingerprint recognition, Face Identification, Face Recognition, Cancellable Biometrics, Multimedia Security: Digital Watermarking, Cryptography, Authentication codes, Traitor tracing

VLSI:

Development of VLSI Architectures for Signal Processing and Communication Algorithms, VLSI System Design, Circuit Design (Analog, Digital and Mixed Signal), VLSI CAD, MEMS, Semiconductor Devices.

Control, Instrumentation:

Control Systems, Control Theory Applications, Fuzzy Logic and Neural Networks in Non-linear Control, Stochastic Systems, Robotics, Industrial/Ultrasonic Instrumentation, Underwater Acoustics

Power Systems:

Green Energy Systems, Smart Grids, Distributed Generation, FACTS, Wide Area Monitoring Systems, High Voltage Engineering and Lightning Protection

Power Electronics:

Grid interactive inverters, Contactless charging systems, Energy Management systems for EVs, HEVs and PHEVs

Electrical Machines and Drives:

Permanent magnet machines, Hybrid motor topologies, Numerical modeling of machines, Vector and Field weakening control

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
S. Chouhan	Advanced Embedded Systems Laboratory	Intel India Pvt. Ltd.	5.20	H. Kapoor (Dept. of CSE)	1.5 years
S.R. Mahadeva Prasanna	Development of Text to Speech System in Assamese and Manipuri Languages	DIT	109.00	R. Singh (Dept. of CSE)	3 years

HoD	Development of Medical Image Processing Laboratory	DST-FIST	109.00	S. Dandapat, S.R.M. Prasanna, R. Sinha and L.N. Sharma	5 years
S.R. Mahadeva Prasanna	Speech-based Multilevel Authentication System	DIT	162.00	S. Nandi, R. Sinha and S. Danadapat	3 years
S.R. Mahadeva Prasanna	Development of Phonetic Engine in Indian Languages	DIT	40.00	S. Dandapat	2 years

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
R.P. Palathinkal	Design of Carbon Nanotube Field Effect Transistor (CNFET) based Amplifiers	Global Research Collaboration (GRC) from Semiconductor Research Corporation, NC, USA	40000 USD	-	2 years
S. Dandapat	Special Manpower Development Project in VLSI Design and related software (SMDP II) at IIT Guwahati	DIT	59.00	R. P. Palathinkal	6 years
P.K. Bora	Development of Robust Document Image understanding System for Document in Indian Scripts (OCR)-Phase-II	DIT	28.75	M. K. Bhuyan and S. Das	3 years
S.R. Mahadeva Prasanna	Online Assamese Handwriting Recognition System	TDIL division, DIT New Delhi	60.00	C. Mahanta and L.N. Sharma	3 years
R.P. Palathinkal	Establishment of a new National MEMS Design Centers at IIT Guwahati	National Programme on Micro and Smart Systems	11.16	-	3 years
R.P. Palathinkal	Design, Fabrication and Testing of a Low Power Analog Front End chip for heart rate detection	DST	19.98	-	2.5 years
R.P. Palathinkal	Digital VLSI Design Virtual Lab	National Mission on Education through ICT, MHRD	40.00	-	2 years

M.K. Bhuyan	Development of Indian Sign Language Education & Recognition Platform for Hearing Impaired Students of India	National Mission on Education through ICT, MHRD	130.00 (for the pilot phase)	P.K. Bora	3 years
H.B. Nemade	Virtual Lab in Electronic Instrumentation	National Mission on Education through ICT, MHRD	11.00	-	2 years
R. Sinha	Speech-based Access for Agricultural Commodity Prices in Six Indian Languages	DIT	58.00	S.R.M. Prasanna and P.K. Das	2 years
R. Sinha	Characterization and Compensation of Acoustic and Linguistic Mismatch for Robust Children Speech Recognition	DST	18.00	S.R. Mahadeva Prasanna	3 years
R. Bhat-tacharjee	Analysis and Development of matched feed for offset parabolic antenna system	ISRO, Bangalore	11.38	-	02

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
C. Mahanta	Gesture based Interface for Control Application	DST	13.09	P.K. Bora	3 years
P. R. Sahu	Effect of fading correlation on the performance of Equal Gain Combining diversity receiver over Hoyt fading channels	DST	10.83	R. Bhattacharjee	3 years
S. R. Mahadeva Prasanna	Development of person authentication system based on speaker verification in uncontrolled environment	DIT	109.00	R. Sinha, S. Nandi and S. Dandapat	3 years
S. R. Mahadeva Prasanna	Study of source features for speech synthesis and speaker recognition	University of Edinburgh	60.00	S. Dandapat	4 years
S. R. Mahadeva Prasanna	Keyword spotting in continuous speech	DST	10.00	S. Dandapat	3 years
S. Majhi	Study to identify and develop sensor and triggering mechanism for shutting down of electronic systems in heavy lightning situations	Army Technical Board	30.00	A.K. Gogoi, H.B. Nemade and A. Mitra	3 years
S. R. Mahadeva Prasanna	Study of source features for speech synthesis and speaker recognition	University of Edinburgh	40.00	S.R. Mahadeva Prasanna, R. Sinha and L.N. Sharma	5 years

A. Mahanta	Research in Ultrawideband Radio Technology and its Application	DIT	228.50	P.K. Bora, R. Bhattacharjee, P.R. Sahu and A. Rajesh	3 years
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CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
P. Kumar	DPR for Smart Grid Project	Assam Power Distribution Company Limited	1.80	-	1 month

RESEARCH PUBLICATIONS

International Journal

S. Mondal and C. Mahanta

'Composite Nonlinear Feedback based Discrete Integral Sliding Mode Controller for Uncertain Systems', *Communications in Nonlinear Science and Numerical Simulation*, vol. 17 (3), pp 1320-1331, 2012

S. Mondal and C. Mahanta

'Nonlinear sliding surface based second order sliding mode controller for uncertain linear systems', *Communications in Nonlinear Science and Numerical Simulation*, vol. 16 (9), pp 3760-3769, 2011

M. Singh, P. Kumar and I. Kar

'Implementation of Vehicle to Grid Infrastructure using Fuzzy Logic Controller', *IEEE Trans. on Smart Grid*, vol. 3 (1), pp 565-577, 2012

J. R. Panda and R. S. Kshetrimayum

'A 3.4/5.5 GHz dual-band notched UWB printed monopole antenna with two open-circuited stubs in the microstrip feedline', *Microwave and Optical Technology Letters* (MOTL), vol. 53 (12), pp 2973-2978, 2011

S. S. Karthikeyan and R. S. Kshetrimayum

'Compact, Harmonic Suppressed Power Divider using Open Complementary Split Ring Resonator', *Microwave and Optical Technology Letters* (MOTL), vol. 53 (12), pp 2897-2899, 2011

S. S. Karthikeyan and R. S. Kshetrimayum

'Compact Size miniaturised rat-race coupler using open complementary split ring resonator', *IEICE Transactions on Electronics* (IEICETE), vol. E94-C (10), pp 1601-1604, 2011

J. R. Panda and R. S. Kshetrimayum

'A Printed 2.4 GHz/5.8 GHz Dual-band Monopole Antenna with a Protruding Stub in the Ground Plane for WLAN and RFID Applications', *Progress In Electromagnetic Research (PIER)*, vol. 117, pp 425-434, 2011

J. R. Panda, A. S. R. Saladi and R. S. Kshetrimayum

'A Compact Printed Monopole Antenna for Dual-band RFID and WLAN Applications', *Radioengineering*, vol. 20 (2), pp 464-467, 2011

J. R. Panda and R. S. Kshetrimayum

'An F-shaped printed monopole antenna for dual-band RFID and WLAN applications', *Microwave and Optical Technology Letters* (MOTL), vol. 53 (7), pp 1478-81, 2011

S. S. Karthikeyan and R. S. Kshetrimayum

'Compact, Deep and Wide Rejection Bandwidth Lowpass Filter using Open Complementary Split Ring Resonator', *Microwave and Optical Technology Letters* (MOTL), vol. 53 (4), pp 845-848, 2011

R. Subadar and P. R. Sahu

'Performance of $\lambda/4$ -MRC Receiver over Equally correlated $\lambda/4$ -Fading Channels', *IEEE Trans. on Wireless Communication*, vol. 10 (5), pp 1351-1355, 2011

R. Subadar and P. R. Sahu

'Performance of $\lambda/4$ -Independent and Dual Correlated Selection Combiners in Hoyt Fading Channels', *IEEE Trans. on Communication*, vol. 59 (4), pp 923-929, 2011

R. Bose and S. Chouhan

'Alternate Measure of Information Useful for DNA Sequences', *Physical Review E*, vol. 83 (5), pp 051918, 2011

S. Chouhan, M. Balakrishnan and R. Bose

'System Level Design Space Exploration Methodology for Energy Efficient Sensor Node Configurations: an

Experimental Validation', *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* (TCAD), vol. 31 (4), pp 586-596, 2012

Haris B. C., G. Pradhan, A. Misra, S. Prasanna, R. Das and R. Sinha
'Multivariability speaker recognition database in Indian scenario', *International Journal of Speech Technology*, pp 1-13, DOI 10.1007/s10772-012-9140-x, 2012

D. Padhan and S. Majhi
'Modified Smith Predictor and Controller for Time Delay Processes', *IET Electronics Letters*, vol. 47 (17), pp 959-961, 2011

U. Mehta and S. Majhi
'On-line Identification of Cascade Control Systems based on Half Limit Cycle Data', *ISA Transactions*, vol. 50 (3), pp 473-478, 2011

P. K. Padhy and S. Majhi
'Exact Analysis for the Identification of Non-minimum Phase Processes', *Journal of the Franklin Institute*, vol. 348 (10), pp 2734-2743, 2011

D. Padhan and S. Majhi
'Modified Smith Predictor based Cascade Control of unstable Time Delay Processes', *ISA Transactions*, vol. 51 (1), pp 95-104, 2012

K. P. S. Parmar, S. Majhi and D. P. Kothari
'Improvement of Dynamic Performance of LFC of the Two Area Power System: an Analysis using MATLAB', *International Journal of Computer Applications*, vol. 40 (10), pp 28-32, 2012

N. Ramakrishnan, H. B. Nemade and R. P. Palathinkal
'Resonant Frequency Characteristics of a SAW Device Attached to Resonating Micropillars', *Multidisciplinary Digital Publishing Institute (MDPI) Sensors*, vol. 12 (4), pp 3789-3797, 2012

K. C. Narasimhamurthy and R. P. Palathinkal
'Performance Comparison of Single Gate and Dual Gate Carbon Nanotube Thin-Film Field-Effect Transistors', *IEEE Transactions on Electron Devices*, vol. 58 (7), pp 1922-1927, 2011

Md. Zia Ur Rahman, S. R. Ahamed and D. V. R. K. Reddy
'Efficient and Simplified Adaptive Noise Cancellers for ECG Sensor based Remote Health Monitoring', *IEEE Sensors Journal*, vol. 12 (3), pp 566-573, 2012

Rongping Lin, Wende Zhong, S. K. Bose and Moshe

Zuckerman
'Design of WDM Networks with Multicast Traffic Grooming', *IEEE/OSA Journal of Lightwave Technology*, vol. 29 (16), pp 2337-2349, 2011 DOI: 10.1109/JLT.2011.2159482

S. Shailendra, R. Bhattacharjee and S. K. Bose
'MPSCPT: A Simple and Efficient Multipath Algorithm for SCTP', *IEEE Communication Letters*, vol. 15 (10), pp 1139-1141, 2011

M. K. Bhuyan, D. R. Neog and M. K. Kar
'Fingertip Detection for Hand Pose Recognition', *International Journal of Computer Science and Engineering*, vol. 4 (3), pp 501-511, 2012, ISSN: 0975-3397

M. K. Bhuyan
'FSM-based Recognition of Dynamic Hand Gestures via Gesture Summarisation using Key Video Object Planes', *International Journal of Computer and Communication Engineering*, vol. 6, pp 248-259, 2012

H. Katiyar and R. Bhattacharjee
'Average capacity and signal-to-noise ratio analysis of multi-antenna regenerative cooperative relay in Rayleigh fading channel', *IET Communications*, vol. 5, pp 1971-1977, 2011

H. Katiyar and R. Bhattacharjee
'Performance of two-hop infrastructure based multi-antenna regenerative relaying in Rayleigh fading channel', *Elsevier's Physical Communication*, vol. 4 (3), pp 190-195, 2011

H. Katiyar and R. Bhattacharjee
'On the Performance of Decode-and-Forward Relaying with Multi-Antenna Destination', *Elsevier's International Journal of Electronic Communication (AEUe)*, vol. 66 (1), pp 1-6, 2012

H. Katiyar and R. Bhattacharjee
'Outage Performance of Multi-antenna Relay Cooperation in Absence of Direct Link', *IEEE Communications Letters*, vol. 15 (4), pp 398-400, 2011

A. Ganguly and A. Mahanta
'Improved mode decision algorithm based on residues and early zero block detection in H.264/AVC', *Journal of Signal, Image and Video Processing*, 2012, DOI: 10.1007/S11760-012-021-7

L. N. Sharma, S. Dandapat and A. Mahanta
'Multiscale PCA based Quality Controlled Denoising of Multichannel ECG Signals', *International Journal of Information and Electronics Engineering (IJIEE)*, published

by International Association of Computer Science and Information Technology (IACSIT), vol. 2 (2), pp 107-111, 2012, ISSN: 2010-3719

V. K. Nath and A. Mahanta

'Statistical Distributions of the Lapped Transform Coefficients for Images', *Journal of World Academy of Science, Engineering and Technology*, vol. 60, pp 1505-1512, 2011

L. N. Sharma, S. Dandapat and A. Mahanta

'Kurtosis based noise estimation and multiscale energy to denoise ECG signal', *Signal, Image and Video Processing*, Springer, DOI: 10.1007/s11760-011-0227, 2011

G. Pradhan and S. R. Mahadeva Prasanna

'Speaker verification under degraded conditions: a perceptual study', *International Journal of Speech Technology*, vol. 14 (4), pp 405-417, 2011

S. Shukla, S. Dandapat and S. R. Mahadeva Prasanna

'Spectral slope based analysis and classification of stressed speech', *International Journal of Speech Technology*, vol. 14 (3), pp 245-258, 2011

A. Kumar, V. K. S. Rao, S. Chakrabarti, P. Krishnamoorthy and S. R. Mahadeva Prasanna

'Recognition of consonant-vowel (CV) units under background noise using combined temporal and spectral preprocessing', *International Journal of Speech Technology*, vol. 14 (3), pp 259-272, 2011

D. Pati and S. R. Mahadeva Prasanna

'Speaker recognition using suprasegmental excitation information', *International Journal of Computer and Communication Technology*, Cambridge University Press, vol. 2 (6), pp 62-69, 2011

D. Pati and S. R. Mahadeva Prasanna

'Subsegmental, segmental and suprasegmental processing of linear prediction residual for speaker information', *International Journal of Speech Technology*, vol. 15 (1), pp 49-63, 2011

S. R. Nirmala, S. Dandapat and P. K. Bora

'Phase congruency-based Measure for Quality assessment of the Compressed Retinal images', *International Journal of Imaging and Robotics (IJIR)*, CESER Publications, vol. 6 (A11), 2011

S. R. Nirmala, M. K. Nath and S. Dandapat

'Retinal Image Analysis: A Review', *International Journal of Computer and Communication Technology* (Special issue), vol. 2 (6), pp 11-14, 2011

P. Das, K. Karthik and B. C. Garai

'A robust alignment-free fingerprint hashing algorithm based on minimum distance graphs', *Elsevier Journal on Pattern Recognition*, vol. 45 (9), pp 3373-3388, 2012, DOI: 10.1016/j.patcog.2012.02.022.

A. Talwai, D. Sengupta and K. Karthik

'A Transparent Encryption Scheme for Watermarked Biometric and Medical Images', *International Journal of Computer and Electrical Engineering*, vol. 4 (3), pp. 278-282, 2012

National Journal

S. K. Sahoo, T. Choubisa and S. R. Mahadeva Prasanna

'Multimodal Biometric Person Authentication: A Review', *IETE Technical Review*, vol. 29 (3), January 2012

Conference/Workshop/Seminar/Symposia

International

S. Mondal and C. Mahanta

'Improved Adaptive Control of Nonlinear uncertain Systems through Second Order Sliding Mode Controller', 12th IEEE Workshop on Variable Structure Systems (VSS 2012), Mumbai, India, 12-14 Jan 2012

A. Gupta, M. Srivastava and C. Mahanta

'Offline Handwritten Character Recognition using Neural Network', International Conference on Computer Applications & Industrial Electronics (ICCAIE 2011), Penang, Malaysia, 4-7 Dec 2011

G. Praveen, A. Madhavaraj and K. Karthik

'A Code and Domain independent Traitortracing System based on the Eigen-decomposition of Fingerprinted Images', International Conference on Image Information Processing (ICIIP 2011), Shimla, 3-5 Nov 2011

N. Suresh and K. Karthik

'Secure Fingerprint Embedding based on Modified GDFT based Parametric Transform', International Conference on Image Information Processing (ICIIP 2011), Shimla, 3-5 Nov 2011

K. Karthik

'Robust Image Hashing by Downsampling: between Mean and Median', *Proceedings of World Congress on Information and Communication Technologies (WICT 2011)*, Mumbai, 11-14 Dec 2011

R. Subadar and P.R. Sahu

'ABER of Dual Pre-detection EGC Receiver over Correlated Hoyt Fading channels', *Proceedings of IEEE TENCON 2011*, Bali, Indonesia, 21-24 Nov 2011

S. Ghai and R. Sinha

'A Study on the Effect of Pitch on LPCC and PLPC Features for Children's ASR in comparison to MFCC', *Proceedings of INTERSPEECH 2011*, Florence, Italy, 27-30 August 2011

Sunil Y., S. Ghai and R. Sinha

'Exploration of Artificial Bandwidth Expansion for Improving Children's ASR in Mismatched Condition', *Proceedings of Centenary Conference, Electrical Engineering*, Indian Institute of Science, Bangalore, 15-17 Dec 2011

Haris B. C. and R. Sinha

'Exploring sparse representation classification for speaker verification in realistic environment', *Proceedings of Centenary Conference, Electrical Engineering*, Indian Institute of Science, Bangalore, 15-17 December 2011

Haris B.C. and R. Sinha

'Sparse representation over learned and discriminatively learned dictionaries for speaker verification', *Proceedings of IEEE International Conference on Acoustic, Speech and Signal Processing (ICASSP) 2012*, Kyoto, Japan, 25-30 Mar 2012

M. Singh, P. Kumar and I. Kar

'A Model of Electric Vehicle Charging Station Compatibles with Vehicle to Grid Scenario', *Proceedings of the IEEE International Electric Vehicle Conference 2012*, Greenville, South Carolina, USA, 4-8 Mar 2012

Bajarangbali and S. Majhi

'Relay Based Identification of Systems', *International Conference on Emerging Trends (ICET 2012)*, NIT Durgapur, 23-25 Mar 2012

D. Padhan and S. Majhi

'Synthesis of PID Tuning for a New Parallel Cascade Control Structure', *IFAC Conference on Advances in PID Control*, Brescia, Italy, 28-30 Mar 2012

U. Mehta, V. Kotwal and S. Majhi

'FPA-PI Based PI Controller for DC Servo Position Control System', *IFAC Conference on Advances in PID Control*, Brescia, Italy, 28-30 Mar 2012

U. Mehta and S. Majhi

'On-Line Relay Autotuning for Process Identification', *Proceedings of 35th NSC 2011*, IIT Bhubaneswar, 9-11 Dec 2011

Suyog Jagtap and R. P. Palathinkal

'Fabrication Aspects of MEMS-based Energy Harvesting Device', *6th International Conference on Smart Materials Structures and Systems (ISSS 2012)*, IISc, Bangalore, 4-7

January 2012

N. Ramakrishnan, A. K. Namdeo, H. B. Nemade and R. P. Palathinkal

'A Finite Element Method Simulation of SAW delay Line Sensor using Periodic Boundary Conditions', *Proceedings of the International Conference on Advanced Nanomaterials and Nanotechnology (ICANN2011)*, IIT Guwahati, 8-10 Dec 2011

A. S. D. P. Sudhansh, S. Kurakula, R. P. Palathinkal and S. Dandapat

'Implementation of Wavelet Transform based ECG Monitoring System for the Detection of QRS, P and T Waves', *International Conference on Data Engineering and Communication Systems (ICDECS 2011)*, RNSIT, Bangalore, 30-31 Dec 2011

V. S. Raju Mandapati, P. V. Nishanth and R. P. Palathinkal

'Study of Transistor Mismatch in Differential Amplifier at 32 nm CMOS Technology', *International Conference on VLSI, Communication and Instrumentation (ICVCI-11)*, Kottayam, 7-9 Apr 2011 (Best paper award)

S. P. Matcha and S. R. Ahmed

'High Performance Architecture for LMS based Adaptive Filter using Distributed Arithmetic', *Proceedings of the International Conference on Information and Computer Applications (ICICA 2012)*, Hong Kong, 17-18 Feb 2012

S. Shailendra, R. Bhattacharjee and S. K. Bose

'Improving Congestion Control for Concurrent Multipath Transfer through Bandwidth Estimation based Resource Pooling', *IEEE ICICS 2011*, Singapore, 13-16 Dec 2011

Rongping Lin, Wen-De Zhong, S. K. Bose and Moshe Zukerman

'Heuristic Algorithms for Multicast Traffic Grooming in WDM Mesh Networks', *IEEE ICICS 2011*, Singapore, 13-16 Dec 2011

V. Chheda, S. K. Bose and Wen-De Zhong

'MC-OR: Opportunistic Routing Based Multicast Protocol for Wireless Mesh Networks', *IEEE ICICS 2011*, Singapore, 13-16 Dec 2011

M. K. Bhuyan, and C. Sasivarnan

'Robust Person Tracking for Intelligent Visual Surveillance', *Proceedings of International Conference on Applied and Theoretical Information Systems Research (ATISR 2012)*, Taipei, Taiwan, pp 1-17, 10-12 Feb 2012

D. R. Neog, Yuji Iwahori, M. K. Bhuyan, Robert J. Woodham and Kunio Kasugal

'Shape from an Endoscope Image using Extended Fast Marching Method', *Proceedings of Indian International Conference on Artificial Intelligence (IICAI2011)*, Tumkur, pp 1006-1015, 14-16 Dec 2011

M. K. Bhuyan, M. K. Kar and D. R. Neog
'Hand Pose Identification From Monocular Image for Sign Language Recognition', *Proceedings of IEEE International Conference on Signal and Image Processing Applications (ICSIPA 2011)*, Malaysia, pp 378-383, 16-18 Nov 2011

M. K. Bhuyan, Chaitanya Narra and D. S. Chandra
'Hand Gesture Animation by Key Frame Extraction', *Proceedings of IEEE International Conference on Image Information (ICIIP -2011)*, India, pp 1-6, November 2011

Srikanth B., Harish M. and R. Bhattacharjee
'An Energy Efficient Hybrid MAC Protocol for WSN containing Mobile Nodes', *Proceedings of ICICS 2011, Singapore*, 13-16 Dec 2011 (Received certificate of recognition of high quality paper)

N. Agarwal, R. Bhattacharjee and R. Jana
'Modeling Reflection and Transmission of Signal through Building Wall for a Point Source UWB Transmitter', *ICUWB 2011, Bologna, Italy*, 14-16 Sep 2011

K. Deka, A. Rajesh and P. K. Bora
'Comparison of the Detrimental Effects of Trapping Sets in LDPC Codes', *IEEE International Conference on Communications (ICC 2011)*, Kyoto, Japan, 5-9 Jun 2011

S. Padam Priyal and P. K. Bora
'Database of ASAMYUTA HASTAS: A step towards intelligent systems for Bharatanatyam', *Centenary Conference in Electrical Engineering, Indian Institute of Science, Bangalore*, 15-17 Dec 2011

M. Sachan and P. K. Bora
'Sparse Representation of Color Images in Different Color Spaces', *Centenary Conference in Electrical Engineering, Indian Institute of Science, Bangalore*, 15-17 Dec 2011

S. R. Nirmala, S. Dandapat and P. K. Bora
'Discrete Wavelet Transform (DWT) based blood vessel segmentation in automatic analysis of retinal images', *International Conference on Biomedical Engineering (ICBME), Manipal, India*, 10-12 Dec 2011

M. Zaheer, J. Singh Suri, and H. B. Nemade
'Primary side control based inductively coupled powering scheme for biomedical implants', *IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI 2012)*, Hong Kong, 5-7 Jan 2012

L. N. Sharma, S. Dandapat and A. Mahanta
'Multiscale distortion measure for multichannel electrocardiogram signals', *Proceedings of the 2011 International Conference on Biomedical Engineering (ICBME 2011)*, Manipal Institute of Technology, Manipal, 10-12 Dec 2011

L. N. Sharma, S. Dandapat and A. Mahanta
'Guaranteeing Target Quality Denoising of Multichannel ECG Signals using MSPCA', *Proceedings of the 2011 International Conference on Computer and Computational Intelligence (ICCCI 2011)*, Bangkok, Thailand, 2-4 Dec 2011

V. K. Nath and A. Mahanta
'Image denoising based on Laplace distribution with local parameters in lapped transform domain', *SIGMAP 2011 - Proceedings of the International Conference on Signal Processing and Multimedia Applications, Seville, Spain*, pp 67-72, 2011, 18-21 Jul 2011

A. Ganguly and A. Mahanta
'Improved inter mode decision for H.264/AVC using weighted prediction', *SIGMAP 2011 - Proceedings of the International Conference on Signal Processing and Multimedia Applications, Seville, Spain*, pp 73-78, 2011, 18-21 Jul 2011

G. Pradhan and S. R. M. Prasanna
'Speaker verification under degraded condition using vowel and non-vowel like regions', *Centenary Conference, Indian Institute of Science, Bangalore*, 15-17 Dec 2011

D. Govind, S. R. M. Prasanna and B. Yegannarayana
'Neutral to emotional speech conversion using source and supra-segmental information', *Proceedings of INTERSPEECH 2011, Florence, Italy*, 27-30 Aug 2011

D. Govind, S. R. M. Prasanna and D. Pati
'Epoch extraction from high pass filtered speech', *Proceedings of INTERSPEECH 2011, Florence, Italy*, 27-30 Aug 2011

B. Yegannarayana, S. Guruprasad, S. R. M. Prasanna and S. V. Gangashetty
'Single and multichannel enhancement of distant speech using characteristics of speech production', *3rd workshop on Hands Free Speech Communication and Microphone Arrays, Edinburgh, UK*, 30 May – 1 Jun 2011

M. Mishra, M. K. Nath, S. R. Nirmala and S. Dandapat
'Image Processing Techniques for Glaucoma Detection', *International Conference on Advances in Computing and Communications (ACC) 2011, Rajagiri School of*

Engineering and Technology (RSET) Kochi, 22-24 Jul 2011

S. Kurakula, A.S.D.P. Sudhansh, R.P. Palathinkal and S. Dandapat

'Design of QRS Detection and Heart Rate Estimation System on FPGA', *Advances in Computing and Communications—Communications in Computer and Information Science*, Volume 193, Part 1, pp. 165-174, 2011

National

G. Siva Reddy, P. Sharma, S. R. M. Prasanna, C. Mahanta and L. N. Sharma

'Combined Online and Offline Assamese Handwritten Numeral Recognizer', 18th National Conference on Communications (NCC-2012), IIT Kharagpur, 3-5 Feb 2012

S. Mandal and C. Mahanta

'Second Order Sliding Mode Controller for Twin Rotor MIMO System', INDICON 2011, Hyderabad, 17-18 Dec 2011

S. Mandal and C. Mahanta

'Controlling Uncertain Systems with Variable Gain based Second Order Integral Sliding Mode Controller', National System Conference 2011 (NSC 2011), Bhubaneswar, 9-11 Dec 2011

P. Das, K. Karthik and B.C. Garai

'An efficient Hybrid Fingerprint matching algorithm', National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), Hubli, 15-17 Dec 2011

Haris B.C. and R. Sinha

'Speaker verification using sparse representation over KSVD learned dictionary', *Proceedings of 18th National Conference on Communications* (NCC-2012), IIT Kharagpur, 3-5 Feb 2012

D. Padhan and S. Majhi

'Improved Parallel Cascade Control Structure for Time Delay Processes', *Proceedings of INDICON 2011*, Hyderabad, 17-18 Dec 2011

D. Padhan and S. Majhi

'An Improved Cascade Control Structure for Time Delay Processes', *Proceedings of 35th NSC 2011*, IIT Bhubaneswar, 9-11 Dec 2011

N. R. Guhagarkar and S. R. Ahmed

'Low power, Low Area, High Speed Architectural Design

for Motion Estimation in MPEG-4', *Proceedings of INDICON 2011*, Hyderabad, 16-18 Dec 2011

N. R. Guhagarkar and S. R. Ahmed

'High Performance Architectural Design for Motion Estimation in MPEG-4', *Proceedings of the National Conference on Communications* (NCC 2012), IIT Kharagpur, 3-5 Feb 2012

Harish M., Srikanth B. and R. Bhattacharjee

'An Energy Efficient WSN with Cooperative Relaying Technique', *Proceedings of NCC 2012*, IIT Kharagpur, 3-5 Feb 2012

S. Mishra, A. Rajesh and P. K. Bora

'Performance of Pulse Shape Modulation of UWB Signals using Composite Hermite Pulses', National Conference on Communication (NCC 2012), IIT Kharagpur, 3-5 Feb 2012

M. Sharma, A. Rajesh and P.K. Bora

'On Concentric Permutation Code Based Vector Quantizer Design', National Conference on Communication (NCC 2012), IIT Kharagpur, 3-5 Feb 2012

K. Deka, A. Rajesh and P. K. Bora

'Additional Check Node to Improve the Performance of LDPC Codes in the Error Floor Region', National Conference on Communication (NCC 2012), IIT Kharagpur, 3-5 Feb 2012

G. Phukan, P. K. Bora, A. Rajesh and C. Ramesh

'Amplitude Normalization in Blind Modulation Classification', National Conference on Communication (NCC 2012), IIT Kharagpur, 3-5 Feb 2012

M. K. Nath and S. Dandapat

'Segmentation of Retinal Blood Vessels from Color Fundus Images by using Morphological Approach', National Conference on Computational Intelligence and Signal Processing (CISP) 2011, Assam Don Bosco University, Guwahati

Book, Chapter, etc.

R.S. Kshetrimayum

Electromagnetic field theory, Cengage Learning India, 2012

S. Chouhan

'Energy Optimization Techniques for Wireless Sensor Networks', *Green Mobile Devices and Networks: Energy Optimization and Scavenging Techniques*, CRC Press, 2012

S. Majhi
 'Control Structures for Time Delay Systems', *PID Control in the Third Millennium: Lessons Learned and New Approaches*, Eds. Ramon Vilanova, Antonio Visioli, 2012 (ISBN: 9781447124245)

'Electronic Communication Systems', Tata McGraw Hill, New Delhi, 2011

L.N. Sharma, S. Dandapat and A. Mahanta
 'Multiscale distortion measure for multichannel electrocardiogram signals', *Biomedical Engineering*, Narosa Publishing House Pvt. Ltd., Delhi, pp. 102-107, 2011

G. Kennedy, B. Davis and S.R. Mahadeva Prasanna

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
A. Rajesh	IEEE International Conference on Communications (ICC 2011)	Kyoto, Japan	5-9 Jun 2011	International
A. Sethi	IEEE Computer Vision and Pattern Recognition	Virtual	20-25 Jun 2011	International
C. Mahanta	International Conference on Computer Applications & Industrial Electronics (ICCAIE 2011)	Penang, Malaysia	4-7 Dec 2011	International
P.R. Sahu	National Conference on Communications (NCC 2011)	IIT Kharagpur	3-5 Feb 2012	National
S. Chouhan	International Conference on Field-Programmable Technology (FPT'11)	New Delhi	12-14 Dec 2011	International
R. Sinha	Winter School on Speech and Audio Processing (WiSSAP)	IISc Bangalore	6-9 Jan 2012	National
R. Sinha	Workshop on Tone and Intonation: Theory, Typology and Computation	IIT Guwahati	26-27 Jan 2012	National
R. Sinha	International Conference on Acoustic, Speech and Signal Processing (ICASSP)	Kyoto, Japan	25-30 Mar 2012	International
R.K. Sonkar	XVI International Workshop on The Physics of Semiconductor Devices	IIT Kanpur	19-22 Dec 2011	International
S. Majhi	IFAC Conference on Advances in PID Control	Brescia, Italy	28-30 Mar 2012	International
S. Majhi	National Systems Conference 2011	IIT Bhubaneswar	9-11 Dec 2011	National
R.P. Palathinkal	Sixth International Conference on Smart Materials Structures and Systems (ISSS 2012)	IISc Bangalore	4-7 Jan 2012	International
S.R. Ahmed	International Conference on Information and Computer Applications (ICICA 2012)	Hong Kong	Feb 2012	International
S.K. Bose	IEEE ICICS 2011	Singapore	13-16 Dec 2012	International
R. Bhattacharjee	ICUWB 2011	Italy	14-16 Sep 2011	International
M.K. Bhuyan	International Conference on Applied and Theoretical Information Systems Research (ATISR 2012)	Taipei, Taiwan	10-12 Feb 2012	International

M.K. Bhuyan	IEEE International Conference on Signal and Image Processing Applications (ICSIPA 2011)	Kuala Lumpur, Malaysia	16-18 Nov 2011	International
M.K. Bhuyan	IEEE International Conference on Image Information (ICIIP-2011)	Shimla, India	3-5 Nov 2011	International
S. Chouhan	Intel Embedded Research & Education Summit 2012	Chandler, AZ, USA	22-24 Feb 2012	International
P.K. Bora	Centenary Conference in Electrical Engineering, Indian Institute of Science, Bangalore	Bangalore	December 2011	International
P.K. Bora	National Conference on Communications (NCC 2011)	IIT Kharagpur	3-5 Feb 2012	National
S.R. Mahadeva Prasanna	INTERSPEECH 2011	Florence, Italy	27-30 Oct 2011	International
S.R. Mahadeva Prasanna and S. Dandapat	Workshop on Image & Speech Processing (WISP) 2011	IIIT Hyderabad	16 Dec 2011	International
R. Sinha	Winter School on Speech & Audio Processing (WiSSAP) 2012	IISc Bangalore	8-11 Jan 2012	International
A. Mahanta	International Conference on Signal Processing and Multimedia Applications (SIGMAP 2011)	Seville, Spain	18-22 Jul 2011	International
P.K. Bora	Centenary Conference in Electrical Engineering, Indian Institute of Science, Bangalore	Bangalore	Dec 2011	International
P.K. Bora	National Conference on Communications (NCC 2011)	IIT Kharagpur	3-5 Feb 2012	National
K. Karthik	International Conference on Image information processing (ICIIP)	JUIT, Shimla	3-5 Nov 2011	International
K. Karthik	World Congress on Information and Communication Technology (WICT)	Mumbai University, Mumbai	11-14 Dec 2011	International

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
A. Sethi	Classification of Symbol Sequences	Southern Illinois University	Carbondale, IL, USA	29 Oct 2011
R.P. Palathinkal	Negative Feedback Circuits	NIT Silchar	Silchar	16-20 Jan 2012
R.P. Palathinkal	Overview on MEMS	Gauhati University	Guwahati	21 Nov 2011
R.P. Palathinkal	Overview on VLSI and Design Techniques	Gauhati University	Guwahati	2 Dec 2011
S. Chouhan	Overview on RISC and ARM Processors	Gauhati University	Guwahati	28 Nov 2011
S. Chouhan	RTOS Basics	Gauhati University	Guwahati	2 Dec 2011
S. Chouhan	Wireless Sensor Network and Cloud Computing: Advantages and Challenges	NIT Silchar	Silchar	28 Jan 2012
H.B. Nemade	EMI in Electronic Systems	NIT Silchar	Silchar	16-20 Jan 2012

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS

Name	Name of Inst./Univ./Org.	Purpose	Date
Prof. Itakura	Nagoya University Japan	Invited talk	9 Aug 2011
Prof. Hynek Hermensky	John Hopkins University	Invited talk (Dealing with unknown unknowns in speech)	8 Dec 2011
Prof. Herve Bourlad	IDIAP	Invited talk (Analysis and understanding of communication scenes)	11 Dec 2011
Prof. Steve Renals	CSTR, University of Edinburgh	Invited talk (Recognition and understanding of meetings)	13 Dec 2011

SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
P.R. Sahu	QIP STC on Digital Communication Systems	AICTE	12-16 Sep 2011	National
R. Sinha	DIT Workshop on Speaker Verification: Theory and Applications	DIT	13-17 Feb 2012	National
R.P. Palathinkal	One day Workshop titled "Exposition of DIT's Research and Development initiatives in the area of Information Technology - North-East focus"	DIT India	20 Oct 2011	National
R.P. Palathinkal	"NPMASS MEMS workshop for eastern Region" resource persons from COMSOL Multiphysics, Bangalore, Bigtec Consultancy Pvt. Ltd, Bangalore and Coventorware, Bangalore	NPMASS India	27 Jun – 2 Jul 2011	National
S.R. Ahmed	VLSI Architectures for Image and Video Processing Systems	AICTE	19-23 Sep 2011	Short Term Course
M.K. Bhuyan	Indian Sign Language Education	MHRD	12-13 Dec 2011	National
S.R. Mahadeva Prasanna	Workshop on Speaker Verification	DIT	13- 17 Feb 2012	National

PATENT FILED

A.K. Namdeo and H.B. Nemade
 'Electrostatically coupled surface acoustic wave devices using external bond pads', Indian Patent Application No. 1085/KOL/2011, 19 August 2011

AWARDS AND HONOURS

S. Bhavana, H. Musthyala and R. Bhattacharjee
 Recognition of High Quality Paper by Nanyang Technological University for the paper entitled 'An Energy Efficient Hybrid MAC Protocol for WSN containing Mobile Nudes' at 8th International Conference on Information, Communications and Signal Processing (ICICS 2011), 13-16 December 2011, Singapore.

L.N. Sharma, S. Dandapat and A. Mahanta
 Won Best Paper Award for the paper 'Guaranteeing Target Quality Denoising of Multichannel ECG Signals using MSPCA' at 2011 International Conference on Computer and Computational Intelligence (ICCCI 2011), Bangkok, Thailand, 2-4 December 2011.

The paper by B.C. Haris and R. Sinha 'Sparse representation over learned and discriminatively learned dictionaries for speaker verification', in the *Proceedings of ICASSP 2012*, Kyoto, Japan, March 2012 has been selected for the 'IEEE Ganesh N. Ramaswamy Memorial Student Grant' sponsored by IBM. Ganesh N. Ramaswamy Grant honors the student author(s) of an outstanding paper on speaker and language recognition area accepted for publication

in the proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP).

Second position in the Best M.Tech Thesis Award 2011 in the area of VLSI and Microelectronics among the 28 Participating Institutes (PI) across India for the Thesis entitled "Design of a 0.5 V Low Power Analog Front-End for Heart-rate Detector" Naveen Suda, supervised by Dr. R.P. Palathinkal, EEE Department. The award includes cash prize for Institute, Supervisor and Student and is funded by Department of Information Technology (DIT) India through an R&D project "Special Manpower Development Program - Phase II (SMDP-II)".

S.R. Mahadeva Prasanna has been given IMB Shared University Research Award of US \$25000 from IBM Corporation, USA and US \$5000 from IBM IRL, India in recognition of achievements in speech processing area.

A. Sethi has been given Microsoft Young Faculty Award by IIT Guwahati on behalf of Microsoft Corporation for his contribution to research in areas related to CS.

S. Majhi was the member of International Programme Committee, International Federation of Automatic Control Conference on Advances in PID Control, Brescila, ITALY, 28-30 March 2012.

ANY OTHER (SPECIAL MENTION)

M.K. Bhuyan
Consultancy/Course Development: Principal Course Developer of the course 'Computer Vision & Applications', under the project entitled 'Developing suitable pedagogical methods for various classes, intellectual calibers and research in e-Learning', under National Mission Project on Education through ICT, MHRD, Govt. of India

FACULTY MEMBERS

A. Acharyya

PhD (University of Southampton, UK)
Assistant Professor

Areas of Interest: Signal Processing Algorithm, VLSI Architectures, Low Power Design Techniques, Electronic Aspects of Pervasive Computing

S.R. Ahamed

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interests: Adaptive Signal Processing, Mobile Communications, VLSI Signal Processing, Biomedical Signal Processing

R. Bhattacharjee

PhD (Jadavpur University)
Professor and Head of the Department

Areas of Interests: Electromagnetics, Microstrip Antennas, Microwave Engineering, Wireless Communication

M.K. Bhuyan

PhD (IIT Guwahati)
Assistant Professor

Areas of Interests: Image and Video Processing, Computer Vision, Pattern Recognition and Human Computer Interactions (HCI)

P.K. Bora

PhD (IISc Bangalore)
Professor

Areas of Interests: Image Processing and Computer Vision

S.K. Bose

PhD (Stony Brook, USA)
Professor and Dean of Alumni Affairs and External Relations

Areas of Interests: Modelling, Simulation and Analysis of Communication Networks

S. Chouhan

PhD (IIT Delhi)
Assistant Professor

Areas of Interests: Wireless Sensor Networks, Coding Theory, Wireless Communications

S. Dandapat

PhD (IIT Kanpur)
Professor and Dean of Administration

Areas of Interests: Signal Processing, Speech Processing, Biomedical Signal & Image Processing, Biomedical Instrumentation

D. Deb

PhD (University of Virginia)
Assistant Professor

Areas of Interests: Adaptive Control, Nonlinear Control, Active Flow Control, Synthetic Jet Actuators, Solid State Power Controllers, Aircraft Flight Control, Wind Turbines Modeling and Control, Smart Homes

A.K. Gogoi

PhD (IIT Kanpur)
Professor

Areas of Interests: Electro Magnetics, Microwave Engineering, RF circuits, System Design

T. Jacob

PhD (IIT Kanpur)
Assistant Professor

Areas of Interests: Statistical Signal Processing and Information Theory

I. Kar

PhD (IIT Kanpur)
Assistant Professor

Areas of Interests: Control Theory and Applications, Soft Computing Applications, Neural Network Based Adaptive Control, Applications of Fuzzy Logic and Neural Networks in Nonlinear Control, Kinematic and Dynamic Control of Robot Manipulators

K. Karthik

PhD (University of Toronto)
Assistant Professor

Areas of Interests: Privacy preserving image retrieval, Biometrics, Multimedia hashing, Multimedia access control, Anonymous computing, Traitor tracing, Digital Watermarking, Multimedia Encryption

P. Kumar

PhD (Delft University of Technology, the Netherlands)
Assistant Professor

Areas of Interests: Optimization of electrical motors and drives, Algorithm development for Multi-objective optimisation and multicriteria decision making in engineering systems, Simulation and design of electrical motors and actuators using Finite Element Methods (FEM), Analytical modeling of electrical motors for rapid simulation, Simulation and Analysis of Hybrid and Electric Vehicles

S.R. Mahadeva Prasanna

PhD (IIT Madras)
Associate Professor

Areas of Interests: Speech, Audio, Image Processing, Fuzzy Logic, Neural Networks

A. Mahanta

PhD (IIT Delhi, India)
Professor

Areas of Interests: Digital Signal Processing, High-speed VLSI structures for Signal Processing & Communication

C. Mahanta

PhD (IIT Delhi, India)
Associate Professor

Areas of Interests: Control Systems, Stochastic Systems

S. Majhi

PhD (University of Sussex, UK)
Professor

Areas of Interests: Relay Based Identification and Auto tuning, Control Systems, Control Theory Applications

A. Mitra

PhD (IIT Kharagpur)
Associate Professor (up to 30.12.2011)

Areas of Interests: Adaptive Signal Processing, Statistical Signal Processing, Finite-precision Signal Processing, Wireless Communication, Pattern Recognition

S.K. Nayak

PhD (IISc Bangalore)
Assistant Professor

Areas of Interest: Power flow analysis in AC and DC traction power system, Electromagnetics, Lightning interaction with an electrical and mechanical system, High Voltage Engineering

H.B. Nemade

PhD (IIT Bombay)
Associate Professor

Areas of Interests: Electronic Instrumentation, Systems Design, Ultrasonic Instrumentation, Non-destructive testing, Electronic product design, EMI/EMC issues, Acoustic sensors, Under-water acoustics, Surface acoustic wave devices, MEMS

R.P. Palathinkal

PhD (IIT Madras)
Associate Professor

Areas of Interests: VLSI and MEMS

B.K. Rai

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Communication Systems, Coding Theory

A. Rajesh

PhD (IIT Kanpur)
Assistant Professor

Areas of Interests: Coding and Modulation Techniques

J.S. Sahambi

PhD (IIT Delhi)
Associate Professor (on lien)

Areas of Interest: Digital Signal Processing, Wavelets, Microprocessors

P.R. Sahu

PhD (IIT Kanpur)

Associate Professor

Areas of Interests: Mobile Communications: Diversity combining techniques over fading channels, UWB Communications: Pulse shaping

A. Sethi

PhD (University of Illinois at Urbana-Champaign)

Assistant Professor

Areas of Interests: Machine Learning, Pattern Recognition, Image Processing, Computer Vision, Natural Language Processing, Vision Perception, Cognition

K.R. Singh

PhD (NTU Singapore)

Associate Professor

Areas of Interests: Electromagnetic Band Gap, Filters, Metamaterials, Computational Electromagnetics and Periodic Structures

R. Sinha

PhD (IIT Kanpur)

Associate Professor

Areas of Interests: Speech and Audio Processing, Speech Recognition, Signal Processing

R.K. Sonkar

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Optoelectronics Device Characterization and fabrication, Microelectronics and III-V Compound Semiconductors, Photonics Integrated Circuits, Integrated Optics Fiber Optics Communication

P. Tripathy

PhD (IIT Kanpur)

Assistant Professor

Areas of Interests: Power system dynamics and stability studies, Wide Area Monitoring and Control of Power System, Optimal power dispatch and state estimation, Security analysis and control, Energy management system and distribution automation.

G. Trivedi

PhD (IIT Bombay)

Assistant Professor

Areas of Interest: Circuit Simulation (Analog & Digital) and VLSI CAD, High Performance Computing, Computational Biology and Solar Photovoltaics

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

INTRODUCTION

The Department of Humanities and Social Sciences has a unique niche in the academic programme of the institute. It currently comprises eight disciplines, namely, Economics, English, Philosophy, Psychology, Sociology, History & Archeology, Political Science and Linguistics. The courses offered at the BTech level are designed with a view to providing academic inputs that complement the technology programmes of the Institute.

All the eight disciplines endeavour to highlight the fact that science and technology must eventually address the needs of human beings. However, apart from imparting knowledge in some of the contemporary areas, the courses also encourage students to deliberate on issues relating to ethical and social roles of technology. A growing understanding of the importance of the interdisciplinary is today one of the department's major strengths. Some of the current academic concerns in the eight disciplines focus on this aspect of knowledge.

The department also has a vibrant MA programme in Development Studies and Doctoral Programme in which scholars are encouraged to excel in high quality research through rigorous coursework that hone their theoretical, critical and empirical tools. The wide range of areas of interests of the faculty members ensures a broad vision and openness in the department's academic programmes.

ACADEMIC ACTIVITIES

The Department organised an Annual Lecture Series for the year 2011-2012 on the broad theme "Political Economy of Development in India". The lecture series was sponsored by the Ministry of Home Affairs, Government of India and was organized in collaboration with IIT Guwahati. From October 2011 onwards, six lectures were delivered by eminent academicians centering on the

broad theme. The first lecture of the series was delivered by Prof. M. P. Bezbaruah, Professor and Head, Department of Economics, Gauhati University on 31 October 2011 on "Food Security: Issues and Policy Options".

The second lecture of the Annual Lecture Series was delivered by Dr. Purnamita Dasgupta, Ford Foundation Chair in Environmental Economics and Acting Head, Environmental Economic Unit, Institute of Economic Growth, New Delhi, on 18 November 2011. The title of her lecture was "Forests, for 'rest'? Macro and Micro Economics of Forests in India".

The third lecture of the Annual lecture Series was delivered by Dr. Aparna Royaprol, Department of Sociology, Hyderabad Central University on 23 January 2012. The title of her talk was "Changing Locations and Transnational Identities".

The fourth lecture of the Annual lecture Series was delivered by Prof. Vinod Jairath, Department of Sociology, Hyderabad Central University on 8 February 2012. The title of his lecture was "Middle Class and Development: Exploration".

Dr. Amita Baviskar of Institute of Economic Growth, Delhi University delivered the fifth lecture of the series on 16 March, 2012 on "Good to Eat, Good to Think: Changing food practices in India".

Prof. Madhura Swaminathan of Indian Statistical Institute, Kolkata delivered the sixth lecture of the series on "Weakening Welfare: Conditional Cash Transfers and Food Security" on 27 March 2012.

STUDENT INTAKE

PhD students admitted in 2011-2012	: 19
MA students admitted in 2011-2012	: 46

FACULTY STRENGTH

There are twenty two faculty members in the Department as on 31 March 2012; three each in English, linguistics, Psychology and six in Economics, and two each in Philosophy and Sociology, and one each History, Archeology and Political Science.

Professor	: 4
Associate Professor	: 4
Assistant Professor	: 14
Total Faculty	: 22

MAJOR EQUIPMENT AND FACILITIES

The Department uses the facilities of the Institute Computer Centre for its Language Laboratory. Software for facilitating the language skills of the students in the areas of Phonetics and Language learning has already been procured. Computers were also procured for the language laboratory. The Psychology Laboratory has procured hardware and software that are being utilized mostly by the research scholars.

RESEARCH AND DEVELOPMENT ACTIVITIES

The Department organised a two-day interdisciplinary workshop on tone and intonation during 26-27 January 2012 with special reference to the languages of North-East India. The workshop featured talks by speech

scientists from both linguistic and electrical engineering background. The participants discussed tones and intonation in some of the lesser studied languages of the Indian subcontinent such as, Dzongkha, Riang, Tedimchin, Tenyidie etc. Some of the recent progresses made in prosodically guided speech synthesis in languages like Bangla and Mizo were also reported in the workshop. The workshop was sponsored by LDCIL, Mysore and the North Eastern Council.

A Short Term Course on “Research Methods and Computer Applications in Humanities and Social Sciences” was organised by the Department during 12-23 March 2012. Twenty-nine PhD students from various universities and research institutes participated in the Short Term Course. The objective of the Short Term Course (STC) was to introduce epistemological issues in social research, basic elements of empirical research and various techniques of data collection, computer applications, statistical analysis and interpretation data. Apart from introducing the participants to various research methods, different computer applications, such as SPSS and STATA were also taught. The methodology used includes lecture sessions, interactive discussions and presentations, demonstrations through computer applications and exercises and field study. The Short Term Course was sponsored by the Indian Council of Social Science Research, New Delhi.

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
S. Mallick	QIP CD Cell Project on Modernity: Sociological Perspectives (Preparation of Textbook)	AICTE (under QIP, IITG)	0.40	-	2 years
Shakuntala Mahanta	Phonological and Sociolinguistic variation in Deori	Indian Council for Social Science Research	6.80	-	2 years
Pahi Saikia	Building Capacities from the margins: Constructive governance, democratic deepening and sustainable peace in post-conflict and fragile situations in Eastern India	Start up grant, IIT Guwahati	5	-	2 years

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
S. Mallick	Science, Technology and Society (NPTEL – II)	MHRD	7	A. Barua	3 years
S. Mallick	Indian Society: Issues and Problems (NPTEL – II)	MHRD	7	L. Das	3 years
S. Mallick	Introduction to Sociology (NPTEL – II)	MHRD	7	–	3 years
Anamika Barua	Assessing Climate Change, Water and Rural Livelihoods : Assessing Socioeconomic Vulnerability and Potential Adaptive Strategies in Eastern Himalayan Region, India	Swedish International Development Agency (SIDA)	100	-	3 years
Debarshi Das	Video course: Game Theory and Economics (NPTEL - II)	MHRD	7	-	3 years
Archana Barua	Culture in dialogue: Re-visiting the Vaishnavite Renaissance in North east India (Assam and Manipur)	IGNCA	11.63	Krishna Barua	1 year
Sawmya Ray	Seduction, Sale and Slavery: Trafficking of Women and Children in North East India	Indian Council of Social Science Research	5.91	-	2 years
Sawmya Ray	Gendered Consequences: Understanding Sex Trafficking in the Context of Armed Conflicts in North East India.	National Commission for Women (NCW)	3	-	2 years
Rajshree Bedamatta	Women's Participation in Wage Employment Programmes and Its Contribution to Household Food Security: A Study of Assam and Meghalaya	IIT Guwahati	4.98	-	2 years
Utpal Bora	Ganga River Basin Management Plan (GRBMP)	-	30	M. K. Dutta (for ENB Group)	1 year

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
S. Mallick	QIP CD Cell Project on Interrogating Modernity (Slides)	AICTE (under QIP, IITG)	0.15	-	1 year
Anamika Barua	Assessing Socioeconomic Vulnerability and Potential Adaptive Strategies in Sikkim, India (Planning grant)	SASNET	5	-	2 years

Bidisha Som	The cognitive schemas and motion verbs: A comparative study of two North Eastern languages of India	IIT Guwahati	1.75	-	2 years
Rajshree Bedamatta	Livelihood Study in the KBK Region of Orissa: Identification of the Gap and Providing a Statistical Database for the Development Planners of the State	Indian Council of Social Sciences Research	5	-	2 years
M. K. Dutta	CD Cell Project on Slide Preparation on "Agriculture and Rural Development"	AICTE	0.15	-	2 years

CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Anamika Barua	Ecosystems for Life	International Union for Conservation of Nature (IUCN)	3.09	-	6 months

PUBLICATION

International Journal

S. Mallick

'Knowledge Production in Biotechnology in India', *IEEE Technology and Society*, vol. 30 (2), pp 46-54, 2011

S. Mallick, E. Haribabu and B. B. Reddy

'Industrialisation of Seed Production: Implications for Agriculture in India', *Perspectives on Global Development and Technology*, vol. 10 (3-4), pp 441-457, 2011

S. Katyaini, A. Barua, and B. Mili

'Assessment of adaptation to floods through bottom up approach: A case study of three agro-climatic zones of Assam', *International Multidisciplinary Journal - The Clarion*, vol.1 (1), pp 157-164, 2012

Archana Barua and Ananya Barua

'Gendering the digital body: women and computers', *AI & Society*, 2012, DOI 10.1007/s00146-012-0371-9

Bidisha Som

'Language, Categorisation and Cognitive Structures: The Case of Great Andamanese', *International Journal of Dravidian Linguistics*, Volume XXXX (1), pp 175-190, 2011

Ashima Majumdar and Saundarjya Borbora

'Shift Share Analysis and the Urban Informal Manufacturing Sector in Assam', *Economic Growth eJournal*, vol. 3 (71), 2011

Daisy Das, S. Borbora and M. K. Dutta

'Satisfaction from Quality of Life in Urban Living Environment', *South Asian Journal of Socio-Political Studies (SAJOSPS)*, vol. XI (2), pp 62-65, 2011

Daisy Das, S. Borbora and M. K. Dutta

'Living Environment and Quality of Life: A Case Study', *International Journal of Ecological Economics & Statistics (IJEES)*, vol. 25 (2), 2012, ISSN 0973 – 1385 (Print), ISSN 0973 – 7537 (Online)

R. Mokashi-Punekar

'The Poetry of Vikram Seth: Anti-romantic, Postmodern or Simply Kitsch?', *JSL*, XIV, pp 39-46, 2011

R. Mokashi-Punekar

'Is it Possible to be Dalit in Medieval India', *JSL*, XV, pp 25-38, 2011

K. Bora and R. Mokashi-Punekar

'Maximum City: Mumbai, Spatial Politics and Representation', *Spaces and Flows: an International Journal of Urban and ExtraUrban Studies*, vol. 1 (3), pp 151-166, 2011

D. Das and A. Saikia

'Early Twentieth Century Agrarian Assam: A Brief and Preliminary Overview', *Economic and Political Weekly*, vol. 46 (41), pp 73-80, 2011

National Journal

Bidisha Som

'Towards a Cognitive Linguistics Understanding of Folk Narratives', *Lokaratna*, vol. IV, pp 54-63, 2011

Krishna Barua

'A betweenness in the language of enactment: in Raja Rao's *Kanthapura* - Indian Fiction in English', *The Indian Review of World Literature in English* (IRWLE), vol. 7 (2), 2011

Ira Das, M. K. Dutta and S. Borbora

'Status, Growth and Scope of Labour Absorption in Unorganised Manufacturing Sector in North Eastern Region', *Indian Journal of Regional Science*, Vol. XXXVIII (1), pp 27-39, 2011

Conference/Workshop/Seminar/Symposia**International**

A. Barua

'Gandhian approach to sustainable development and its critics', *Proceedings of the International Conference on Gandhian Values: Sustainability & Corporate Governance* (GV:SCG-2011), IBMT 2011, Bangalore, 7-9 Oct 2011

K. Barua

'On Beauty, Art and Man: Rabindranath Tagore and Ananda K. Coomaraswamy', *Proceedings of Global Conference: Beauty*, Oxford, United Kingdom, 19-21 Sep 2011

K. Barua

'The Oceanic circle: Mahatma Gandhi's Ramrajya', *Proceedings of Archiving Utopia: Utopia as Archive*, Society for Utopian Studies State College, State College, Pennsylvania, USA, 20-23 Oct 2011

K. Barua

'Inventing the Truth: Maya Angelou's I Know Why the Caged Bird Sings', *Proceedings of The Black Atlantic: Colonial and Contemporary Exchanges*, *Stanford Forum for African Studies*, Stanford University, California, USA, 28-29 Oct 2011

K. Barua

'The Ramayana in Performance: The Ankiyā Nāt of Assam', *Proceedings of South Asian Literary Association* (SALA), Seattle, USA, 4-7 Jan 2012

G. K. Sarma and S. Borbora

'Is Microfinance Outreach is Sustainable? A Case of Microfinance Institution Model in India', 2nd European Research Conference on Microfinance, University of

Groningen, The Netherlands, 16-18 Jun 2011

S. Borbora and G. K. Sarma

'Microfinance Institutions: Sustainability and Outreach', *World Business Economics and Finance Conference*, Bangkok, 26-27 Sep 2011

M. K. Dutta

'Institution of ground water market for management of ground water resource: a study from Assam in north east India', *Proceedings of 56th Annual Conference of Australian Association of Agricultural and Resource Economics Society* (AARES), Fremantle, Perth, Australia, 8-10 Feb 2012

V. Prabhu and D. Morang

'Reflection on the effectiveness of environmental pragmatism', *Proceedings of Intellectbase International Consortium*, Volume 21, Spring 2012, Bangkok, Thailand, pp. 196–201

National

K. Barua

'The Poetics and the Politics of Representation', *Proceedings of National Seminar on Culture Studies and Literary Applications*, Panskura Banamali College (In collaboration with Vidyasagar University English Teachers' Consortium), W Bengal, 3- 4 Feb 2012

Book, Chapter, etc.

M. K. Dutta

Irrigation Potential in Agriculture of Assam, Concept Publishing Company (P) Ltd., New Delhi, 2011

Pahi Saikia

Ethnic Mobilisation and Violence in Northeast India, Routledge, New Delhi, 2011

Archana Barua

'Computer Ethics: A Heideggerian Perspective', *Information Technology Management*, Eds. Savita Pathak and Sarika Sharma, Right Publishing & Press, Pune, pp.196-204, 2011

Bidisha Som and R. K. Mishra

'Teaching a second language or Foreign language in the North East: Psycholinguistic and Cognitive Issues', *Issues In Teaching-Learning Second And Foreign Languages (With Special Reference To North East India)*, Eds. Awadesh K. Mishra and Kandarpa Das, Lakshi Publishers, Delhi, pp. 52-71, 2011

Krishna Barua

'I know not where is the song!', *The Editor's Choice-Contemporary Short Stories in Indian English*, Eds. Sunil

Sharma and Jaydep Sarangi, Gnosis, Author's Press, Delhi, 2011

S. Borbora

'Commercial Banking and SHG-Bank Linkage Programme: A Review with Special Reference to Northeastern Region,' *Understanding India's North East*, Eds. A. K. Agarwal and B. Singh, DVS Publishers, pp. 121-127, 2011

R. Mokashi-Punekar

'Chokhamela,' *The Oxford Anthology of Bhakti Literature*, Ed. Andrew Schelling, Oxford University Press, 2011

R. Mokashi-Punekar

'Views from a Different India: Not Hinglish but Nagamese,' *Chutneyfying English: the Phenomenon of Hinglish*, Eds. Rupert Snell and Rita Kothari, Penguin Books, pp. 128-141, 2011

Review Essay / Book Review

S. Mallick

Review of *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* by Antoine Bousquet, *Political Studies Review*, Vol. 9, No. 2, pp. 266-267, May 2011

S. Mallick

Review of *Development Studies: Short Introductions* by Jeffrey Haynes, *Political Studies Review*, Vol. 9, No. 2, pp. 273, May 2011

S. Mallick

Review of *Nationalism: Key Concepts* by Anthony D. Smith, *Journal of Intercultural Studies*, Vol. 32, Issue 4, pp. 441-442, August 2011

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
S. Mallick	36th Annual Conference of the Society for Social Studies of Science (4S)	Cleveland, Ohio, USA	2-5 Nov 2011	International
J. R. Prusty and S. Mallick	37th All India Sociological Conference	JNU, New Delhi	10-13 Dec 2011	National
S. Mallick	Neoliberal State and its Challenges	OKDISCD, Guwahati	20-21 Dec 2011	National
S. Mallick	Institution, Structure and Organization in Globalizing India: Science, Technology, Economy and Society	IIT Bombay, Mumbai	20-21 Jan 2012	National
Shakuntala Mahanta	Manchester Phonology Meeting	Manchester, UK	18-21 May 2011	International
Shakuntala Mahanta	International Seminar on Prosodic Interfaces	JNU, Delhi	24-27 Nov 2011	International
Anamika Barua	USEE 2011 Conference : Building a Green Economy	Michigan State University, US	26-29 Jun 2011	International
Anamika Barua	Sixth Biennial Conference of The Indian Society for Ecological Economics on "Nature, Economy and Society: Understanding the Linkages"	Hyderabad	20-22 Oct 2011	National
Archana Barua	Information Technology Management	Yeshwantrao Academy of Development Administration	11-12 Oct 2011	International
Archana Barua	International Conference on Gandhian Values: Sustainability & Corporate Governance (GV:SCG-2011)	IBMT, Bangalore	7-9 Oct 2011	International

Archana Barua	ICPR sponsored workshop on problems confronting the study of philosophy in colleges and universities & its remedy	Darshan Bhawan, New Delhi	11 Aug 2011	National
Krishna Barua	Archiving Utopia: Utopia as Archive. Society for Utopian Studies State College,	Pennsylvania. State College, Pennsylvania, USA	20-23 Oct 2011	International
Krishna Barua	The Black Atlantic: Colonial and Contemporary Exchanges, Stanford Forum for African Studies	Stanford University, California, USA	28-29 Oct 2011	International
S.Borbora	Second European Research Conference on Microfinance	University of Groningen, The Netherlands	16-18 Jun 2011	International
S.Borbora	Consultative meeting on “The Decentralized District Planning & Implementation of the Govt. of Assam’s guidelines for preparation of District Plan”	NIRD-NERC, Guwahati	5-7 May 2011	National
S.Borbora	Economist’s meeting on “Approach Paper for Social Sectors for the 12th Plan in Assam”	OKD Institute of Social Change and Development, Guwahati	28 Jun 2011	National
S. Borbora	National Seminar on “Rural Industrialization for Employment & Self- Employment: Prospects of Inclusive Growth in Rural Assam”,	DDR College, Chabua	26-27 Aug 2011	National
S.Borbora	National Seminar on “Micro Economic Enterprise Building Mechanism to Empowerment of Women in Indian Scenario’	Tinsukia Commerce College, Tinsukia	11 Sep 2011	National
S. Borbora	World Business Economics and Finance Conference	Bangkok	26-27 Sep 2011	International
S. Borbora	13th Annual Conference of North Eastern Economic Association	Assam University, Silchar	17-18 Dec 2011	National
S. Borbora	National Workshop on ‘Social Sector Service Delivery: A Demand Based Approach’	DHSK College, Dibrugarh	December 1-2, 2011	National
S. Borbora	National Seminar on ‘Socio-economic and Institutional Feasibility of Utilization of Water Resources in North East India’	B. Barooah College, Guwahati	18-19 Feb 2012	NAtional
S. Borbora	National seminar on ‘Poverty Reduction Strategies In North East India	CEC, New Delhi organized at Guwahati	22 Mar 2012	National
V. Prabhu	Annihilating Pain – A study of Peter Singer’s position on voluntary euthanasia in Second Global Conference - Making Sense of Pain	Warsaw, Poland	22-24 May 2011	International
V. Prabhu	Solitary beings and social responsibility – Indian perspective - Fifth Anniversary International Symposium “The Solitary Being”	Bern, Switzerland	27-28 May 2011	International

V. Prabhu	Exposition of Convergent Hypothesis - 86th session of Indian Philosophical Congress	Chidambaram	16-18 Dec 2011	National
V. Prabhu	Ethics in Research - Short Term Course on 'Research Methods in Social Sciences',	Guwahati	12-23 Mar 2012	National
V. Prabhu	Session-Chair, Intellectbase International Consortium	Bangkok, Thailand	15-17 March 2012	International
Sawmya Ray	International Conference on Social Sciences, 2011	Izmir, Turkey	7-8 Oct 2011	International
Sawmya Ray	International conference on 'Gendered Violence' November 2011	Bristol, UK	23-25 Nov 2011	International
Rajshree Bedamatta	International Conference of Social Sciences, 2011	Izmir, Turkey	7-8 Oct 2011	International
Rajshree Bedamatta	53rd Annual Conference of the Indian Society of Labour Economics	Udaipur, Rajasthan	16-19 Dec 2011	National
M. K. Dutta	National Seminar on Globalisation and North East India	Khagorijan College, Nagaon	27-28 May 2011	National
M. K. Dutta	National Seminar on Social Exclusion and Inclusive Growth in North East India	North Guwahati College, Assam	10-11 Jun 2011	National
M. K. Dutta	Consultative Meeting on Approach paper (for Social Sector) for Twelfth Plan of Assam	OKDISCD, Guwahati	28 Jun 2011	National
M. K. Dutta	Rural Industrialization for Employment and Self-Employment: Prospects of Inclusive Growth in Rural Assam	DDR College, Chabua	26-27 Aug 2011	National
M. K. Dutta	13th Annual Conference of North Eastern Economic Association	Assam University, Silchar	17-18 Nov 2011	National
M. K. Dutta	Inclusive Growth in Local Context	Rangia College, Assam	20-21 Jan 2011	National
M. K. Dutta	56th conference of Australian Association of Agricultural and Resource Economics Society (AARES)	Fremantle (Perth), Australia	8-10 Feb 2012	International
M. K. Dutta	National Seminar on Socio-economic and Institutional Issues in the Utilisation of Water Resources of North East	B. Borooh College, Assam	18-19 Feb 2012	National
M. K. Dutta	International Conference on Environmentally Sustainable Urban Ecosystems	IIT Guwahati	24-26 Feb 2012	International

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
S. Mallick	IPR and Innovations in Scientific Research	NRDC	Guwahati	27 May 2011
S. Mallick	Formulation of Research Objectives and Setting of Hypotheses	NECRD, IG-NOU	Guwahati	9 Jun 2011

S. Mallick	Fundamentals of Sampling, Editing and Coding of Data	NECRD, IG-NOU	Guwahati	10 Jun 2011
S. Mallick	Governance, Rural Development and Democratic Decentralization	OKDISCD	Guwahati	21 Jun 2011
Anamika Barua	Climate Change and Resilience	Jadavpur University	Kolkata	3 Mar 2012
Archana Barua	ICPR sponsored lecture on 'Phenomenology and Ethics : Contemporary Issues'	NEHU	Shillong	5 Mar 2012
Archana Barua	ICPR sponsored annual lecture on 'Science, Technology and Ethics : Feminist Approach to Computer Ethics	J.B. College	Jorhat	26 Mar 2012
Krishna Barua	Keynote Lecture National Seminar on 'Culture Studies and Literary Applications'	Panskura Banamali College	W. Bengal	3-4 Feb 2012
S.Borbora	Rural Industrialization and employment potential in Assam	DDR College, Chabua	Chabua	27 Aug 2011
S. Borbora	Empowerment of Women: A Positive Thought Process	Tinsukia Commerce College	Tinsukia	11 Sept 2011
S. Borbora	Financial Inclusion: Concepts and Issues	DHSK College	Dibrugarh	1 Dec 2011
S. Borbora	Microfinance at Crossroads: Issues of sustainability, efficiency in the present scenario	Assam University	Silchar	17 Dec 2011
S. Borbora	'Financial Inclusion and the North East India'	Prgjyotish College	Guwahati	23 Dec 2011
S. Borbora	Poverty Reduction Strategy: Some Issues	CEC, New Delhi	Guwahati	22 Mar 2012
R. Mokashi-Punekar	Jotiba Phule and 19th Century India	Gauhati University	Guwahati	8 Dec 2011
M. K. Dutta	Regional Disparity and Economy of the North East in the Post-Liberalisation Period	Khagorijan College	Nagaon	27 May 2011
M. K. Dutta	Inclusive Growth and North East India	North Guwahati College	North Guwahati	11 Jun 2011
M. K. Dutta	Issues in Agriculture of Assam	OKDISCD	Guwahati	28 Jun 2011
M. K. Dutta	Rural Industrialization for Inclusive Growth in Assam	DDR College	Chabua	26 Aug 2011
M. K. Dutta	An Analysis of Fiscal and Debt Sustainability in Assam in recent Decades	Assam University	Silchar	17 Nov 2011
M. K. Dutta	Rights Based Approach and Health Sector in Assam	DHSK College	Dibrugarh	2 Dec 2011
M. K. Dutta	Look East Policy and North East India	DR College	Golaghat	8 Dec 2011
M. K. Dutta	Inclusive Growth in Local Context	Rangia College	Rangia	20 Jan 2012
M. K. Dutta	Ground Water Resources in the North East-the Issues	B. Borooah College	Guwahati	19 Feb 2012
M. K. Dutta	Operational and Management Problems of Self-help Groups	Dibrugarh University	Dibrugarh	24 Feb 2012
M. K. Dutta	Meeting India's Development Challenges	Central University of Bihar	Patna	25 Mar 2012

SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
S. Mallick	Coordinator, Short term course on Research Methods and Computer Applications in the Humanities and Social Sciences	ICSSR	12-23 Mar 2012	National
Shakuntala Mahanta	Workshop on Tone and Intonation (WTI 2012)	CIIL, NEC	26-27 Jan 2012	International
M. K. Dutta	Course Director, Short Term Course on Research Methods and Computer Applications in Humanities and Social Sciences	ICSSR	12-23 Mar 2012	National

ANY OTHER (SPECIAL MENTION)

S. Mallick chaired a session on Controlling Intellectual Property at the 36th Annual Conference of the Society for Social Studies of Science (4S), Cleveland, Ohio, USA, 2-5 November 2011.

S. Borbora was selected a member of the Peer Review Board of *Proficient*—an international journal of management.

S. Borbora was selected a member of the Review Board of the *Journal Of Electronic Commerce In Organizations (JECO)*.

D. Das prepared study material for IGNOU BA course units 'Agricultural Development in India', 'Agricultural Price Policy and Food Inflation', and 'Agricultural Taxation, Subsidies and Insurance'.

V. Prabhu prepared study material on "Environmental Ethics" for KK Handique State Open University, Guwahati.

V. Prabhu prepared study material on "Mill" for Post Graduate Correspondence School, IDOL, Gauhati University.

V. Prabhu and S. Segar prepared study material on "Rights and Duties" for KK Handique State Open University, Guwahati.

M. K. Dutta was nominated member, Assam Higher Secondary Education Council by Hon'ble Governor of Assam.

M. K. Dutta was elected secretary of North Eastern Economic Association (NEEA).

FACULTY MEMBERS**A. Barua**

PhD (North Eastern Hill University)
Professor

Areas of Interest: Phenomenology, Existentialism, Feminist Epistemology, Applied Ethics, Philosophy of Religion, Indian Philosophy, Gandhian Philosophy

A. Barua

PhD (University of Leeds, United Kingdom)
Assistant Professor

Areas of Interest: Socio-economic understanding of climate risk and resilience, urban living and sustainable cities

K. Barua

PhD (Gauhati University)
Professor

Areas of Interest: Common Wealth Literature, Aesthetics, Cultural Studies, Ecocriticism and Translation

R. Bedamatta

PhD (University of Calcutta; through Indian Statistical Institute Kolkata)
Assistant Professor

Areas of Interest: Development Economics, Informal Sector, Issues in Food Security and Social Security, Economics of Education

S. Borbora

PhD (Gauhati University)
Professor

Areas of Interest: Development Economics, Industrial Economics, Labour Economics

D. Das

PhD (Jawaharlal Nehru University)
Assistant Professor

Areas of Interest: Development Economics, Macroeconomics, Applied Game Theory

L. Das

PhD (Dibrugarh University)
Associate Professor

Areas of Interest: Literary and Cultural Theory

M. K. Dutta

PhD (Gauhati University)
Associate Professor

Areas of Interest: Agricultural Economics, Environmental Economics, Development Economics

D. Hussain

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Health and Clinical psychology

N. Kashyap

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Sleep and Information Processing

S. Mahanta

PhD (Utrecht University, The Netherlands)
Assistant Professor

Areas of Interest: Phonological theory with special interest in Optimality Theory, vowel harmony, Experimental approaches to Phonology and its acquisition

S. Mallick

PhD (University of Hyderabad)
Assistant Professor

Areas of Interest: Sociology of Science, Historical Sociology

R. M. Punekar

PhD (Gujarat University)
Professor

Areas of Interest: Culture and Translation Studies, Modern British Literature, Indian Writing in English

S. Ray

PhD (University of Hyderabad)
Assistant Professor

Areas of Interest: Sociology of Gender, Sociology of Law, Sociology of Communication

A. Saikia

PhD (University of Delhi)
Associate Professor

Areas of Interest: Social & Environmental History of 19th and 20th century Assam

P. Saikia

PhD (McGill University, Canada)
Assistant Professor

Areas of Interest: Identity issues of ethnic minorities, local governance, development policies, social movements, ethnic violence and conflict prevention

P. Sarmah

PhD (University of Florida, Gainesville)
Assistant Professor

Areas of Interest: Phonetics, Phonology, Acoustic Phonetics, Tibeto-Burman tones, Psychoacoustics, Perception

B. Sengupta

PhD (MCGill University)
Assistant Professor

Areas of Interest: Public Economics, Dynamic Economic Theory

S. Sharma

PhD (Deccan College PG and Research Institute, Pune –Deemed University)

Assistant Professor

Areas of Interest: Archaeology of Northeast India, Colonial history of Assam, Cultural Policy

B. Som

PhD (Jawaharlal Nehru University)
Assistant Professor

Areas of Interest: Cognitive linguistics, Endangered and lesser known languages, Language typology, sociolinguistics

N. Tripathi

PhD (IIT Kanpur)
Associate Professor

Areas of Interest: Organizational Behaviour, Human Resource Management, Social/Environmental Psychology, I-O Psychology

P. Venkataraman

PhD (Pondicherry University)
Assistant Professor

Areas of Interest: Philosophy of Technology, Applied Philosophy, Peace Studies, Critical Thinking, Applied Ethics, Philosophy of Education.

DEPARTMENT OF MATHEMATICS

INTRODUCTION

The Department of Mathematics continued to offer both undergraduate and postgraduate level mathematics courses to BTech, MSc and PhD students during the year. The Department continued to organize seminars under the IIT Guwahati Mathematics Seminar Series in which several distinguished mathematicians from India and abroad delivered talks. In addition, there were several activities of the two student organizations namely, MATRIX and IIT Guwahati Chapter of SIAM. These two bodies together organized the two-day event 'Dimension' in March 2012.

ACADEMIC ACTIVITIES

Preparatory Programme

The Department of Mathematics continued to offer courses in both the semesters of 2011-2012 for the preparatory programme.

BTech Programme

The Department of Mathematics offered Mathematics-I (MA-101) and Mathematics-III (MA-201) core courses in the odd semester and Mathematics-II (MA-102) in the even semester to BTech students. The courses MA-101 and MA-102 were also offered during summer 2011. The Department has offered two courses, namely MA-211M and MA-212M, as Minor in Mathematics to BTech/BDes students during the year.

BTech (Mathematics and Computing) Programme

The BTech programme in Mathematics and Computing was started in July 2006. There are 26 students in fourth year (2008 batch), 32 students in third year (2009 batch) and 42 students in second year (2010 batch). In addition to this, 39 students were admitted in 2011. The third batch of BTech students will be graduating in this year.

MSc (Mathematics and Computing) Programme

The MSc programme in Mathematics and Computing was started in July 2000. There are 41 students in the 2010 batch and 38 students were admitted in 2011. Apart from all regular courses, the courses MA-421, MA-501, MA-511, MA-521 and MA-522 were also offered during summer 2011.

PhD Programme

The Department has 39 PhD students, out of which 9 were admitted during the year 2011-2012.

STUDENT INTAKE

BTech students admitted in 2011-2012	: 39
MSc students admitted in 2011-2012	: 38
PhD students admitted in 2011-2012	: 9

FACULTY STRENGTH

Professor	: 5
Associate Professor	: 6
Assistant Professor	: 16
Total	: 27

MAJOR EQUIPMENT AND FACILITIES

The Department has two very good computer laboratories for students. Besides, IIT Guwahati houses the Regional Mathematics Library funded by the National Board for Higher Mathematics (NBHM). In addition, the department has its own library.

RESEARCH AND DEVELOPMENT ACTIVITIES

Apart from regular research activities like guiding students, the faculty members of the department attended conferences and undertook collaborative research works with researchers from some premier institutions in the country and abroad.

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Shreemayee Bora and Christian Mehl (TU Berlin, Germany)	Distance problems for structured matrix polynomials	DST and DAAD, Germany	4.28	Rafikul Alam, Punit Sharma (IITG) and Michael Karow (TU Berlin, Germany)	2 years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Jiten C. Kalita	Simulation of Incompressible Viscous Flows by the Biharmonic Approach	DST	8.87	-	3 years

RESEARCH PUBLICATIONS

International Journal

Rajesh P. Singh, A. Saikia and B. K. Sarma

'Poly Dragon: An Efficient Multivariate Public Key Cryptosystem', *Journal of Mathematical Cryptology*, vol. 4 (4), pp 349-364, 2011

Madhusmita Tripathy and Rajen K. Sinha

'Superconvergence of H¹- Galerkin Mixed Finite Element Methods for Second-Order Elliptic Equations', *Numerical Functional Analysis and Optimization*, vol. 33 (3), pp 320-337, 2012

S. Mohapatra and S. N. Bora

'Exciting forces due to interaction of water waves with a submerged sphere in an ice-covered two-layer fluid of finite depth', *Applied Ocean Research*, vol. 34, pp 187-197, 2012

I. Venkat Appal Raju and N. Selvaraju

'Growth Optimal Portfolio for unobservable Markov-modulated markets', *International Journal of Mathematics in Operational Research*, vol. 4 (1), pp 31-40, 2012

Siddhartha P. Chakrabarty and Zongwu Zhu

'Optimal portfolio and consumption subject to multidimensional economic factors', *Optimal Control Applications and Methods*, vol. 33 (1), pp 23-31, 2012

R. B. Bapat, D. Kalita and S. Pati

'On weighted directed graphs', *Linear Algebra and Applications*, vol. 436 (1), pp 99-111, 2012

K. Mukherjee and S. Natesan

'Richardson Extrapolation Technique for Singularly Perturbed Parabolic Convection-Diffusion Problems', *Computing*, vol. 92, pp 1-32, 2011

K. Mukherjee and S. Natesan

'Optimal Error Estimate of Upwind Scheme on Shishkin-Type Meshes for Singularly Perturbed Parabolic Problems with Discontinuous Convection Coefficients', *BIT Numerical Mathematics*, vol. 51 (2), pp 289-315, 2011

K. Mukherjee and S. Natesan

'Epsilon - uniform Error Estimate of Hybrid Numerical Scheme for Singularly Perturbed Parabolic Problems with Interior Layers', *Numerical Algorithms*, vol. 58 (1), pp 103-141, 2011

J. Mohapatra and S. Natesan

'Parameter-uniform numerical methods for singularly perturbed mixed boundary value problems using grid equidistribution', *Journal of Applied Mathematics and Computing*, vol. 37, pp 247-265, 2011

J. Mohapatra and S. Natesan

'Uniformly convergent numerical method for singularly perturbed differential-difference equation using grid equidistribution', *International Journal for Numerical Methods in Biomedical Engineering*, vol. 27 (9), pp 1427-1445, 2011

R. Alam, S. Bora, M. Karow, V. Mehrmann and J. Moro

'Perturbation theory for Hamiltonian matrices and the distances to bounded realness', *SIAM journal of Matrix*

Analysis and Applications, vol. 32 (2), pp 484-514, 2011

R. Alam, S. Bora, R. Byers and M. L. Overton
'Characterisation and construction of the nearest defective matrix via coalescence of pseudospectral components', *Linear Algebra and its Applications*, vol. 435 (3), pp 494-513, 2011

B. Adhikari, R. Alam and D. Kressner
'Structured eigenvalue condition numbers and linearisations for matrix polynomials', *Linear Algebra and its Applications*, vol. 435, pp 2193-2221, 2011

Jiten C. Kalita and Shuvam Sen
'Investigation on drag change of a cylinder performing rotatory oscillation', *Book of Papers Blub of 2011 IUTAM Symposium on Bluff Body Flows*, pp 291-294, 2011

Jiten C. Kalita and Anoop K. Das
'Higher Order Compact Simulation of Double-Diffusive Natural Convection in a Vertical Porous Annulus', *Engineering Applications of Computational Fluid Mechanics*, vol. 5 (3), pp 351-371, 2011

Sylvie Delaet, Partha S. Mandal, Mariusz A. Rokicki and Sebastien Tixeuil
'Deterministic secure positioning in wireless sensor networks', *Theoretical Computer Science* (Elsevier), vol. 412 (35), pp 4471-4481, 2011

V. T. K. Pramod and K. V. Krishna
'Towards Shortest Synchronising Words in Polynomial Time', *Proceedings of the 13th International Conference on Automata and Formal Languages (AFL'11)*, *Debrecen*, Hungary, August 17-22, 2011, pp. 358-367

Partha S. Mandal and Anil K. Ghosh
'Secure Position Verification for Wireless Sensor Networks in Noisy Channels', *Proc. of the 10th International*

Conference on Ad Hoc Networks and Wireless (ADHOC NOW 2011), *Lecture Notes in Computer Science (LNCS-6811)*, Springer, Paderborn, Germany, pp. 150-163, July 2011

National Journal

S. N. Bora, S. C. Martha and A. Chakrabarti
'Scattering of surface waves by small undulation on a porous sea-bed: a Fourier transform approach', *Journal of Assam Academy of Mathematics*, vol. 4, pp 1-7, 2012

Conference/Workshop/Seminar/Symposia

International

S. P. Chakrabarty and M. Banerjee
'Periodic optimal efficacy in a combination treatment of HIV', *Proceedings of Advances in Control and Optimisation of Dynamical Systems*, ACODS-2012, Bangalore, 16-18 Feb 2012

Kaushik Mondal, Partha S. Mandal and Bhabani P. Sinha
'Localization based on Reflected Signals in Wireless Sensor Networks', 9th European Conference on Wireless Sensor Networks (EWSN'12), Trento, Italy, 15-17 February 2012

M. De, G. K. Das and S. C. Nandy
'Approximation algorithms for the discrete piercing set problem for unit disks', *Canadian Conference on Computational Geometry (CCCG 2011)*, pp 375-380, August 2011

Abhishek Kr. Singh, Bollibisai Giridhar and Partha S. Mandal
'Fixing Data Anomalies with Prediction Based Algorithm in Wireless Sensor Networks', 7th IEEE International Conference on Wireless Communication and Sensor Networks (WCSN-2011), Panna, 5-9 December 2011

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
Bhaba K. Sarma	10th International Conference on Finite Fields and their Application (Fq 10)	Ghent, Belgium	11-15 Jul 2011	International
Bhaba K. Sarma	MTTS Programme	Visva-Bharati Univ.	23 May-18 Jun 2011	National
Bhaba K. Sarma	Mathematics Education - Trend and Challenges	Univ. of Hyderabad & NISER	19-21 Aug 2011	National

Bhaba K. Sarma	NIME National Conference on Mathematics Education	TIFR, Mumbai	20-22 Jan 2012	National
Rajen K. Sinha	Indo-UK Symposium on Recent Advances in Industrial & Applied Mathematics	IIT Bombay	5-6 Nov 2011	International
Rajen K. Sinha	International Conference on Scientific Computation and Differential Equations (Sci-CADE 2011)	Toronto, Canada	11-15 Jul 2011	International
Rajen K. Sinha	International Congress on Industrial and Applied Mathematics (ICIAM-2011)	Vancouver, Canada	18-22 Jul 2011	International
Durga C. Dalal	Indo-UK Symposium on Recent Advances in Industrial & Applied Mathematics	IIT Bombay	5-6 Nov 2011	International
Durga C. Dalal	International Conference on Scientific Computation and Differential Equations (Sci-CADE 2011)	Toronto, Canada	11-15 Jul 2011	International
Rafikul Alam	Combinatorial Matrix Theory and Generalized Inverses of Matrices	Manipal University, Karnataka	10-11 Jan 2012	International
Swaroop N. Bora	7th East Asia SIAM Conference	Kitakyushu, Japan	27-29 Jun 2011	International
S. Natesan	National Conference on Mathematical Science	Mizoram University	24-25 Nov 2011	National
S. Natesan	2nd National Conference on Advances in Differential Equations and Applications	Periyar University	29-30 Mar 2012	National
S. Natesan	International Conference on Scientific Computation and Differential Equations (Sci-CADE 2011)	Toronto, Canada	11-15 Jul 2011	International
S. Natesan	International Congress on Industrial and Applied Mathematics (ICIAM-2011)	Vancouver, Canada	18-22 Jul 2011	International
S. Natesan	European Numerical Mathematics and Advanced Applications (ENUMATH 2011)	Leicester, U.K.	5-9 Sep 2011	International
Jiten C. Kalita	7th International Congress on Industrial and Applied Mathematics (ICIAM 2011)	Vancouver, Canada	18-22 Jul 2012	International
Partha S. Mandal	Workshop on "Algorithms for Wireless Networks"	Dibrugarh Univ.	8-10 Feb 2011	National
Partha S. Mandal	10th International Conference on Ad Hoc Networks and Wireless (ADHOC NOW 2011)	Univ. of Trento, Italy	15-17 Feb 2012	International
Sukanta Pati	International Workshop and Conference on Combinatorial Matrix Theory and Generalized Inverses of Matrices	Manipal University	2-7 & 10-11 Jan 2012	International
K.V. Krishna	Winter School & Conference on Algebra and Number Theory	Tezpur University	23-29 Dec 2011	National
K.V. Krishna	13th International Conference on Automata and Formal Languages (AFL '11)	Debrecan, Hungary	17-22 Aug 2011	International
K.V. Krishna	Abstract Algebra and Algorithms Conference (A32011)	Eszterhazy K. College, Hungary	14-17 Aug 2011	International
Vinay Wagh	AIS on Commutative Algebra and Algebraic Geometry	NIIT Univ., Rajasthan	16-28 Jan 2012	National

Vinay Wagh	International Conference on Commutative Algebra and Algebraic Geometry CAAG-XI	Pondicherry Univ.	5-10 Mar 2012	International
Siddhartha P. Chakrabarty	Workshop on Nonlinear Dynamics (ND 2011)	Tezpur University	26-28 Apr 2011	National
Siddhartha P. Chakrabarty	International Conference on Mathematical Biology	IISc., Bangalore	4-7 Jul 2011	International
Siddhartha P. Chakrabarty	International Conference on Mathematical and Theoretical Biology	IISER, Pune	23-27 Jan 2011	International
Siddhartha P. Chakrabarty	Advances in Control and Optimization of Dynamical Systems	IISc, Bangalore	16-18 Feb, 2012	International
Siddhartha P. Chakrabarty	Recent Advances in Techniques of Applied Mathematics : Computational and Analytical	Univ. of Calcutta	14-16 Mar 2012	National
Siddhartha P. Chakrabarty	SIAM Conference on Control and Its Application	Baltimore, Maryland, USA	25-27 Jul 2011	International
Shreemayee Bora	XVIII Householder Symposium on Numerical Linear Algebra	Lake Tahoe City, California, USA	12-17 Jun 2011	International
Shreemayee Bora	International Congress on Industrial and Applied Mathematics (ICIAM-2011)	Vancouver, Canada	18-22 Jul 2011	International
P.A.S. Sreekrishna	Advanced Instructional School on Algebraic Topology (AIS)	NEHU, Shillong	13-18 Jun 2011	National
Arabin K. Dey	Workshop on School of Mathematical Finance	TIFR, Mumbai	16-27 Jan 2012	National
Arabin K. Dey	Higher Dimensional Statistics : Advances and Challenges	NTU, Singapore	24-27 May 2011	International

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./ Org.	Place	Date
Bhaba K. Sarma	Mathematics in the Third Professor K. Rajendra Memorial	Manipur University	Canchipur	15-17 Mar 2012
Rajen K. Sinha	Indo-UK Symposium on Recent Advances in Industrial & Applied Mathematics	IIT Bombay	Bombay	5-6 Nov 2011
Anupam Saikia	Congruent Number Problem and Elliptic Curves	Tezpur University	Tezpur	1 Dec 2011
Durga C. Dalal	Indo-UK Symposium on Recent Advances in Industrial & Applied Mathematics	IIT Bombay	Bombay	5-6 Nov 2011
Durga C. Dalal	Fluid Mechanics	Vidyasagar University	West Bengal	18 Jan-31 Mar 2012
S. Natesan	2nd National Conference on Advances in Differential Equations and Applications	Periyar University	Salem	29-30 Mar 2012
S. Natesan	National Conference on Mathematical Science	Mizoram University	Aizawl	24-25 Nov 2011
S. Natesan	National Conference on Frontiers in Mathematics (NCFM-II)	Gauhati University	Guwahati	29-30 Sep 2011

Sukanta Pati	Algebraic connectivity of graphs	Manipal University	Karnataka	2-6 Jan 2012
Siddhartha P. Chakrabarty	Workshop on Nonlinear Dynamics	Tezpur University	Tezpur	28 Apr 2011
Siddhartha P. Chakrabarty	International Conference on Mathematical Biology	Indian Institute of Science	Bangalore	7 Jul 2011
Siddhartha P. Chakrabarty	International Conference on Mathematical and Theoretical Biology	Indian Institute of Science Education and Research	Pune	23 Jan 2012
Siddhartha P. Chakrabarty	International Conference on Mathematical and Theoretical Biology	Indian Institute of Science Education and Research	Pune	25 Jan 2012
Siddhartha P. Chakrabarty	Recent Advances in Techniques of Applied Mathematics: Computational and Analytical	University of Calcutta	Kolkata	16 Mar 2012
P. S. Mandal	Topology Control in Wireless Sensor Networks	ACMU, ISI Kolkata and CCS, Dibrugarh University	Dibrugarh	8-10 Feb 2012

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES

Name	Name of Inst. / Univ./ Org	Purpose	Date
Dr. Rama Mishra	IISER, Pune	Delivered lecture	11 May 2011
Prof. Ravindra B. Bapat	ISI, Delhi	Delivered lecture	23 May 2011
Dr. Dambaru Bhatta	University of Texas-Pan American	Delivered lecture	8 Jun 2011
Dr. Santanu Dutta	Tezpur University	Delivered lecture	14 Jun 2011
Prof. Akhil Ranjan	IIT Bombay	Delivered lecture	23 Jun 2011
Prof. K.B. Athreya	Iowa State University	Delivered lecture	14 Jul 2011
Prof. Krishnendu Mukhopadhyaya	ISI, Kolkata	Delivered lecture	28 Jul 2011
Dr. Avijit Joarder	Reserve Bank of India	Delivered lecture	1 Aug 2011
Prof. Anant R. Shastri	IIT Bombay	Delivered lecture	15 Sep 2011
Prof. B.N. Mandal	ISI, Kolkata	Delivered lecture	20 Oct 2011
Prof. Mrinal K. Ghosh	IISc, Bangalore	Delivered lecture	20 Oct 2011
Prof. Subhas C. Nandy	ISI, Kolkata	Delivered lecture	15 Nov 2011
Prof. Ram N. Mohapatra	University of Central Florida, Orlando, USA	Delivered lecture	20 Dec 2011
Prof. Michael Karow	Institute of Mathematics Technical University of Berlin	Delivered lecture	1 Mar 2012
Prof. Christian Mehl	Institute for Mathematics Technical University of Berlin	Delivered lectures	5 and 15 Mar 2012
Prof. Mohan C. Joshi	Indian Institute of Technology Bombay	Delivered lectures	27-29 Mar 2012

SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
Bhaba K. Sarma	North East Regional Conference on Mathematics Education	IGNOU	25-27 Nov 2011	National
Anupam Saikia	Winter School and Conference on Algebra and Number Theory	National Board for Higher Mathematics	23-29 Dec 2011	National

ANY OTHER (SPECIAL MENTION)

Anupam Saikia wrote several reviews for the *Mathematical Reviews* published by the American Mathematical Society, and acted as a referee for the *Ramanujan Journal of Mathematics*.

FACULTY MEMBERS**R. Alam**

PhD (IIT Bombay)

Professor

Areas of Interest: Numerical Functional Analysis, Numerical Linear Algebra

S. Bandopadhyay

PhD (ISI Delhi)

Assistant Professor

Areas of Interest: Operations Research
E-mail: sriparna@iitg.ernet.in

B. Bhattacharjya

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Graph Theory

S. Bora

PhD (IIT Guwahati)

Assistant Professor

Areas of Interest: Perturbation Theory, Numerical Linear Algebra

S. N. Bora

PhD (Dalhousie University, Canada)

Associate Professor

Areas of Interest: Water Wave Dynamics, Ocean Engineering, Flow through Porous Media

S. P. Chakrabarty

PhD (University of Illinois, Chicago USA)

Assistant Professor

Areas of Interest: Mathematical Biology, Optimal Control Theory, Mathematical Finance

A. K. Chakrabarty

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Functional Analysis

D. C. Dalal

PhD (IIT Kharagpur)

Professor

Areas of Interest: Fluid Dynamics

G. K. Das

PhD (ISI, Kolkata)

Assistant Professor

Areas of Interest: Computational Geometry, Approximation Algorithms, Wireless Networks

A. K. Dey

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Distributions models and its applications, Survival Analysis

J. C. Kalita

PhD (IIT Guwahati)

Associate Professor

Areas of Interest: Computational Fluid Dynamics, Numerical methods for PDEs

K. V. Krishna

PhD (IIT Delhi)

Assistant Professor

Areas of Interest: General Algebra, Theoretical Computer Science

K. Kapoor

PhD (London South Bank University, UK)

Assistant Professor

Areas of Interest: Programming Languages, Concurrency, Software Testing.

P. S. Mandal

PhD (Jadavpur University)

Assistant Professor

Areas of Interest: Wireless Sensor Networks, Distributed Computing

S. Natesan

PhD (Bharathidasan University, Thiruchirappalli)
Professor

Areas of Interest: Differential Equations, Homogenization, Numerical Analysis

S. Pati

PhD (ISI Delhi)
Associate Professor

Areas of Interest: Spectral Graph Theory

M. G. P. Prasad

PhD (IIT Kanpur)
Associate Professor

Areas of Interest: Complex Dynamics and Fractals

H. Ramesh

PhD (IIT Madras)
Assistant Professor

Areas of Interest: Formal Languages and Automata Theory, Membrane Computing

A. Saikia

PhD (University of Cambridge, U.K.)
Associate Professor

Areas of Interest: Algebraic Number Theory

B. K. Sarma

PhD (Delhi University)
Professor and Head of the Department

Areas of Interest: Spectral Graph Theory, Combinatorial Matrix Theory

N. Selvaraju

PhD (IIT Madras)
Associate Professor

Areas of Interest: Stochastic Modelling, Queueing Theory, Stochastic Modelling, Operations Research

R. K. Sinha

PhD (IIT Bombay)
Professor

Areas of Interest: Numerical Analysis

P. A. S. Sree Krishna

PhD (SUNY, Buffalo)
Assistant Professor

Areas of Interest: Hyperbolic 3-manifolds, Low-dimensional topology

K. V. Srikanth

PhD (SUNY, Buffalo)
Assistant Professor

Areas of Interest: Low Dimensional Topology

J. Swain

PhD (IIT Madras)
Assistant Professor

Areas of Interest: Harmonic Analysis

S. Upadhyay

PhD (CMI, Chennai)
Assistant Professor

Areas of Interest: Algebraic Combinatorics
Email: shyamashree@iitg.ernet.in

V. V. Wagh

PhD (University of Pune)
Assistant Professor

Areas of Interest: Algebraic Geometry

DEPARTMENT OF MECHANICAL ENGINEERING

INTRODUCTION

The Department of Mechanical Engineering, being one of the largest and oldest departments of the Institute, caters to its students with class tutorial and state-of-the-art laboratories. Major activities of the Department involve teaching, laboratory development, research and providing technical consultancy to industries. The Department mainly aims at giving students a cutting edge over education, developing their problem-solving skills, challenging them with open-ended problems while designing their projects, providing them ample opportunity for team work which nourishes their co-ordination skills from an early stage of their career and providing them an instrumental research facility round the clock in a day which help them grow keen interest in active research. Curriculum is continuously upgraded and modernized by the introduction of new courses. The Department continues with setting up of new laboratories and procuring new equipments by assessing the course based necessity. Procurement of books, back volumes and journals continued for the growth of Central Library. For the benefit of students and institute as well, the Department actively participates in the operation of cementing the Institute–industry interface and in line with this it provides technical consultancy to various industries and arranges summer training for BTech students. Department also disseminates technical know-how to the adjoining locality through various consultancy works. The faculty members of the Department are actively engaged with subsidiary centres in the Institute viz. Centre for Energy, Centre for Educational Technology, Centre for the Environmental and Centre for Nanotechnology. They are instrumental in extending their dedicated support to the welfare of these centres and quite often take up consultancy projects which are directly or indirectly associated with the rural as well as urban development of the state. Many such projects have been accomplished successfully, many are ongoing and many are in the offing. Department aptly makes use of the technical facility of the Workshop

in teaching and in setting up of in-house experimental set-ups. Apart from carrying out practical classes as per academic curriculum, Workshop caters to needs of different departments of the Institute in terms of executing works of their BTech, MTech and PhD students as well as other related research/consultancy works. The Department also welcomes students from other departments of the institute as a gesture of support to their time-to-time academic and research needs.

ACADEMIC ACTIVITIES

The Mechanical Engineering Department currently offers BTech, MTech and PhD programmes. The BTech programme offers a comprehensive fundamental education in mechanical engineering, emphasizing basic sciences and mathematics, followed by engineering sciences and engineering design. The Department presently offers MTech programme in three specializations, i.e. (1) Machine Design, (2) Fluid & Thermal Engineering and (3) Computer Assisted Manufacturing. A new specialization on Computational Mechanics is approved and intake will start from July 2012.

STUDENT INTAKE

BTech students admitted in 2011-2012	: 72
MTech students admitted in 2011-2012	: 84
PhD students admitted in 2011-2012	: 33

FACULTY STRENGTH

Professor	: 12
Associate Professor	: 4
Assistant Professor	: 18
Total	: 34

MAJOR EQUIPMENT AND FACILITIES

The Department has an excellent computational facility sustained by its CAD lab which caters to the academic requirement of students round the clock. Besides, the Department runs various laboratories which are well-

stocked with state-of-the-art technical equipment and apparatus. They are namely —

- Advanced Manufacturing Laboratory
- Strength of Materials Laboratory
- Materials Science Laboratory
- Fluid Mechanics Laboratory
- Thermal Science Laboratory
- Turbo-machinery Laboratory
- IC Engine Laboratory
- Vibrations and Acoustics Laboratory
- Mechatronics and Robotics Laboratory
- Instrumentation Laboratory
- Theory of Machines Laboratory
- Tribology Laboratory
- CAD/CAM Laboratory
- Metrology Laboratory

Major equipment included —

- 1) Twin-Screw Extruder
- 2) Digital Ultrasonic Flaw Detector
- 3) 4-Component Dynamometer for Cutting Force Measurement

4) Hydraulic Centreless Grinder

5) Heavy Duty Plano Milling Machine

6) Die-sinking EDM machine with single-spark discharge facility

RESEARCH AND DEVELOPMENT ACTIVITIES

Faculty members of the Department are actively engaged in research and development works. The number of publications in reputed journals is increasing year by year. A number of sponsored research and consultancy projects are being investigated in the department. The major research areas are fluid mechanics, thermal science, hydrogen energy, design, manufacturing and material science. The faculty members are exploring new areas like micro-manufacturing, magnetic bearings, smart structures and nano-fluid mechanics. Development works are also undertaken in the following areas—

Processing of self lubricating cutting tool machine

Development of injection moulded asymmetric gear

Development of power absorption gear test

CO2 Laser based fabrication facility

Micro-machining using EDM and micro-bending with Laser

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
P. Muthukumar	Development of thermal energy storage systems for solar thermal power plant	DST	112.63	-	1.5 Years
U. K. Saha	Utilization of Bio-waste for Generating Power in Diesel Engines	DRL (DRDO), Tezpur	9.91	N. Sahoo	2 Years
K.S.R.K. Murthy	Application of goal-oriented a posteriori error estimation procedures for the accurate computation of mode I stress intensity factors	ARDB	6.826	D. Chakraborty	2 Years
S. K. Dwivedy	Development of walking apparatus: Concept validation, feasibility, prototyping and Testing	Department of Electronics and Information Technology	94.32	P.S. Robi H. Nemade	2 Years
S. K. Dwivedy	Remote Triggered based Virtual Lab on Robotics and Robot Applications	MHRD	52	-	1 year
A. Banerjee	Modelling and Active Control of Shape Memory Alloy Actuators	DST	23 (Recommended)	-	3 Years

A. Banerjee	Design and Development of Shape Memory Alloy Actuated Flexible Endoscope for Diagnosis and Surgery	DBT	70.5 (Recommended)	K. Kalita, and R. Hajong (NEIGRIHMS, Shillong)	3 Years
S. D. Kore	Electromagnetic Shearing of Tubes and Sheets	DST	27.6 (Proposed)	-	3 Years
S. K. Kakoty	RuTAG-NE	Office of the Principal Scientific Adviser to the Govt. of India	31.44	-	Renewed in yearly basis

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
U.S. Dixit	Establishing an Institute of Excellence (IOE) for Advanced Studies, Training and Research in Mechanical Engineering	AICTE	25	A.K. Dass	3 years
P. Muthukumar	Numerical and Experimental Analysis for the Development of a Metal Hydride Based Hydrogen Energy Storage Device	Ministry of New and Renewable Energy	33.45	S.C. Mishra	3.5 years
U. K. Saha	Development and Analysis of Twisted Two-bladed, Two-stage Savonius Rotor for Power Generation	ADnENERGY, London	8.83	N Sahoo, P. Mahanta and D. Bhagabati	2 years
S.D. Kore	Numerical modelling of impact behavior of sheets in electromagnetic welding	IIT Guwahati	5	-	1 year 10 months
R. Tiwari	Virtual Mechanical Vibration Laboratory	MHRD	103	S. K. Dwivedy	2 years
S. Kanagaraj	Feasibility studies on carbon nanotubes /ultra high molecular weight polyethylene nano composites for total joint replacements	DST	24.64	Bhaskar Borgohain (NEIGRIHMS, Shillong)	1.5 year
S. Kanagaraj	Preparation and characterization of nanofluid to reduce emission level in a diesel engine	DST	18.3	-	3 years
Pankaj Biswas	Numerical & Experimental Study on Residual Stress and Distortion control of Welded Structure	IIT Guwahati	5	-	2 years
Dibakar Bandopadhyaya	Fabrication of Cost-effective IPMC actuator as artificial muscle materials for biomedical prosthetic application	DST	18.5	-	3 years

R. Ganesh Narayanan	Forming behavior of Friction Stir Welded blanks	SERC, DST	17.8	-	4 years
R. Ganesh Narayanan	Forming behavior of Friction Stir welded blanks made of dissimilar materials	ARDB	32.0	S. V. Kailas, IISc Bangalore	3 years
R. Ganesh Narayanan	Evaluating the tensile properties of Zircaloy 4 material	AERB	10.0	U.S. Dixit	2 years
S. K. Kakoty	Mechanization of spawn production and spawn supply to Mushroom farmers group and conversion of spent mushroom substrate into vermin-compost in North Easter Region for poverty alleviation in the North-East India	North East Council	36.96	In collaboration with Mushroom Development Foundation	1 year
S. K. Kakoty	Rural Technology Action Group – North East (RuTAG-NE)	Office of the Principal Scientific Adviser to the Govt. of India	29.976 (for 2010-11)	-	-
K. Kalita	Active Vibration Control in Electrical Machines using Built-in Actuator	DST	50 (PAC approval received in November, 2011)	S. K. Kakoty	3 years
K. Kalita	Design and Development of a Controller for Bridge Configured Winding Based Bearing-less Motor	Ministry of Communications and IT	90	S. K. Kakoty	3 years
Niranjan Sahoo	Shock tube development and verification of capabilities of existing correlation of stagnation point heat transfer rate	ARDB	16.043	Vinayak Kulkarni	2 years
Niranjan Sahoo	Design, development and performance evaluation of stress wave force balances for aerospace applications	DST	14.4	-	3 years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
P. Muthukumar	Development of a metal hydride based thermal energy storage systems.	DST	10.02	-	3 years 8 months
K.S.R.K. Murthy	An investigation of strain gage method for accurate measurement of the stress intensity factors	NRB	19.16	D. Chakraborty	3 years
Debabrata Chakraborty	Optimum Design and Active Vibration Control of Smart FRP Structures on Parallel Platform	DST	16.65	A. Dutta	2 years

CONSULTANCY

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
P. Muthukumar	Verification of Air-Conditioning load, Design and Selection of HVAC Equipments	M/s. CAD-METRIC Consulting, Guwahati	1.21	-	April 2011
S.D. Kore	Utility Examination of four single track packing machines and technical inputs for installation and operation.	Central Excise, Guwahati	0.66180	-	1 month
S.N. Joshi and S.D. Kore	Mechanization of FCI Godown operations	FCI	34.25	-	2 years
R. Tiwari	Consultancy and Technical Design & Analysis of Tapered Roller Bearings	DRDO	14.0	-	1 year 6 months
N. R. Mandal	Structural Analysis of Ships (SRAS)	Garden Reach Shipbuilders & Engineering Ltd. Kolkata	8.82	Pankaj Biswas	8 months
P.S. Robi	Pressure tube correlations development	BARC, Mumbai	60.41	-	3 years

RESEARCH PUBLICATIONS**International Journal**

U. S. Dixit, S. N. Joshi and J. P. Davim

'Incorporation of material behavior in modeling of metal forming and machining processes: A review', *Materials & Design*, vol. 32 (7), pp 3655-3670, 2011

M. Chandrasekaran, M. Muralidhar and U. S. Dixit
'An interactive online finish milling process optimisation', *International Journal of Applied Engineering Research*, vol. 6 (5), pp 949-959, 2011

S. Mahto and U. S. Dixit
'Comparative Dynamic Response of an Optimised Single Link Flexible manipulator', *Applied Mechanics and Materials*, Vols. 110-116, pp 4748-4756, 2012

R. Das, U. S. Dixit and S. Deb
'An experimental study on a constrained multi-hole extrusion process', *Journal of Machining and Forming Technologies*, vol. 4 (1-2), 2012

P. Muthukumar and P. I. Shyamkumar
'Development of a novel porous radiant burner for LPG cooking applications', *Fuel*, DOI: 10.1016/j.fuel.2011.09.006, 2012

P. Muthukumar, K. S. Patel, P. Sachan and N. Singhal
'Computational study on metal hydride based three-stage hydrogen compressor', *International Journal of Hydrogen Energy*, vol. 37 (4), pp 3797-3806, 2012

B. S. Sekhar, P. Muthukumar and R. Saikia
'Tests on a Metal Hydride Based Thermal Energy Storage System', *International Journal of Hydrogen Energy*, vol. 37, pp 3818-3824, 2012

V. K. Pantangi, S. C. Mishra, P. Muthukumar and R. Reddy
'Performance of PRBs-Cooking Application', *Energy*, vol. 36, pp 6074-6080, 2011

B. B. Sahoo, U. K. Saha and N. Sahoo
'Diagnosing the Effects of Pilot Fuel Quality on Exergy Terms in a Biogas Run Dual Fuel Diesel Engine', *International Journal of Exergy*, vol. 10 (1), pp 77-93, 2012

B. B. Sahoo, N. Sahoo and U. K. Saha
'Dual Fuel Performance Studies of a Small Diesel Engine Using Green Fuels', *Applied Mechanics and Materials*, vol. 110-116, pp 2101-2108, 2011

B. B. Sahoo, U. K. Saha and N. Sahoo
'Effect of Load Level on the Performance of a Dual Fuel Compression Ignition Engine Operating on Syngas Fuels

- With Varying H₂/CO Content', *ASME Journal of Engineering for Gas Turbines and Power*, vol. 133, pp122802-1-12, 2011
- M. Eswaran and U. K. Saha
'Sloshing of Liquids in Partially Filled Tanks – A Review of Experimental Investigations', *Ocean Systems Engineering*, vol. 1, pp 131-155, 2011
- M. Eswaran, A. Singh and U. K. Saha
'Experimental Investigation of Liquid Free Surface Behaviour in an Excited Tank', *Proc. of the IMechE, Part-M: Journal of Engineering for the Maritime Environment*, vol. 225, pp 133-148, 2011
- H. Sarangi, K. S. R. K. Murthy and D. Chakraborty
'Extent of three parameter zone and optimum strain gage location on different eccentric cracked configurations', *Applied Mechanics and Materials*, vol. 110-116, pp 127-134, 2012
- D. Biswal, D. Bandopadhyaya and S. K. Dwivedy
'Fabrication and thermo mechanical analysis of pure silver-electrode Ionic Polymer Metal Composite (IPMC) actuator', *Applied Mechanics and Materials*, vol. 110-116, pp 1199-1206, 2012
- A. K. Parimi, P. S. Robi and S. K. Dwivedy
'Severe plastic deformation of copper and Al–Cu alloy using multiple channel-die compression', *Materials and Design*, vol. 32, pp 1948-1956, 2011
- B. Nayak, S. K. Dwivedy and K. S. R. K Murthy
'Dynamic analysis of magnetorheological elastomer-based sandwich beam with conductive skins under various boundary conditions', *Journal of Sound and Vibration*, vol. 330, pp 1837-1859, 2011
- B. Pratiher and S. K. Dwivedy
'Nonlinear vibrations and frequency response analysis of a cantilever beam under periodically varying magnetic field', *Mechanics Based Design of Structures and Machines: An International Journal*, 1539-7742, vol. 39 (3), pp 378-391, 2011
- B. Pratiher and S. K. Dwivedy
'Nonlinear response of a vertically moving viscoelastic beam subjected to a fluctuation contact load', *Acta Mechanica*, vol. 218 (1-2), pp 65-85, 2011
- Jiten C. Kalita and Anoop K. Dass
'Higher Order Compact Simulation of Double-Diffusive Natural Convection in a Vertical Porous Annulus', *Engineering Applications of Computational Fluid Mechanics*, vol. 5 (3), pp 357-371, 2011
- D. Arumuga Perumal and Anoop K. Dass
'Multiplicity of Steady Solutions in Two-Dimensional Lid-Driven Cavity Flows by the Lattice Boltzmann Method', *Computers and Mathematics with Applications*, vol. 61 (12), pp 3711-3721, 2011
- R. P. Chopade, S. C. Mishra, P. Mahanta, S. Maruyama, and A. Komiya
'Uniform thermal conditions on 3-D object: Optimal power estimation of panel heaters in a 3-D radiant enclosure', *International Journal of Thermal Sciences*, vol. 51, pp 63-76, 2012
- V. K. Pantangi, S. C. Mishra, P. Muthukumar and R. Reddy
'Studies on porous radiant burners for LPG cooking applications', *Energy*, vol. 36, pp 6074-6080, 2011
- R. P. Chopade, S. C. Mishra, P. Mahanta and S. Maruyama
'Effects of locations of a 3-D design object in a 3-D radiant furnace for prescribed uniform thermal conditions', *Applied Thermal Engineering*, vol. 31, pp 3262-3274, 2011
- R. Muthukumar, S. C. Mishra, S. Maruyama and K. Mitra
'Assessment of signals from a tissue phantom subjected to radiation sources of temporal spans of the order of a nano-, a pico- and a femto-second – a numerical study', *Numerical Heat Transfer, Part A*, vol. 60, pp 154-170, 2011
- S. C. Mishra, Ch. Hari Krishna and M. Y. Kim
'Analysis of conduction and radiation heat transfer in a 2-D cylindrical medium using the modified discrete ordinate method and the lattice Boltzmann method', *Numerical Heat Transfer, Part A*, vol. 60, pp 254-287, 2011
- R. P. Chopade, S. C. Mishra, P. Mahanta and S. Maruyama
'Numerical analysis of an inverse boundary design problem of 3-D radiant furnace with a 3-D design object', *Numerical Heat Transfer, Part A*, vol. 60, pp 25-49, 2011
- S. C. Mishra and A. Stephen
'Combined mode conduction and radiation heat transfer in a spherical geometry with non-Fourier Effect', *International Journal of Heat and Mass Transfer*, vol. 54, pp 2975-2989, 2011
- R. P. Chopade, E. Agnihotri, A. K. Singh, A. Kumar, R. Uppaluri, S. C. Mishra and P. Mahanta
'Application of particle swarm algorithm for parameter retrieval in a transient conduction-radiation problem', *Numerical Heat Transfer, Part A*, vol. 59, pp 672-692, 2011
- S. C. Mishra and Ch. Hari Krishna
'Analysis of radiative transport in a cylindrical enclosure – an application of the modified discrete ordinate method',

Journal of Quantitative Spectroscopy and Radiative Transfer, vol. 112, pp 1065-1081, 2011

J. K. Doley and S. D. Kore
‘Fully Coupled Numerical Simulation of Electromagnetic Forming’, *Key Engineering Materials*, Vols. 504-506, pp 1201-1206, 2012

S. D. Kore, P. N. Vinod, S. Kumar and M. R. Kulkarni
‘Study of Wavy Interface in Electromagnetic Welds’, *Key Engineering Materials*, Vols. 504-506, pp 729-734, 2012

Mohit Lal and R. Tiwari
‘Multi-fault Identification in Simple Rotor-Bearing-Coupling Systems based on Forced Response Measurements’, *Mechanism and Machine Theory*, vol. 51, pp 87-109, 2012

Jagu S. Rao and R. Tiwari
‘Optimum Design and Analysis of Axial Hybrid Magnetic Bearings Using Multi-Objective Genetic Algorithms’, *International Journal for Computational Methods in Engineering Science and Mechanics*, vol. 13, pp 10-27, 2012

R. Tiwari K. Sunil Kumar and R. S. Reddy
‘An Optimum Design Methodology of Tapered Roller Bearing Using Genetic Algorithms’, *International Journal for Computational Methods in Engineering Science and Mechanics*, vol. 13, pp 108-127, 2012

R. Tiwari and K. Singh
‘Virtualisation of Engineering Discipline Experiments for the Internet-Based Remote Laboratory’, *Australasian Journal of Educational Technology (AJET)*, vol. 27 (4), pp 671-692, 2011

P. S. Rama Sreekanth, N. Naresh Kumar and S. Kanagaraj
‘Improving post irradiation stability of high density polyethylene by multi walled carbon nanotubes’, *Composites Science and Technology*, vol. 72, pp 390-396, 2012

P. S. Rama Sreekanth, N. Naresh Kumar and S. Kanagaraj
‘Effect of MWCNT on mechanical properties of γ - irradiated UHMWPE during shelf ageing process’, *Advanced Materials Research*, vol. 410, pp 160-63, 2012

Narendra Singh, Gaurav Chand and S. Kanagaraj
‘Investigation of thermal conductivity and viscosity of carbon nanotubes-Ethylene glycol nanofluids’, *Heat Transfer Engineering*, vol. 33, pp 821-827, 2012

Siddharth Mehta, K. Prashanth Chauhan and S. Kanagaraj
‘Modeling of thermal conductivity of nanofluids

by modifying Maxwell’s equation using cell model approach’, *Journal of Nanoparticle Research*, vol. 13 (7), pp 2791-2798, 2011

Harsh Mehta, H. Wangshul and S. Kanagaraj
‘Studies on Mechanical properties of carbon nanotubes/ high density polyethylene nanocomposites by small punch technique’, *International Journal of Nanoscience*, vol. 10, pp 247-251, 2011

A. Fonseca, N. Inácio, S. Kanagaraj, M. S. A. Oliveira and J. A. O. Simões
‘The use of Taguchi technique to optimise the compression moulding cycle to process acetabular cup components’, *Journal of Nanoscience and Nanotechnology*, vol. 11, pp 5334-5339, 2011

S. Kanagaraj, A. Fonseca, R. M. Guedes, M. S. A. Oliveira and J. A. O. Simões
‘Thermo-mechanical behaviour of UHMWPE - carbon nanotubes composites under different cooling techniques’, *Defect and Diffusion Forum*, vol. 312-315, pp 331-340, 2011

A. Fonseca, S. Kanagaraj, M. S. A. Oliveira and J. A. O. Simões
‘Enhanced UHMWPE reinforced with MWCNT through mechanical ball-milling’, *Defect and Diffusion Forum*, vol. 312-315, pp 1238-1243, 2011

B. C. Lamas, M. A. L. Fonseca, F. A. M. M. Gonçalves, A. G. M. Ferreira, I. M. A. Fonseca, S. Kanagaraj, N. Martins, and M. S. A. Oliveira
‘EG/CNTs nanofluids engineering and thermal characterisation’, *Journal of Nano Research*, vol. 13, pp 69-74, 2011

Sushen Kirtania and Debabrata Chakraborty
‘Multi-scale modeling of carbon nanotube reinforced composites with a fiber break’, *Materials and Design*, vol. 35, pp 498–504, 2012

P. Biswas and N. R. Mandal
‘Effect of Tool Geometries on Thermal History of FSW of AA1100’, *Welding Journal (AWS)*, vol. 90, pp 129S-135S, 2011

Pankaj Biswas, N. R. Mandal, O. P. Sha and M. M. Mahapatra
‘Thermo-mechanical and Experimental Analysis of Double Pass Line Heating’, *Journal of Marine Science and Application*, vol. 10 (2), pp 190-198, 2011

Pankaj Biswas, D. Anil Kumar, N. R. Mandal and M. M. Mahapatra

- 'A Study on the Effect of Welding Sequence in Fabrication of Large Stiffened Plate Panels', *Journal of Marine Science and Application*, vol. 10, pp 429-436, 2011
- P. Biswas, D. A. Kumar and N. R. Mandal
'Friction stir welding of aluminum alloy with varying tool geometry and process parameters', *Proc. IMechE, Journal of Engineering Manufacture*, DOI: 10.1177/0954405411424111, 2011
- Biswajit Parida, Sukhomay Pal, Pankaj Biswas and Sujoy Tikader
'Mechanical and Micro-structural Study of Friction Stir Welding of Al-alloy', *International Journal of Applied Research In Mechanical Engineering (IJARME)*, ISSN: 2231-5950, vol. 1 (2), pp 69-74, 2011
- Pankaj Biswas, N. R. Mandal and S. Das
'Prediction of Welding Residual Stresses and Deformations of Large Stiffened Panels using Average Plastic Strain Method', *Journal of Science and Technology of Welding and Joining*, vol. 16 (3), pp 227-231, 2011
- L. Boriwal, M. M. Mahapatra and P. Biswas
'Modelling and optimising the effects of process parameters on galvanized steel sheet resistance spot welds', *Proc. IMechE Part B: Journal of Engineering Manufacture*, doi: 10.1177/0954405411428988
- H. K. Mohanty, M. M. Mahapatra, P. Biswas and N. R. Mandal
'Effect of tool shoulder and pin probe profiles on friction stirred aluminum welds – A comparative study', *Journal of Marine Science and Application*, vol. 11 (2), pp 200-207, 2012
- S. Panda
'Non-linear analysis of smart annular plates using cylindrically orthotropic piezoelectric fiber-reinforced composite', *Journal of Intelligent Material Systems and Structures*, vol. 22 (16), pp 1789-1801
- P. S. Robi, Sanjib Banerjee and A. Srinivasan
'Deformation Mechanism Maps for Al-Cu-Mg alloys microalloyed with Tin', *Advanced Materials Research*, vol. 410, pp 283-286, 2012
- Sanjib Banerjee, P. S. Robi and A. Srinivasan
'Prediction of Hot Deformation Behavior of Al-5.9%Cu-0.5%Mg Alloys with Trace Additions of Sn', *Journal of Material Science*, vol. 47 (2), pp 929-948, 2012
- P. Bernard, S. Bag, K. Huang and R. Logé
'A two-site mean field model of discontinuous dynamic recrystallisation', *Materials Science and Engineering A*, vol. 528 (24), pp 7357-7367, 2011
- Jagannath Sardar and Dibakar Bandopadhyaya
'Processing, Fabrication and Investigation of Thermal Characteristics of Portland Pozzolanic Cement Filled Polypropylene Composites', *International Journal of Plastic and Polymer Technology*, vol. 1 (1), pp 16-37, 2011
- Rakesh Kumar, Niranjana Sahoo, Vinayak Kulkarni and Anugrah Singh
'Laser based calibration technique of thin film gauges for short duration transient measurements', *Journal of Thermal Science and Engineering Applications*, vol. 3, 044504-1-6, 2011
- Ravindra S. Saluja, R. Ganesh Narayanan and Sumitesh Das
'Cellular automata finite element (CAFE) model to predict the forming of friction stir welded blanks', *Computational Materials Science*, vol. 58, pp 87-100, 2012
- Abhishek T. Dhumal, R. Ganesh Narayanan and G. Saravana Kumar
'Simulation based expert system to predict the tensile and deep drawing behavior of tailor welded blanks', *International Journal of Modeling, Identification and Control*, vol. 15 (3), pp 164-172, 2012
- P. Janaki Ramulu, R. Ganesh Narayanan, Satish V. Kailas and Jayachandra Reddy
'Formability evaluation of FSW blanks made of aluminum sheet: Influence of welding speed and tool rotation speed', *Advanced Materials Research*, vol. 410, pp 287-290, 2012
- Susanta Kumar Dey, R. Ganesh Narayanan and G. Saravana Kumar
'Prediction of tensile behavior of DP 590 Steel Tailor Welded Blanks by ANN', *Advanced Materials Research*, vol. 383-390, pp 1019-1026, 2012
- W. K. S. Khoo, K. Kalita and S. D. Garvey
'Practical Implementation of the Bridge Configured Winding for Producing Controllable Transverse Forces in Electrical Machines', *IEEE Transactions on Magnetics*, vol. 47 (6), pp 1712-1718, 2011
- Rakesh Kumar, Niranjana Sahoo and Vinayak Kulkarni
'Conduction based calibration of handmade platinum thin film heat transfer gauges for transient measurements', *International Journal of Heat and Mass Transfer*, vol. 55, pp 2707-2713

Bibhuti B. Sahoo, Niranjana Sahoo and U. K. Saha
'Effect of H₂:CO ratio in syngas on the performance of a dual fuel diesel engine operation, *Applied Thermal Engineering*, DOI: 10.1016/j.applthermaleng.2011.08.021, 2011

B. B. Sahoo, U. K. Saha and N. Sahoo
'Theoretical performance limits for syngas-diesel fueled compression ignition engine from second law analysis', *Energy*, vol. 36, pp 760-769

S. Sarkar, A. Dalal and G. Biswas
'Unsteady Wake Dynamics and Heat Transfer in Forced and Mixed Convection Past a Circular Cylinder in Cross Flow for High Prandtl numbers', *International Journal of Heat and Mass Transfer*, vol. 54 (15-16), pp 3536-3551, 2011

National Journal

P. S. Rama Sreekanth and S. Kanagaraj
'UHMWPE for total joint replacements: A review on trends and developments', *Journal of North East Regional Orthopaedic Surgeons' Association*, vol. 7, pp 87-99, 2011

Conference/Workshop/Seminar/ Symposia

International

V. Yadav, A. K. Singh, S. N. Joshi and U. S. Dixit
'Comparison of the Performance of Lubricants in Rolling Based on Temperature Measurement', *Proceedings of 14th International ESAFORM Conference on Material Forming*, AIP conference, Belfast, UK pp. 357-361, 27-29 Apr 2011

S. Mahto and U. S. Dixit
'Optimized design of single link flexible manipulator', *Proceedings of the ASME 2011 International Mechanical Engineering Congress & Exposition (IMECE2011)*, Denver, Colorado, USA, IMECE2011-63106, 8 pages, 11-17 Nov 2011

V. Yadav, A. K. Singh and U. S. Dixit
'Online determination of material properties and coefficient of friction in cold flat rolling process', *Proceedings of International Conference on Computational Methods in Manufacturing (ICMM2011)*, IIT Guwahati, 15-16 Dec 2011

R. Das and U. S. Dixit
'Effects of die pockets in multi-hole extrusion process', *Proceedings of International Conference on Computational Methods in Manufacturing (ICMM2011)*, IIT Guwahati, 15-16 Dec 2011

B. Satya Sekhar and P. Muthukumar
'Heat and mass transfer studies on metal hydride based

heat transformer', 21st National and 10th ISHMT-ASME Heat and Mass Transfer Conference, IIT Madras, 27-30 Dec 2011

S. Anbarasu, P. Muthukumar, S. C. Mishra
'Numerical heat and mass transfer analysis of a hydriding process in mg₂ni based hydrogen storage reactor with volumetric radiation', 21st National and 10th ISHMT-ASME Heat and Mass Transfer Conference, IIT Madras, 27-30 Dec 2011

B. Satya Sekhar, P. Muthukumar P and V. K. Tiwari
'Experimental studies on a double-stage metal hydride based Hydrogen compressor', 21st National and 10th ISHMT-ASME Heat and Mass Transfer Conference, IIT Madras, 27-30 Dec 2011

B. Satya Sekhar and P. Muthukumar
'Performance analysis of a metal hydride heat transformer for waste heat recovery', 3rd International Conference on Advances in Energy Research (ICAER 2011), IIT Mumbai, 9-11 Dec 2011

B. Satya Sekhar and P. Muthukumar and P. Suresh
'Performance tests on metal hydride based hydrogen storage devices', 3rd International Conference on Fuel Cell and Hydrogen Technology (ICFCHT 2011), Kuala Lumpur, Malaysia, 22-23 Nov 2011

A. Golia, P. K. Sahu, A. K. Sen and P. Muthukumar
'Investigations of a micro-mixer with and without indentations along the mixing channel', ASME 2011 International Mechanical Engineering Congress & Exposition (IMECE2011), Denver, Colorado, USA, 11-17 Nov 2011

A. Kumar, B. Maskay, P. Muthukumar and C. Somayaji
'Influence of feedwater heater mass flow rates on the energy and exergy efficiencies of 210 MW coal fired power plant', International Congress On Renewable Energy (ICORE-2011), Tezpur University, 2-4 Nov 2011

P. Muthukumar
'Development of high efficient porous radiant burner for domestic cooking applications', National Conference on Innovations in Mechanical, Mechatronics and Building sciences, Kongu Engineering College, Perundurai, Tamil Nadu, 29-30 Apr 2011.

B. K. Debnath, U. K. Saha and N. Sahoo
'Effect of Compression Ratio on the Performance Characteristics of a Palm Oil Methyl Ester Run Diesel Engine', *Proceedings of the ASME 2011 International Mechanical Engineering Congress and Exposition*, Paper

No. IMECE2010–65135, Colorado, USA, 11–17 Nov 2011

S. K. Dwivedy, B. V. Kumar and P. S. Robi
‘Vibration analysis of thermally loaded cantilever beam’,
7th International Conference on Vibration Engineering
and Technology of Machinery, Shanghai Jiao Tong
University, China, 20-24 Nov 2011

D. K. Biswal, D. Bandopadhaya and S. K. Dwivedy
‘Fabrication and performance test of silver-electroded
ionic polymer-metal composite (IPMC) actuator’,
*Proceeding of the International Conference on Advanced
Nanomaterials and Nanotechnology (ICANN 2011)*, IIT
Guwahati, 8-10 Dec 2011

K. K. Reddy, A. Kashyap, S. K. Dwivedy and P. S. Robi
‘Round Robin Exercise on Pressure Tube Ballooning’,
Workshop on National Round Robin Exercise on Pressure
Tube Ballooning under simulated accident Scenario,
Reactor Safety Division, Bhabha Atomic Research Centre,
Mumbai, 20 Feb 2012

G. V. Aditya, C. A. V. Kartha, R. Singh, S. C. Mishra and A. Sen
‘Thermal characterization of a tumor imbedded
biological tissue with and without volumetric radiation’,
21st National and 10th ISHMT-ASME Heat and Mass
Transfer Conference, IIT Madras, 27-30 Dec 2011

R. P. Chopade, E. Agnihotri, R. Uppaluri, S. C. Mishra and
P. Mahanta
‘Particle swarm algorithm for inverse solution –
performance evaluation of three radiative transfer
methods’, 21st National and 10th ISHMT-ASME Heat and
Mass Transfer Conference, IIT Madras, 27-30 Dec 2011

S. C. Mishra, K. Das and R. Singh
‘Thermal Analysis of a Biological Tissue - Estimation of Its
Thermophysical Properties’, 8th International Conference
on Flow Dynamics, Sendai, Japan, 9-11 Nov 2011

S. C. Mishra, P. Agarwal and Ch. Hari Krishna
‘Analysis of radiative transport in a cylindrical
participating medium with collimated radiative loading’,
8th International Conference on Flow Dynamics, Sendai,
Japan, 9-11 Nov 2011

A. Bhowmik, R. Repaka, S. C. Mishra
‘Diagnosis of malignances in human tissues: a review
of non-invasive thermal techniques’, 8th International
Conference on Flow Dynamics, Sendai, Japan, 9-11 Nov
2011

S. C. Mishra and R. R. Vernekar
‘Usage of the lattice Boltzmann method applied to the

analysis of radiative transfer in a participating medium
subjected to collimated loading’, 8th International
Conference on Flow Dynamics, Sendai, Japan, 9-11 Nov
2011

S. D. Kore, J. Imbert, Y. Zhou and M. Worswick
‘Characterisation of electromagnetic pulse welds of
Al-Al and Al-AZ 31 sheets’, 64th Annual Assembly and
International Conference of the International Institute
of Welding, Global trends in joining, cutting and surface
technology, Chennai, 17-22 Jul 2011

J. Doley and S. D. Kore
‘Study of impact behavior of sheets in electromagnetic
pulse welding’, 64th Annual Assembly and International
Conference of the International Institute of Welding,
Global trends in joining, cutting and surface technology,
Chennai, 17-22 Jul 2011

H. Choudhary, J. Doley and S. D. Kore
‘Technical Note on Strong Coupling in Electromagnetic
Forming’, *Proceedings of the International Conference on
Computational Methods in Manufacturing (ICMM 2011)*,
IIT Guwahati, 15-16 Dec, 2011

A. Sandilya, P. N. Vinod, and S. D. Kore
‘Comparison of fusion welds with electromagnetic welds’,
COPEX-7, held at COEP Pune, 10-11 Dec 2011

J. K. Doley, S. D. Kore
‘Fully Coupled Numerical Simulation of Electromagnetic
Forming - Non Conventional Processes’, 15th ESAFORM
Conference, Friedrich-Alexander Universitat, Erlangen-
Nuremberg, Germany, 14-16 Mar 2012

S. D. Kore, P. N. Vinod, S. Kumar, M. R. Kulkarni
‘Study of Wavy Interface in Electromagnetic Welds,
Innovative Joining by Forming’, 15th ESAFORM
Conference, Friedrich-Alexander Universitat, Erlangen-
Nuremberg, Germany, 14-16 Mar 2012

R. Tiwari and U. Venkatesu
‘An Optimal Design of Ball Bearings Using Evolutionary
Algorithms’, SIAM Conference on Optimization 2011
(OP11), Darmstadt, Germany, 16-19 May 2011

S. K. Singh and R. Tiwari
‘Multi-crack Identification in a Stepped Shaft’, 2nd
International Conference of Engineering Against Fracture
(ICEFII), Mykonos, Greece, 22-24 Jun 2011

C. Shrivankumar and R. Tiwari
‘Gyroscopic Effects on a Cantilever Rotor System: A
Comparative Analysis’, National Symposium on Rotor

Dynamics (NSRD-2011), IIT Madras, 19-21 Dec 2011

N. Naresh Kumar, P. S. Rama Sreekanth and S. Kanagaraj
'Effect of γ -irradiation on thermal properties of MWCNTs reinforced high density polyethylene', Springer Conference Proceeding, ICANN2011, IIT Guwahati, 2012

D. Chakraborty and T. Roy
'Optimal Placements of Sensors/Actuators in Smart Composite Shell Structures using Genetic Algorithm', Proceedings of VETOMAC 2011, Shanghai Jiao Tong University, 21-24 Nov 2011

D. Chakraborty, M. Ranjan and A. Kumar
'Dynamic Analysis of Functionally Graded Shell Structure using Finite Element Method', *Proceedings of ICME 2011*, BUET, Dhaka, 18-20 Dec 2011

P. Biswas, S. Tikader, R. Ranjan and N. R. Mandal
'The Effect of Welding Sequences and Welding Tacks on Residual Stress in Stiffened panel Fabrication', International Conference on Ship & offshore Technology (ISCOT-2011), IIT Kharagpur, 8-9 Dec 2011

B. Parida, S. Pal, P. Biswas and S. Tikader
'Mechanical and Micro-structural Study of Friction Stir Welding of Al-alloy', 2nd International Conference on Advanced Research in Mechanical Engineering (ICARME-2011), Bhubaneswar, 15 Oct 2011

A. K. Dalai, N. R. Mandal and P. Biswas
'Iterative laser forming of steel plates for generation of compound curved surfaces used in shipbuilding', International Conference on Ship and offshore Technology (ISCOT-2011), IIT Kharagpur, 8-9 Dec 2011

S. N. Joshi and S. D. Pande
'Prediction of Thermal Residual Stresses with a Thermo-physical Model of Electrical Discharge Machining Process', AIP Conference Proceeding 1353, The 14th international ESAFORM conference on material forming: ESAFORM 2011, pp. 1373-1378, Belfast, United Kingdom, 27–29 Apr 2011

R. Kant and S. N. Joshi
'Thermo-Mechanical Analysis of Laser Bending of AISI 302 Stainless Steel Thick Sheets', *Proceedings of International Conference on Computational Methods* (ICCM 2011), IIT Guwahati, Guwahati, India, 15-16 Dec 2011

S. Bag, D. V. Kiran and A. De
'Efficient estimation of volumetric heat source in fusion welding process simulation', 64th IAWQ Annual Assembly (Commission IX), Chennai, India, 17–21 Jul 2011

S. Bag and N. Yadaiah
'Possible role of surface active elements in weld pool modelling of fusion welding process', International Conference on Computational Methods in Manufacturing (ICCM 2011), IIT Guwahati, 15-16 Dec 2011

C. Pant, A. Chowdhary and V. Kulkarni
'Counter flow injection studies for hypersonic flow field', International Symposium on Shock Waves 28, Manchester, UK, 17-22 July 2011

R. Peetala, V. Kulkarni and N. Sahoo
'Conjugate Heat transfer analysis for hypersonic applications', International Symposium on Shock Waves 28, Manchester, UK, 17-22 July 2011

C. Patel, R. G. Narayanan and S. Das
'Predicting the grain size and strength during friction stir welding by Cellular Automata based Finite Element (CAFE) analysis', International conference on Agile Manufacturing Systems (ICAM), Dayalbagh Educational Institute, Agra, India, pp. 763-768, 18-21 Dec 2011 (Awarded the best paper in 'Advanced Manufacturing Systems' session)

R. S. Saluja, R. G. Narayanan and S. Das
'Modeling material inhomogeneities and predicting forming behavior in friction stir welding using CAFE model', *Proceedings of International conference on Computational Methods in Manufacturing* (ICCM 2011), IIT Guwahati, pp. 43-50, 15-16 Dec 2011

P. J. Ramulu and R. G. Narayanan
'Sensitivity analysis of mechanical and geometric properties for weld zone representation of friction stir welded blanks during formability prediction', *Proceedings of International conference on Computational Methods in Manufacturing* (ICCM 2011), IIT Guwahati, pp. 19-26, 15-16 Dec 2011

R. G. Narayanan and K. Narasimhan
'Application of Thickness Gradient Based Necking Criterion to Investigate the Influence of Weld Configuration on the Forming Limit of Tailor Welded Blanks', *Proceedings of 8th International Conference and Workshop on Numerical Simulation of 3D Sheet Metal Forming Processes* (Numisheet 2011), doi:10.1063/1.3623641, AIP Conference Proceeding, Volume 1383, pp. 431-438, August 2011

B Parida and S Pal
'Overview of Friction Stir Welding', International conference on Mechatronics, Robotics and Manufacturing, ICMRM-2011, Interscience Campus, Bhubaneswar, 11 -12 Dec 2011

P. K. Jaradi and C. Somayaji
 'Thermal Management of Fuel Cell based CHP system',
*Proceedings of 3rd International Conference on advances
 in Energy Research-2011* (ICAER – 2011), IIT Bombay, pp
 1-7, 9-11 Dec 2011

P. K. Jaradi and C. Somayaji
 'Hydrogen Production for PEM Fuel Cell from Ethanol
 using Auto-Thermal Reforming: Modelling, Simulation
 and Analytical study', International Conference on Recent
 Advances and Challenges in Energy -2012 (RACE – 2012),
 MIT Manipal, 4-6 Jan 2012 (Published in International
 Journal of Earth Sciences and Engineering (ISSN 0974-
 5904), pp 115-122)

P. K. Jaradi and C. Somayaji
 'Hydrogen production from Ethanol for PEM fuel cell
 using Auto thermal Reformer', *Proceedings of International
 Conference on Advances Research in Mechanical
 Engineering-2012* (ICARME-2012), Ahmedabad Jan
 12; Printed: ISBN 978-93-81693-19-3; pp 109-115

A. Laiho, K. Kalita K. Tammi and S. Garvey
 'Dynamics of Bridged-configured built in force actuator
 for vibration control in 4-pole caged induction machine',
 18th International Congress on Sound and Vibration,
 Brazil, 10-14 Jul 2011

R. Kumar and N. Sahoo
 'Fabrication and calibration of heat transfer coaxial
 gauges for transient measurement', International
 Conference on Applications and Design in Mechanical
 Engineering, University of Malaysia, Perlis, Penang,
 Malaysia, ICADME2012: 26388, 27-28 Feb 2012

R. Kumar and N. Sahoo
 'Property analysis of mixtures of high conducting platinum
 and grapheme materials', International Conference
 on Advances in Materials and Materials Processing,
 ICAMMP2011: 178-179, IIT Kharagpur, 9-11 Dec 2011

B. K. Debnath, U. K. Saha and N. Sahoo
 'Effect of hydrogen-diesel quantity variation on brake
 thermal efficiency of a dual fuelled diesel engine',
*Proceedings of ASME-JSME-KSME Joint Fluids Engineering
 Conference*, (Paper no: AJK2011-23014), Hamamatsu,
 Shizuoka, Japan, 24-29 Jul 2011

N. Sahoo and P. Ramesh Babu
 'Measurement diagnostics of a single component
 accelerometer based stress wave force balance',
*Proceedings of 28th International Symposium on
 Shock Waves* (ISSW 28, Paper No: 2800), University of
 Manchester, UK, 17-22 Jul 2011

R. Kumar and N. Sahoo
 'Analysis of gauge and substrate material of heat transfer
 platinum thin film sensors', International Conference on
 Mechanical, Industrial and Manufacturing Engineering,
 ICMIME2011: FR79000, World Academy of Science,
 Engineering and Technology, Avenue du Maine, Paris,
 France, 27-29 Jul 2011

R. Kumar and N. Sahoo
 'Enhancement of thermal properties for platinum
 thin film gauges with nano fluids', *Proceedings of 28th
 International Symposium on Shock Waves* (ISSW 28, Paper
 No: 2719), University of Manchester, UK, 17-22 Jul 2011

S. S. Mohapatro and P. Mahanta
 'Thermodynamic evaluation of natural convection paddy
 dryer', 2nd International Conference on Developments
 in Renewable Energy Technology (ICDRET '12), Dhaka,
 Bangladesh, 5-7 Jan 2012

National

P. Muthukumar, N. Kishore and P. Shankar
 'Effects of static electric discharge and surface indents
 on nucleation of aqueous salt solutions', National
 Conference on Refrigeration and Air Conditioning
 (NCRAC-2011), IIT Madras, Chennai, 21-23 Jul 2011

B. B. Sahoo, U. K. Saha and N. Sahoo
 'Demonstration of Dual Fuel Technology – Gas and
 Diesel for the Future', *Proceedings of the National Seminar
 on Renewable Energy Technology: Issues and Prospects*,
 NERIST, Itanagar, India, 29–30 Sep 2011

S. C. Mishra
 'Thermal Radiation – A Potential Deterministic Tool for
 Characterizing an Inhomogeneity', Annual Convention
 of Indian National Academy of Engineering, Hyderabad,
 23-24 Dec 2011

R. Tiwari
 'Field Balancing Of Flexible Rotors Fully Levitated With
 Active Magnetic Bearings', National Symposium on Rotor
 Dynamics (NSRD-2011), IIT Madras, 19-21 Dec 2011

V. Kulkarni
 'Heatflux recovery and prediction techniques for
 hypersonic flow regime', National Symposium on Shock
 waves-2, Tanjavur, 27-28 Feb 2012

G. Sarath, B. John, N. Ganesh and V. Kulkarni
 'Investigation for Shock Stand-off Distance at Hypersonic
 Mach numbers', National Symposium on Shock waves-2,
 Tanjavur, 27-28 Feb 2012

D. Das, R. Peetala, N. Sahoo and V. Kulkarni
'Conjugate Heat Transfer Analysis for Finite Thickness Cylinder at Hypersonic Mach Number', National Symposium on Shock waves-2, Tanjavur, 27-28 Feb 2012

P. J. Ramulu, R. G. Narayanan, S. V. Kailas and J. Reddy
'Forming limit evaluation of FSW blanks made of aluminum sheet: Influence of shoulder diameter and plunge depth', 49th National Metallurgists' Day and 65th Annual Technical Meeting of the Indian Institute of Metals, Leonia International Centre for Exhibitors and Conventions, Hyderabad, 13-16 Nov 2011

S. K. Laha and S. K. Kakoty
'Dynamic Analysis of a Timoshenko Beam Supported on Hydrodynamic Porous Journal Bearing', *Proceedings of the National Symposium of Rotor Dynamics, 2011* (NSRD-2011), IIT Madras, Chennai, 19-21 Dec 2011

K. Kalita and A. Laiho
'Dynamics of Bridged-configured built in force actuator for vibration control in 4-pole caged induction machine', National Symposium on Rotor Dynamics (NSRD-2011), IIT Madras, 19-21 Dec 2011

Books

U.S. Dixit, D.K. Sarma, J. Paulo, Davim
Environmentally Friendly Machining, Springer, New York, 2012

Book Chapters

S.D. Kore, J. Imbert, M. Worswick, Y. Zhou
'Magnetic Pulse Welding', *ASM Handbook on Solid-State*

Welding Processes, October 2011

R. Tiwari
'Internet Based Virtualization of Laboratory Experiments: A Reality Through Educational Technology', *Educational Technology in the Changing Society*, Ed. R. Roy, Shipra Publications, Delhi, 2011 (ISBN: 9788175415515)

M. Chandrasekaran, M. Muralidhar, C. Murali Krishna, U.S. Dixit
'Online machining optimization with continuous learning', *Computational Methods for Optimizing Manufacturing Technology: Models and Techniques*, Ed. J. Paulo Davim, IGI Global, Hershey, 2012

Reis Joana, F. Capela-Silva, J. Potes, A. Fonseca, M. S. A. Oliveira, S. Kanagaraj and A. T. Marques
'Carbon Nanotubes – Interactions with Biological Systems', *Carbon Nanotubes - Growth and Applications*, Ed. Mauricio Marulanda, InTech publisher, pp 473-492, 2011

K. Narasimhan, and R. Ganesh Narayanan,
'Deformation of tailor welded blanks during forming', *Tailor welded blanks for advanced manufacturing*, Eds. Brad Kinsey and X. Wu, Woodhead publishing limited, July 2011 (ISBN: 9781845697044)

R. Ganesh Narayanan, G Saravana Kumar,
'Prediction of Tensile and Deep Drawing Behaviour of Aluminium Tailor-Welded Blanks', *Recent Trends in Processing and Degradation of Aluminium Alloys*, Ed. Zaki Ahmad, InTech publisher, November 2011 (ISBN: 9789533077345)

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
U.S. Dixit	International Conference on Computational Methods in Manufacturing	IIT Guwahati	15-16 Dec 2011	International
P. Muthukumar	21st National & 10th ISHMT-ASME Heat and Mass Transfer Conference	IIT Madras	27-30 Dec 2011	International
P. Muthukumar	International Conference on Fuel Cell & Hydrogen Technology (ICFCHT 2011)	Kuala Lumpur, Malaysia	22-23 Nov 2011	International
P. Muthukumar	International Congress On Renewable Energy (ICORE-2011)	Tezpur University, Assam	2-4 Nov 2011	International
P. Muthukumar	National Conference on Refrigeration and Air Conditioning (NCRAC-2011)	IIT Madras	21-23 July 2011	National
P. Muthukumar	Innovations in Mechanical, Mechatronics and Building sciences	Perundurai, Tamil Nadu	29-30 April 2011	National

S. K. Dwivedy	7th International Conference on Vibration Engineering and Technology of Machinery	Shanghai Jiao Tong University, China	20-24 Nov 2011	International
S.D. Kore	15th ESAFORM Conference	Erlangen, Germany	14-16 Mar 2012	International
S.D. Kore	COPEN-7	Pune	9-10 Dec 2011	International
S.D. Kore	64th Annual Assembly and International Conference of the IIW, Global Trends in Joining, Cutting and Surface Technology	Chennai	17-22 Jul 2011	International
R. Tiwari	SIAM Conference on Optimization 2011 (OP01)	Darmstadt, Germany	16-19 May 2011	International
R. Tiwari	2nd International Conference of Engineering Against Fracture (ICEAFII)	Mykonos, Greece	22-24 June 2011	International
R. Tiwari	National Symposium on Rotor Dynamics (NSRD-2011)	IIT Madras	19-21 Dec 2011	National
S. Kanagaraj	IORACON-2011	Shillong	9-10 Apr 2011	National
S. Kanagaraj	International conference on Biomaterials and Implants: Prospects and Possibilities in the New Millennium	Kolkata	21-23 Jul 2011	International
S. Kanagaraj	International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011)	Guwahati	8-10 Dec 2011	International
S. Kanagaraj	Twentieth International Symposium on Processing and Fabrication of Advanced Materials (PFAM XX)	Hong Kong	15-18 Dec 2011	International
Students of S.Kanagaraj	International Conference on Biomaterials Implant Devices and Tissue Engineering	Chennai	6-8 Jan 2012	International
Students of S.Kanagaraj	North East Orthopaedic Surgeons Conference	Guwahati	20-22 Jan 2012	National
Students of S.Kanagaraj	20th National conference of Orthotics & Prosthetics Association of India	Shillong	14-16 Feb 2012	National
Debabrata Chakraborty	VETOMAC-2011	SJTU, Shanghai, China	21-24 Nov 2011	International
Debabrata Chakraborty	ICME-2011	BUET, Dhaka	18-20 Dec 2011	International
Pankaj Biswas	ISCOT-2011	IIT Kharagpur	8-9 Dec 2011	International
Pankaj Biswas	ICARME-2011	Bhubaneswar	15 Oct 2011	International
S. N. Joshi	International Conference on Computational Methods ICCMM 2011	IIT Guwahati	15-16 Dec 2011	International
Swarup Bag (Participant)	6th Symposium on National Frontiers of Engineering	IIT Hyderabad	2-3 Sep 2011	National
Swarup Bag	International Conference on Computational Methods in Manufacturing (ICCMM 2011)	IIT Guwahati	15-16 Dec 2011	International

Vinayak N. Kulkarni	International Symposium on Shock Waves-28	University of Manchester, UK	17-22 Jul 2011	International
Vinayak N. Kulkarni	National Symposium on Shock waves-2	Periyar Maniam-mai University, Tanjavur, Tamilnadu	27-28 Feb 2012	National
R. Ganesh Narayanan	International conference on Agile Manufacturing Systems (ICAM)	Dayalbagh Educational Institute, Agra	18-21 Dec 2011	International
R. Ganesh Narayanan	International conference on Computational Methods in Manufacturing (ICMM2011)	IIT Guwahati	15-16 Dec 2011	International
R. Ganesh Narayanan	International Conference on Advances in Materials and Materials Processing (ICAMMP-2011)	IIT Kharagpur	9-12 Dec 2011	International
S K Kakoty	NSRD – 2011	IIT Madras	19-20 Dec 2011	National
K. Kalita	National Symposium on Rotor Dynamics, NSRD2011	Chennai	19-21 Dec 2011	National
P. Mahanta	2nd International Conference on Developments in Renewable Energy Technology, (ICDRET '12)	Dhaka	5-7 Jan 2012	International
Amaresh Dalal (Participant)	6th Symposium on National Frontiers of Engineering	IIT Hyderabad	2-3 Sep 2011	National

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
P. Muthukumar	Metal Hydride Based Energy Conversion Systems	North Eastern Regional Institute of Science & Technology (NERIST)	Itanagar, Arunachal Pradesh	1 Mar 2012
P. Muthukumar	Porous Radiant Burners for Cooking Applications	North Eastern Regional Institute of Science & Technology (NERIST)	Itanagar, Arunachal Pradesh	1 Mar 2012
P. Muthukumar	Indian Energy Scenario	Knowledge Institute of Technology	Salem, Tamil Nadu	14 Dec 2011
P. Muthukumar	Development of novel porous radiant burner for domestic LPG cooking applications	IIT Hyderabad	Hyderabad	3 Sep 2011
P. Muthukumar	Indian future energy options	Kongu Engineering College	Perundurai, Tamil Nadu	4 Apr 2011
S. C. Mishra	Radiating – Conducting System with Non-Fourier Effects	IIT Delhi	Delhi	15 Mar 2012
S. C. Mishra	Lattice Boltzmann Method - Analysis of Thermal Problems	10th Indo-German Winter Academy, New Delhi	New Delhi	15 Dec 2011

S. C. Mishra	Thermal Analysis of a Biological Tissue – Estimation of Its Thermo-physical Properties	8th International Conference on Flow Dynamics Sendai	Sendai, Japan	9 Nov 2011
S. C. Mishra	Analysis of Transport of Radiation in Participating Media – Computational Methods	Tezpur University	Tezpur, Assam	2-4 Nov 2011
S. C. Mishra	Thermal Radiation – A Potential Deterministic Tool in Biomedical Applications	IIT Guwahati	Guwahati	31 Oct – 4 Nov 2011
S. C. Mishra	Development of Porous Radiant Burners for Kerosene Cooking Stoves	IIT Guwahati	Guwahati	29 Aug – 2 Sep 2011
S. C. Mishra	Thermal Means of Detection of Size, Location and Grade of a Cancer – An Alternative to Conventional Methods of Detection	IIT Guwahati	Guwahati	26-27 Aug 2011
S. D. Kore	Application of electromagnetic Forming and Welding to Automobiles	John Deer Innovation Centre	Pune	24 Jun 2011
S.D. Kore	Electromagnetic Forming and Welding brief review	BATU, Lonere	Lonere	27 Jun 2011
R. Tiwari	Field Balancing Of Flexible Rotors Fully Levitated With Active Magnetic Bearings	IIT Madras	Madras	19-21 Dec 2011
S. Kanagaraj	Studies on heat related parameters in materials including nanocomposites used for total hip replacement	NERIST, Itanagar	Itanagar	2 Mar 2012
Pankaj Biswas	ANSYS OVERVIEW	IIT Guwahati	IIT Guwahati	2 Jan 2012
Pankaj Biswas	Present Trend on Welding Research	Indian Welding Society	IIT Guwahati	14 Mar 2012
S. N. Joshi	Micro-bending with LASER	IIT Kanpur	Kanpur	30 Sep – 4 Oct 2011
Vinayak N. Kulkarni	Heatflux recovery and prediction techniques for hypersonic flow regime	Periyar Maniammai University	Tanjavur, Tamilnadu	27-28 Feb 2012
S. K. Kakoty	NSRD – 2011 invited talk	IIT Madras	Chennai	20 Dec 2011
Niranjan Sahoo	Heat transfer and force measurement techniques in short duration experimental facilities	Periyar Maniammai University	Thanjavur, Tamil Nadu	27 Feb 2012
Niranjan Sahoo	Engine Technology for Study of Alternative Fuels	Gandhi Institute for Education & Technology	Bhubaneswar	30 Mar 2012
Amaresh Dalal	Solution of 3-D Navier-Stokes Equations for Arbitrary Geometry	CSIR-CMERI	Durgapur	10-11 Feb 2012

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS / INVITED LECTURES

Name	Name of Inst./Univ./ Org.	Purpose/ Name of Lecture	Date
Prof. Richard Dashwood	University of warwick, Warwick	To discuss about UKIERI project	20-22 Feb 2012
Prof. Rohit Bhagat	University of warwick, Warwick	To discuss about UKIERI project	20-22 Feb 2012
Prof. Amitabha Ghosh	BESU, Kolkata	To deliver lectures on Analytical Mechanics	31 Oct – 1 Nov 2011
Prof. A. K. Mallik	BESU, Kolkata	To deliver lectures on non-linear dynamics	31 Oct – 1 Nov 2011
Dr. Vidyashankar Bura-valla	R&D , General Motors, India	To deliver lectures on Smart Ma-terials, applications in automotive industry	11 Nov 2011
Prof. N. Bhatnagar	IIT Delhi	To deliver a talk on porous polymer matrix composite	13 Jan 2012
Dr. Kulbir Singh	BHEL	To deliver a talk on high temperature creep failure in gas turbine materials	July 2011

SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/ National
U.S. Dixit, R. Ganesh Narayanan	International Conference on Computational Methods in Manufacturing	DST, NEC, etc.	15-16 Dec 2011	International
P. Muthukumar	Recent Trends in Fuels and Combustion	AICTE	29 Aug - 2 Sep 2011	QIP Short-Term Courses
Ashis Sen and S. Kanagaraj	Recent Advancements in Microfluidics	AICTE	31 Oct - 4 Nov 2011	National
P. Mahanta, R. Bhat-tacharjya, K. Kalita	Short term course on Hydroelectric Power Development	AICTE	5-9 Dec 2011	National
R. Bhattacharjya, K. Kalita	Workshop on Engineering Optimiza-tion using MATLAB and EXCEL	AICTE	29 Feb - 2 Mar 2012	National
P. Muthukumar and Niranjana Sahoo	Recent Trends in Fuels and Combustion	AICTE	29 Aug - 2 Sep 2011	QIP Short-Term Courses

AWARDS AND HONOURS

K.S.R.K. Murthy was awarded outstanding reviewer in 2012 from *Engineering Fracture Mechanics Journal*.

Perumalla Janaki Ramulu, research scholar, received Best Student Paper Bronze Award with USD100 prize money at the International symposium on Process and Fabrication of Advanced Materials (PFAM) 2011 at Hong Kong from 15-17 December 2011 for the paper entitled 'Formability evaluation of friction stir welded blanks made of aluminum sheet: influence of welding speed and tool rotation speed',

C. Patel, R. Ganesh Narayanan and Sumitesh Das received best paper award in advanced manufacturing systems session for the paper 'Predicting the grain size and strength during friction stir welding by Cellular Automata based Finite Element (CAFE) analysis' at the International conference on Agile Manufacturing Systems (ICAM), Dayalbagh Educational Institute, Agra, 18-21 December 2011

P. Muthukumar received DAAD Research Award to visit IKE, University of Stuttgart, Germany from 1 July to 31 August 2012.

ANY OTHER (SPECIAL MENTION)

Pankaj Biswas joined as a part of the opening of dialogue regarding Proposed Joint Venture Research & Development project opportunity between Bharati Shipyard Ltd, Ghodbunder and IIT Guwahati on 23 September 2011 at Bharati Shipyard Ltd. Ghodbunder, Mumbai.

K. S. R. Krishna Murthy and Pankaj Biswas have prepared laboratory manual for Strength of Material Laboratory under QIP, Curriculum Development Programme, IIT Guwahati. The project was of one year duration (May 2011 to May 2012)

NPTEL web and video course development on Rotor Dynamics under completion.

FACULTY MEMBERS**S. Bag**

PhD (IIT Bombay)
Assistant Professor

Areas of Interests: Fusion welding processes, Finite element method, Laser microjoining, Heat transfer and fluid flow in fusion welding, Residual stress and distortion, Recrystallization in hot metal forming process, Optimization in manufacturing process

D. Bandopadhyaya

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Active Materials, Artificial Muscle Materials, Smart Structures, Robotics and Mechanisms

A. Banerjee

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Compliant Mechanism, Shape Memory Alloy, Bio-mimetic Devices

P. Biswas

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interests: Manufacturing and Design: Computational weld mechanics, Solid state welding, Soft computing modeling of welding processes, FEM, Line heating

D. Chakraborty

PhD (IIT Kharagpur)
Professor and Head of the Department

Areas of Interest: FRP, Composites, FEM, Fracture Mechanics and Design

A. Dalal

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Computational Fluid Mechanics and Heat Transfer, Finite Volume Methods and Unstructured Grid Techniques, Natural and Mixed Convection Flows

A.K. Dass

PhD (IISc Bangalore)
Professor

Areas of Interest: Computational Fluid Dynamics and Turbomachines

A.K. De

PhD (IIT Kanpur)
Assistant Professor

Areas of Interest: Numerical Methods in Fluid Flow and Heat Transfer, Convection, Turbulence

U.S. Dixit

PhD (IIT Kanpur)
Professor

Areas of Interest: Design and Manufacturing: FEM, Neural Network and Fuzzy Set Application, Mechatronics

S.K. Dwivedy

PhD (IIT Kharagpur)
Professor

Areas of Interest: Non-linear Dynamics, Design and Robotics, Vibrations

S.N. Joshi

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Laser micro forming, Micro machining: Web based manufacturing, Process modelling and optimization, CAD/CAM, Application of soft computing

S.K. Kakoty

PhD (IIT Kharagpur)
Professor

Areas of Interest: Tribology, Duct Acoustics, Mechanical System Design, Nonconventional Energy

K. Kalita

PhD (University of Nottingham)
Assistant Professor

Areas of Interests: Rotordynamics, Coupled Dynamics of Electro-Mechanical Systems, Vibration

S. Kanagaraj

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Biomaterials, Carbon nanotubes based nanocomposites, Nanofluids, Materials characterization

S.D. Kore

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Experimental and numerical study of electromagnetic pulse processing, Solid state welding, Joining of similar, dissimilar and lightweight metals like Al, Steel, Al-Li, and Mg

K.S.R. Krishna Murthy

PhD (IIT Kharagpur)
Associate Professor

Areas of Interest: Finite Element Methods, Error Estimation and Fracture Mechanics

V.N. Kulkarni

PhD (IISc Bangalore)
Assistant Professor

Areas of Interest: High enthalpy flows, Scramjet Engine, Experimental, Aerodynamics, Measurement Science, CFD simulations

P. Mahanta

PhD (IIT Guwahati)
Professor

Areas of Interest: Thermal Radiation with Participating Media, Fluidisation, Energy Conservation and Renewable Energy

S.C. Mishra

PhD (IIT Kanpur)
Professor

Areas of Interest: Analysis of Heat Transfer Problems involving Thermal Radiation

P. Muthukumar

PhD (IIT Madras)
Associate Professor

Areas of Interest: Coupled heat and mass transfer analysis, Metal hydride based thermal machines, Conventional and Non-conventional refrigeration systems

R.G. Narayanan

PhD (IIT Bombay)
Assistant Professor

Areas of Interest: Metal Forming – Sheet forming and Cold forging, Computer applications in Metal Forming

G. Natarajan

PhD (IISc Bangalore)
Assistant Professor

Areas of Interests: Computational Fluid dynamics, Grid Adaptation, Error Estimation, Immersed Boundary methods, Parallel computing, Biofluid dynamics

S. Pal

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Welding Process Monitoring and Control, Tool Condition Monitoring, Non-Conventional Machining Process, Application of Artificial Neural Network, Genetic Algorithms and Fuzzy logic in Manufacturing

S. Panda

PhD (IIT Kharagpur)
Assistant Professor

Areas of Interest: Composite materials, Nonlinear vibrations, Smart materials and structures, FEM, Functionally Graded materials and structures, Micromechanics

M. Pandey

PhD (IIT Kanpur)
Professor

Areas of Interest: Dynamics and Control of Fluid-Thermal Systems, Nuclear Reactor Thermal-Hydraulics

M. Ravi Sankar

PhD (IIT Kanpur)
Assistant Professor

Areas of Interests: Machining and Advanced Machining Processes, MEMS and NEMS, Sustainable Machining, Micromanufacturing, Composite Materials, Online monitoring of Manufacturing Processes, Tribology

P.S. Robi

PhD (IIT Bombay)

Professor and Dean, Research & Development

Areas of Interest: Coating, Fracture Mechanics, Materials Processing, Metal Matrix Composite, Metal Casting, P/M Processing

U.K. Saha

PhD (IIT Bombay)
Professor

Areas of Interest: Propulsion, Turbomachinery, Wind Energy Conversion, Internal Combustion Engines

A.D. Sahasrabudhe (On deputation as Director, College of Engineering, Pune)

PhD (IISc Bangalore)
Professor

Areas of Interest: Vibration and Noise, Condition Monitoring, CAD/CAM

N. Sahoo

PhD (IISc Bangalore)
Associate Professor

Areas of Interest: Fluid and Thermal Engineering, Aerodynamics, Gas Dynamics, Instrumentation, Measurements and Experiments in Fluid

S. Senthilvelan

PhD (IIT Madras)
Associate Professor

Areas of Interest: Composites, Fatigue, Wear and Failure Analysis

D. Sharma

PhD (IIT Kanpur)
Assistant professor

Areas of Interests: Engineering optimization, evolutionary algorithm, multi objective optimization, compliant mechanism design, multi agent system

C. Somayaji

PhD (Mississippi State University)
Assistant Professor

Areas of Interest: Renewable Energy, Non-Conventional Energy Sources, Engine After treatment Systems, Design of Heat Transfer Equipments, Chemical Reaction Engineering

R. Tiwari

PhD (IIT Kanpur)
Professor

Areas of Interest: Random Vibrations, Rotor Dynamics, Mechanical System Identification and Rolling Element Bearing Design and Analysis

DEPARTMENT OF PHYSICS

INTRODUCTION

The Department of Physics began its journey in 1995. Since then the Department endeavours to impart quality education to the BTech, MSc and the PhD students of the Department, allied Departments and first year BTech / BDes students of the Institute. In order to achieve the goal of sublime learning, the teaching and research laboratories are being continuously upgraded with state-of-the-art equipment and other infrastructural facilities. In research and development, the Department continues to excel with increase in contribution towards international research publications, sponsored research activities, participating and conducting national/international workshops, conferences, short-term courses, taking part in conducting and mentoring Physics Olympiad, etc. The Department is working towards the goal of recognition of one of the centres of excellence in learning with cutting edge research and development activities in various frontline areas of Physics and allied inter-disciplinary subject areas.

ACADEMIC ACTIVITIES

BTech programme

The Department offers core, science elective and open elective courses in physics for the BTech programme of the Institute. The theory courses PH101 and PH102, and a laboratory course PH110 are offered as core physics courses to 1st year BTech students. The core courses are designed to offer a holistic knowledge of physics and to train the students in experimental techniques with modern equipment. Since the year 2006, a four year BTech Engineering Physics Programme has been added to train bright students as engineers along with essential knowledge on physics and applied physics. The Department has upgraded under graduate and post graduate laboratories from time to time to meet the demand of increase in number of student intake and by introducing new experiments. The course

structure and syllabi of BTech-EP programme was revised in the reported academic year by introducing an option of choosing a minor programme from other engineering disciplines offered in the Institute. In addition to that, the Department has introduced a minor programme in BTech-EP for the benefit of students from other engineering disciplines. The BTech-EP minor programme consists of five courses namely Quantum Physics, Laser Physics and Technology, Computational Physics, Engineering Optics, and Materials Science and Engineering. 80 % of the passing out students from the third batch of BTech-EP have got industrial placement and in addition to that some of them got admission in prestigious universities in US/Europe for higher studies.

MSc programme

The two-year MSc programme in physics was started in July 2000. The entry to the programme since 2006 is through all India Joint Admission Test for MSc (JAM). This programme is designed with equal emphasis on both classroom lectures and laboratory training with modern infrastructure. 24 MSc students have cleared the Graduate Aptitude Test in Engineering (GATE), 13 of them got through the Joint Entrance Screening Test (JEST) and one student has received the National Eligibility Test (NET) Junior Research Fellowship.

PhD programme

The Department has been offering PhD programme in physics, since August 1996 both in experimental as well as theoretical areas. The Department is concentrating on the following thrust areas; condensed matter physics (experimental and theoretical), laser and photonics (experimental and theoretical), higher energy physics (experimental and theoretical) and theoretical physics. Students in this programme are trained through rigorous course work covering basic as well as advanced level courses before starting their research work. The current PhD strength of the department is 61.

STUDENT INTAKE

BTech (Engineering Physics) students admitted in 2011-2012	: 37
MSc students admitted in 2011-2012	: 39
PhD students admitted in 2011-2012	: 22

FACULTY STRENGTH

Professor	: 03
Associate Professor	: 10
Assistant Professor	: 13
Total	: 26

MAJOR EQUIPMENT AND FACILITIES

- i. 18 KW Rotating Anode X-ray Diffractometer with high temperature and thin films measurement accessories.
- ii. Closed Cycle Helium Refrigerator Cryostat.
- iii. The High Energy Physics Group has set up an 8-node computer cluster with 32 CPUs and about 4 TB of disk space for research work related to experimental particle physics and other phenomenological studies. The computer cluster was set up using a grant from DST for IITG's participation in the Belle and Belle II experiment in KEK, Japan.
- iv. Micron Optics Four Channel FBG Interrogation System.
- v. Gated-CCD Camera.
- vi. Digital storage oscilloscope (1 GHz).

RESEARCH AND DEVELOPMENT ACTIVITIES**Condensed Matter Physics**

Physics Department received a financial support from Department of Science and Technology under FIST programme for the year 2011 towards the development of following infrastructure facilities, a part of which is used to develop state-of-the-art networking facility for setting up advanced computer lab infrastructure.

A quick glance at the budget details:

- Funds sanctioned: Rs. 229 Lakhs
- Funds received so far: Rs. 209 Lakhs.

Laser and Photonics

- Optical Fiber Sensors for structural health monitoring have been developed to sense the tilt angle and its direction from horizontal for a given structure (bridges, under water canal, sky-rising buildings etc.) using four fiber Bragg grating with linear dynamic range and manifold enhanced sensitivity.
- Surface Plasmon resonance/Localized Surface Plasmon resonance based Optical Fiber Sensor have been developed for environmental applications such as to measure the refractive index and relative humidity is developed covering entire dynamic range (~5 to ~99%)

with linear response and higher sensitivity.

- Nanoparticle doped optical fiber is developed and fabricated in-house for sensing applications.
- Optical fiber nanowire sensor exploiting Localized Surface Plasmon resonance have been developed for environmental applications such as to measure relative humidity is developed covering widest possible dynamic range with linear response and higher sensitivity. Optical fiber nanowire sensors are also exploited/are being exploited for strain/temperature/torsion sensing.
- Ruby thin film based photonic sensor for temperature measurement is developed.
- Experimental set-up to study the slowing down of light via degenerate two wave mixing in crystal and PLD thin films is developed.

Theoretical and High Energy Physics

Research activities of the High Energy Physics Group include particle physics phenomenology, its cosmological connection and experimental high energy physics.

- Phenomenology of Particle Physics Beyond the Standard Model emphasizes on aspects of Electroweak Symmetry Breaking and Higgs Mechanism and CP violation, currently focusing on models like the Little Higgs Model and Models within the Extra-dimensional scenarios. Apart from such specific models, generic analyses in a model independent way to understand dynamics beyond the scope of Standard Model in cases with strongly interacting gauge bosons, and additional gauge bosons like the Z-prime are also being actively pursued.
- Throughout the last decade, we observe empirical evidences, which demonstrate that the Standard Model of elementary particle physics is incomplete, e.g. non-baryonic dark matter, dark energy, neutrino mass, baryon asymmetry, nearly scale invariant density perturbations. Many of these are possible messengers from early universe. Understanding of such early stages of the universe requires the development of particle physics, while the universe may be regarded as a testing ground of particle physics at high energies beyond the reach of accelerators. We are involved in finding mutual relationship between cosmology and particle physics based on the study of matter-antimatter asymmetry, dark matter/energy, neutrinos, inflation and physics beyond the Standard Model of elementary particle physics.
- On Experimental High Energy Physics, we are collaborating with the Belle/Belle II and BaBar experiments for research involving B-mesons, CP violation and physics search beyond Standard Model. We are also collaborating with the Fermi National Accelerator Laboratory (FNAL) and India-Based Neutrino Observatory (INO) group for research in Neutrino Physics.

RESEARCH PROJECTS**New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Bosanta Ranjan Boruah	Design and implementation of a high speed wavefront sensor of light beams	Department of Information Technology, Govt. of India	61.14	A. Khare	3 years
Bipul Bhuyan	Collaboration by Indian Physicists on Neutrino Projects at Fermi Lab (USA)	DST-DAE (Mega Facilities for Basic Research)	131.48	-	3 years
Pratima Agarwal	Development of amorphous silicon based solar cells on plastic and other flexible substrates	DRDO	34	-	3 years
Pratima Agarwal	Development of facilities for fabrication of amorphous silicon-crystalline silicon Heterojunction Solar cells	DST	30	-	2 years
B. Sanyal, Uppsala University, Sweden	Theory of phonon excitations in substitutionally disordered alloys	Swedish Research Link, Sweden	51.44	Subhradip Ghosh	3 years
A. Srinivasan	Development of polymer/bio-active glass nanocomposites	BRNS	24.48	-	3 years
A. Srinivasan	Development of Heusler alloys based thin films for magnetocaloric and spintronic application	DRDO	34.92	-	3 years
Padma Kumar Padmanabhan	Factors Influencing fast ion conduction in solids: Atomistic modeling and computer simulation studies on NASICON-type solids.	DST	31.33	-	3 years
Arunansu Sil	Physics Beyond the Standard Model: an interplay between Particle Physics and Cosmology	IIT Guwahati Start Up Grant	4.55	-	2 Years
Tarak Nath Dey	Diffraction-less multidimensional light propagation in coherently controlled media	DST-SERB	18.82	-	3 years
S. Ravi	Critical Behavior Studies in SnO ₂ based Diluted Magnetic Semiconductors	DST	38.92	-	3 years

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Bipul Bhuyan	Search for new physics beyond Standard Model using data from Belle experiment and detector R & D for the superKEKB experiment	DST-SERC	38	-	3 years
Bipul Bhuyan	Development of Event reconstruction and simulation codes and active detector elements for the INO project	DST-SERC	14.99	P. Poulose	2 years
Saurabh Basu	Inhomogeneous superconductivity in Pauli Limited superconductors	DST	10.23	-	3 years
Pratima Agarwal	Development of high quality SiC and diamond and thin films using Hot wire Chemical Vapour deposition techniques for plasma diagnostics applications	BRFST	35.14	Alika Khare	3 years
Subhradip Ghosh	First-principles based self-consistent theory for multi-site correlations in random alloys	DST	28.16	A. Mookerjee, SNBNCBS, Kolkata	3 years
Ashwini K. Sharma	Studies on laser-induced breakdown in liquid and solid-liquid interface	DST	31.8	Alika Khare	3 years
D. Pamu	Fabrication of K _{0.5} Na _{0.5} NbO ₃ Ferroelectric Thin Film Capacitors by RF Magnetron Sputtering	DAE-BRNS	18	-	
D Pamu	Preparation and characterization of Mg ₂ TiO ₄ ceramics by mechanical alloying	DRDO	16.5	A. Perumal	
P. K. Iyer	Design, Development and fabrication of OLED organic solar cells & organic TFTs based on molecular polymeric & composite materials	DST	523	A. Srinivasan, D. Goswami, Md. Qureshi	5 years
A. Srinivasan	Neutron diffraction studies of structural and magnetic phases in Co-Ni-Ga alloys	UGC-CSR DAE	1.05 + TA/DA	S. Sarma	3 years
Alika Khare	Studies on Rhodium coated Mirror deposited by Pulsed Laser Deposition Technique	BRFST_NFP, IPR, Gandhinagar	29.46	-	2 years
Alika Khare	Fabrication of thin films and ordered arrays of Al _x In _{1-x} N composites for optoelectronics applications via Pulsed Laser Ablation techniques	DRDO	34	Pratima Agarwal	3 years
Alika Khare	Studies on ion dynamics in Laser Produced Plasma and its Effect on PLD Thin Films using conventional and novel diagnostics	DST	39.37	D. Raju, IPR, Gandhinagar	3 years

S.B. Santra	Theoretical Physics seminar Circuit	DST through S. N. Bose National Centre for Basic Sciences, Kolkata	0.5	S. N. Bose National Centre for Basic Sciences, Kolkata	
S.B Santra	Study of Self-organizing dynamics on complex and evolving networks	DST	18.8	-	3 years
S. Ravi	Magnetic Properties in nanocrystalline diluted magnetic semiconductors	BRNS	32.00	A. Perumal	3 years
S. Ravi	Neutron powder diffraction studies in charge ordered and double exchange ferromagnetic samples of Nd-Mn-O series	UGC-DAE CSR, Mumbai centre	1.05+ TA	-	2 years
Poulose Poulose	Study of CP Properties of MSSM Higgs Sector in the context of LHC	DST	17.60	-	3 years
Poulose Poulose	Higgs self coupling and Higgs-Gauge boson coupling in Little Higgs Models	BRNS, DAE	16.78	-	3 years
A. Perumal	Development of domain wall free Fe-Ta-C based soft magnetic thin films	CSIR	21.76	-	3 years
A. Perumal	Development of NanoComposite-Permanet Magnets based on (FePt/Fe) _n Multilayer Thin Films	DRDO	35.13	-	3 years
Santabrata Das	Start up Grant Project	IIT Guwahati	5	-	2 years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Amarendra Kumar Sarma	Few-cycle optical solitons in the context of soliton self-switching	DST	3.6	-	3 years
Bipul Bhuyan	New physics beyond Standard Model: Search for CP-Odd light Higgs boson using data from the BaBar experiment	Startup Grant - IITG	5	-	2 years
Alika Khare	Fabrication and sub micron tailoring of materials for Photonics applications with Ultrafast lasers (a multi institutional Project)	Office of the Principal Scientific Advisor to the Govt. of India	370.00 (IIT Guwahati component Rs 50.00 Lakhs)	Faculty/scientists from TIFR, IITB, IITD, RRCAT and Manipal University	3 years
P. K. Padmanabhan	Atomistic Simulation of Ion Transport in Fast Ion Conductors	IITG-Startup Grant	4	-	2 years

RESEARCH PUBLICATIONS**International Journal**

Purabi Gogoi, Himanshu S. Jha and Pratima Agarwal
'Variation of microstructure and transport properties with filament temperature of HWCVD prepared silicon thin films', *Thin Solid Films*, vol. 519, pp 4506-4510, 2011

Purabi Gogoi, Himanshu S. Jha and Pratima Agarwal
'Effect of Silane flow rate on microstructure of Silicon films deposited by HWCVD', *Journal of Non-Crystalline Solids*, DOI <http://dx.doi.org/10.1016/j.jnoncrysol.2011.12.095>, 2012

Amarendra K. Sarma and Parvendra Kumar
'Modulation Instability of ultrashort pulses in quadratic nonlinear media beyond the slowly varying envelope approximation', *Applied Physics B*, vol. 106, pp 289, 2012

Parvendra Kumar and Amarendra K. Sarma
'Optical force on two-level atoms by few-cycle-pulse Gaussian laser fields beyond the rotating-wave approximation', *Physical Review A*, vol. 84, pp 043402, 2011

Amarendra K. Sarma and Manirupa Saha
'Modulational instability of coupled nonlinear field equations for pulse propagation in a negative index material embedded into a Kerr medium', *Journal of Optical Society of America B (JOSA-B)*, vol. 28 (4), pp 944, 2011

Amarendra K. Sarma
'Solitary wave solution to the generalised nonlinear Schrodinger equation for dispersive permittivity and permeability', *European Physical Journal D (EPJ D)*, vol. 62, pp 421, 2011

Jian-Wei Wu, Amarendra K. Sarma and Xu Ping Zhang
'Spectrum reshaping of amplified pulse in silicon nanowaveguide', *Optics communications*, vol. 284, pp 5641-5644, 2011

Xuping Zhang, Rugang Wang, Yuejiang Song, Jianwei Wu and Amarendra K. Sarma
'Multi-channel broadband Brillouin slow light with multiple longitudinal mode pump', *IEEE/OSA Journal of Lightwave Technology*, vol. 30, pp 49, 2012

Abhijit Das and B. R. Boruah
'Optical sectioning microscope with a binary hologram based beam scanning', *Review of Scientific Instruments*, vol. 82, pp 043702, 2011

B. R. Boruah, G. D. Love and M. A. A. Neil
'Interferometry using binary holograms without high order diffraction effects', *Optics Letters*, vol. 36 (12), pp 2357-2359, 2011

B. R. Boruah and Abhijit Das
'A zonal wavefront sensor with reduced number of rows in the detector array', *Applied Optics*, vol. 50 (20), pp 3598-3603, 2011

Dilip K. Singh, P. K. Iyer and P. K. Giri
'Distinguishing defect induced intermediate frequency modes from combination modes in the Raman spectrum of single walled carbon nanotubes', *Journal of Applied Physics*, vol. 111 (6), pp 064304, 2012

Soumen Dhara and P. K. Giri
'Stable p-type conduction and enhanced photoconductivity from nitrogen-doped ZnO thin films', *Thin Solid Films*, <http://dx.doi.org/10.1016/j.tsf.2012.02.081>, 2012

Soumen Dhara and P. K. Giri
'ZnO/anthracene based inorganic/organic nanowires heterostructure: photoluminescence and photoconductivity studies', *Journal of Applied Physics*, vol. 111, pp 044320, 2012

P. K. Giri, S. Bhattacharya, B. Chetia, Satchi Kumari, D. K. Singh and P. K. Iyer
'High yield chemical synthesis of hexagonal ZnO nanoparticles and nanorods with excellent optical properties', *Journal of Nanoscience and Nanotechnology*, vol. 12, pp 201, 2012

P. K. Giri and Soumen Dhara
'Freestanding Ge/GeO₂ core-shell nanocrystals with varying sizes and shell thickness: microstructure and photoluminescence studies', *Journal of NanoMaterials*, vol. 2012, pp 905178, 2012

Soumen Dhara and P. K. Giri
'On the origin of enhanced photoconduction and photoluminescence from metal nanoparticle decorated ZnO nanowire heterostructures', *Journal of Applied Physics*, vol. 110, pp 124317, 2011

Batakrushna Santara, Bappaditya Pal and P. K. Giri
'Signature of strong ferromagnetism and optical properties of Co doped TiO₂ nanoparticles', *Journal of Applied Physics*, vol. 110, pp 114322, 2011

Dilip Singh, P. K. Giri, and Parameswar K. Iyer
'Evidence for defect-enhanced photoluminescence

quenching of fluorescein by carbon nanotubes', *Journal of Physical Chemistry C*, vol. 115, pp 24067, 2011

Soumen Dhara and P. K. Giri
'Quick single-step mechanosynthesis of ZnO nanorods and their optical characterisation: milling time dependence', *Applied Nanoscience*, vol. 1, pp 165-171, 2011

Soumen Dhara and P. K. Giri
'Enhanced UV photosensitivity from rapid thermal annealed vertically aligned ZnO nanowires', *Nanoscale Research Letters*, vol. 6, pp 504, 2011

Soumen Dhara and P. K. Giri
'Effect of ZnO nanopowder source and growth temperature on shape evolution of ZnO nanostructures', *International Journal of Nanoscience*, vol. 10, pp 833, 2011

Soumen Dhara and P. K. Giri
'Size-dependent anisotropic strain and optical properties of strained Si nanocrystals', *Journal of Nanoscience and Nanotechnology*, vol. 11, pp 9215, 2011

Bappaditya Pal and P. K. Giri
'Defect mediated magnetic interaction and high Tc ferromagnetism in Co-doped ZnO nanoparticles', *Journal of Nanoscience and Nanotechnology*, vol. 11, pp 9167, 2011

Soumen Dhara and P. K. Giri
'Size-dependent visible absorption and fast photoluminescence decay dynamics from freestanding strained silicon nanocrystals', *Nanoscale Research Letters*, vol. 6, pp 320, 2011

Soumen Dhara and P. K. Giri
'Rapid thermal annealing induced enhanced band-edge emission from ZnO nanowires, nanorods and nanoribbons', *Functional Materials Letters*, vol. 4, pp 25-29, 2011

Prasanta J. Goutam, Dilip K. Singh, P. K. Giri and Parameswar K. Iyer
'Enhancing the photo stability of poly-(3-hexylthiophene) by preparing composites with multiwalled carbon nanotubes', *Journal of Physical Chemistry B*, vol. 115, pp 919, 2011

Bappaditya Pal and P. K. Giri
'Room temperature ferromagnetism in Co doped ZnO nanoparticles: Milling time dependence and annealing effect', *International Journal of Nanoscience*, vol. 10, pp 307, 2011

Soumen Dhara and P. K. Giri
'Shape evolution in one-dimensional ZnO nanostructure grown from ZnO nanopowder source: vapour-liquid-solid vs. vapour-solid growth mechanisms', *International Journal of Nanoscience*, vol. 10, pp 75, 2011

R. Chakraborty, Soumen Dhara and P. K. Giri
'Effect of Rapid Thermal Annealing on Microstructure and Optical Properties of ZnO Nanorods', *International Journal of Nanoscience*, vol. 10, pp 65, 2011

Dilip K. Singh, P. K. Iyer and P. K. Giri
'Defect evolution and structural improvement in low energy ion irradiated carbon nanotubes: Microscopic and spectroscopic studies', *International Journal of Nanoscience*, vol. 10, pp 49, 2011

Dilip K. Singh, P. K. Iyer and P. K. Giri
'Improved chemical synthesis of graphene using a safer solvothermal route', *International Journal of Nanoscience*, vol. 10, pp 39, 2011

Soumen Dhara and P. K. Giri
'Effect of growth temperature on the catalyst free growth of long Silicon nanowires using radio frequency magnetron sputtering', *International Journal of Nanoscience*, vol. 10, pp 13, 2011

B. Bhuyan et. al. (LBNE Collaboration)
'The 2010 Interim Report of the Long-Baseline Neutrino Experiment Collaboration Physics Working Groups', e-Print: arXiv: hep-ex: 1110.6249

B. Bhuyan (BaBar Collaboration)
'Search for CP Violation in the Decay $\tau^+ \rightarrow \pi^+ K^0_S (>= 0 \pi^0) \nu_\tau$ ', *Phys.Rev. D85:031102*, 2012

B. Bhuyan (BaBar Collaboration)
'Study of $\Upsilon(3S,2S) \rightarrow \eta \Upsilon(1S)$ and $\Upsilon(3S,2S) \rightarrow \pi^+ \pi^- \Upsilon(1S)$ hadronic transitions', *Phys.Rev. D84:092003*, 2011

B. Bhuyan (BaBar Collaboration)
'Search for hadronic decays of a light Higgs boson in the radiative decay $\Upsilon \rightarrow \gamma A^0$ ', *Phys.Rev. Lett.107:221803*, 2011

B. Bhuyan (Belle Collaboration)
'Observation of $B_s^0 \rightarrow J/\psi f_0(980)$ and Evidence for $B_s^0 \rightarrow J/\psi f_0(1370)$ ', *Phys.Rev.Lett. 106:121802*, 2011

B. Bhuyan (Belle Collaboration)
'Measurement of the decay $B^0 \rightarrow \pi^+ \ell^+ \nu$ and

- determination of V_{ub} , *Phys.Rev.*D83:071101, 2011
- O. Granas, B. Dutta, S. Ghosh and B. Sanyal
'A new first principles approach to calculate phonon spectra of disordered alloys', *Journal of Physics Condensed Matter*, vol. 24, pp 015402-015406
- S. Paul and S. Ghosh
'First-principles investigations of the electronic structure and properties related to the shape memory behavior in alloys', *Journal of Applied Physics*, vol. 110, pp 063523-063530, 2011
- S. Paul and S. Ghosh
'First-principles prediction of shape memory behavior in', *Journal of Physics Condensed Matter*, vol. 23, pp. 206003-206008, 2011
- R. Aneesh and Sunil K. Khijwania
'Zinc Oxide Nanoparticle based Optical Fiber Humidity Sensor having Linear Response throughout a Large Dynamic Range', *Applied Optics*, vol. 50, pp 5310, 2011
- R. Aneesh, M. Maharana, P. Munendhar, H. Y Tam, and Sunil K. Khijwania
'Simple Temperature Insensitive Fiber Bragg Gratings Based Tilt Sensor with Enhanced Tunability', *Applied Optics*, vol. 50, pp E172-E176, 2011
- H. Y. Au, Sunil K. Khijwania, H. Y. Fu, W. H. Chung and H. Y. Tam
'Temperature Insensitive Fiber Bragg Grating based Tilt Sensor with Large Dynamic Range', *IEEE Journal of Lightwave Technology*, vol. 29, pp 1714, 2011
- T. Santhosh Kumar, Ajeet Kumar, A. R. James and D. Pamu
'Enhanced microwave dielectric properties of MgTiO₃ ceramics prepared by mechanochemical method', *Journal of Australian Ceramic Society*, vol. 47 [2], pp 44-48, 2011
- D. Pamu, G. Lakshmi Narayana Rao and K. C. James Raju
'Low temperature processing of (Zr_{0.8}Sn_{0.2})TiO₄ ceramics with improved Q factor', *Journal of Alloys and Compounds*, vol. 509, pp 9289-9295, 2011
- D. Pamu, G. Lakshmi Narayana Rao and K. C. James Raju
'Enhanced microwave dielectric properties of (Zr_{0.8}Sn_{0.2})TiO₄ ceramics with the addition of its own nanoparticles', *Journal of American Ceramic Society*, vol. 95 (1), pp 126-132, 2012
- Debabrata Mishra, P. Saravanan, A. Perumal and A. Srinivasan
'Enhanced soft magnetic properties in magnetic field annealed amorphous Fe(Co)-Zr-B alloys', *Journal of Applied Physics*, vol. 109, pp 07A306, 2011
- R. Das, S. Sarma, A. Perumal and A. Srinivasan
'Effect of Co and Cu substitution on the magnetic entropy change in Ni₄₆Mn₄₃Sn₁₁ alloy', *Journal of Applied Physics*, vol. 109, pp 07A901, 2011
- R. K. Singh and A. Srinivasan
'In vitro evaluation of the bioactivity of MgO-CaO-SiO₂-P₂O₅-CaF₂-Fe₂O₃ glasses', *Physics and Chemistry of Glasses - European Journal of Glass Science and Technology Part B*, vol. 52, pp 47, 2011
- Debabrata Mishra, A. Perumal and A. Srinivasan
'Role of microstructure and domain structure on the soft magnetic properties of annealed Fe_{89-x}Zr₁₁B_x alloys', *International Journal of Nanoscience*, vol. 10, pp 301, 2011
- Y. K. Takahashi, A. Srinivasan, B. Varaprasad, A. Rajanikanth, N. Hase, T. M. Nakatani, S. Kasai, T. Furubayashi and K. Hono
'Large magnetoresistance in current-perpendicular-to-plane pseudo spin valve using a Co₂Fe(Ge_{0.5}Ga_{0.5})Heusler alloy', *Applied Physics Letters*, vol. 98, pp 152501, 2011
- J. Sahariya, S. Tiwari, H. S. Mund, S. Sarma, A. Srinivasan, M. Itou, Y. Sakurai and B. L. Ahuja
'Magnetic Compton scattering study of Ga rich Co-Ni-Ga ferromagnetic shape memory alloys', *Journal of Physics: Condensed Matter*, vol. 23, pp 386002, 2011
- Rahul Das, A. Perumal and A. Srinivasan
'Evaluation of Ni-Mn-In-Si alloys for magnetic refrigerant application', *IEEE Transactions in Magnetism*, vol. 47, pp 2463, 2011
- Debabrata Mishra, A. Perumal and A. Srinivasan
'Temperature dependent coercivity and relaxation phenomena in amorphous Fe-(Mn)-Zr-B nanoparticles', *International Journal of Nanoscience*, vol. 10, pp 605, 2011
- Sanjib Banerjee, P.S. Robi, and A. Srinivasan
'Prediction of hot deformation behavior of Al-5.9%Cu-0.5%Mg alloys with trace additions of Sn', *Journal of Materials Science*, vol. 47, pp 929, 2012
- A. Srinivasan, A. Rajanikanth, Y. K. Takahashi and K. Hono
'Magnetic properties and spin polarization of Co₂Mn(SixSn_{1-x}) alloys containing two L₂₁ phases', *Journal of Alloys and Compounds*, vol. 514, pp 195, 2012
- P. S. Robi, Sanjib Banerjee, and A. Srinivasan

- 'Deformation mechanism maps for Al-Cu-Mg alloys micro-alloyed with tin', *Advanced Materials Research*, vol. 410, pp 283, 2012
- K. Sharma, A. Dixit, Sher Singh Meena, S. M. Yusuf, A. Srinivasan, and G. P. Kothiyal
'Structural and magnetic properties of glass-ceramics containing silver and iron oxide', *Materials Chemistry and Physics*, vol. 133, pp 144, 2012
- A. T. T. Mostako, Alika Khare, C. V. S. Rao, Prakash M. Raole, Sudhirsinh Vala, Shrichand Jakhar, T. K. Basu, Mitul Abhangi and Rajinikant J. Makwana
'Effect of Hydrogen ion beam irradiation onto the FIR reflectivity of pulsed laser deposited mirror like Tungsten films', *Journal of Nuclear Materials*, vol. 423, pp 53-60, 2012
- A. Nath, A. Das, L. Rangan and Alika Khare
'Bacterial Inhibition by Cu/Cu₂O Nanocomposites Prepared via Laser Ablation in Liquids', *Science of Advanced Material*, vol. 4, pp 1-4, 2012
- A. Nath and Alika Khare
'Laser Induced High Pressure and High Temperature conditions at titanium-water interface and its implication on TiO₂ nanoparticles', *Journal of the Optical Society of America B*, vol. 29 (3), pp 351-356, 2012
- Gaurav Shukla and Alika Khare
'Effect of pre-heating on hydrothermal growth and optical properties of ZnO nanorods', *International Journal of Nano Science*, vol. 10 (4-5), pp 845-849, 2012
- A. Nath and Alika Khare
'Size induced structural modifications in copper oxide nanoparticles synthesised via laser ablation in liquids', *Journal of Applied Physics*, vol. 110, pp 043111, 2011
- S. Kumari and Alika Khare
'Epitaxial Ruby Thin Film Based Photonic Sensor for Temperature measurement', *Review of Scientific Instruments*, vol. 82, pp 066106, 2011
- Rupam Sarma, Himangshu Deka, Satchi Kumari, Alika Khare and Jubraj B. Baruah
'Different geometrical arrangements in carboxylate coordination polymers of flexible dicarboxylic acid', *Journal of Solid State Chemistry*, vol. 184 (7), pp 1727-1734, 2011
- A. Nath and Alika Khare
'Effect of Focusing Conditions on Laser Induced Shockwaves at Titanium-Water Interface', *Applied Optics*, vol. 50 (19), pp 3275-3281, 2011
- S. Kumari and Alika Khare
'Effect of Pump Intensity on Slowing Down of Light in Ce:BaTiO₃ Crystal via Degenerate Two-Wave Mixing Using Chopped Pulses', *IEEE Journal of Quantum Electronics*, vol. 47 (7), pp 972-976, 2011
- S. Roy and Padmanabhan Padma Kumar
'Framework Flexibility of Sodium Zirconium Phosphate: Role of Disorder and Polyhedral Distortions from Monte Carlo Investigation', *Journal of Materials Science*, vol. 47, pp 4946-4954, 2012
- S. Khalil and A. Sil
'Right-handed Sneutrino Inflation in SUSY B-L with Inverse Seesaw', *Physical Review D*, vol. 84, pp 103511, 2011
- T. N. Dey and J. Evers
'Non-diffracting Optical Beams in a Three-level Raman System', *Physical Review A*, vol. 84, pp 043842, pp 2011
- K. Sen, K. Pashirajan and S. B. Santra
'Modelling the biomass growth and enzyme secretion by white rod fungus *Phenerochaete Chrysosporium* in presence of toxic pollutant', *Journal of Environmental Protection*, vol. 3, pp 114, 2012
- J. A. Ahmed and S. B. Santra
'Flooding transition in the topography of toppling surfaces of stochastic and rotational sandpile models', *Physical Review E*, vol. 85, pp 031111, 2012
- B. Samantaray, S. K. Srivastava and S. Ravi
'Particle Size Effect on the suppression of charge ordering in Nd_{0.8}Na_{0.2}MnO₃', *Journal of Applied Physics*, vol. 111, pp 013919, 2012
- B. Samantaray, S. Ravi, A. Das and S. K. Srivastava
'Magnetic Structure and Magnetic Properties of Nd_{1-x}NaxMnO₃ Compounds', *Journal of Applied Physics*, vol. 110, pp 093906, 2011
- B. Samantaray, S. K. Srivastava and S. Ravi
'Magnetic dynamics of charge ordered Nd_{0.8}Na_{0.2}MnO₃ Compound', *Journal of Magnetism and Magnetic Materials*, vol. 323, pp 2622, 2011
- B. Samantaray, S. K. Srivastava, S. Ravi, I. Dhiman and A. Das
'Neutron powder diffraction study in La_{0.85}Ag_{0.15}MnO₃', *Journal of Superconductivity and Novel Magnetism*, vol. 24, pp 1933, 2011
- B. Samantaray and S. Ravi

'Ferromagnetic and charge ordered phases in (Nd,Na)-Mn-O compounds', *Journal of Superconductivity and Novel Magnetism*, vol. 24, pp 809, 2011

Sunita Mohanty, S. Ravi, H. S. Jena and V. Manivannan 'Structural and Magnetic Properties of Nanocrystalline $\text{Sn}_{0.98}\text{Co}_{0.02}\text{O}_2$ under different Annealing conditions', *International Journal of Nanoscience*, vol. 10, pp 313-317, 2011

Sunita Mohanty and S. Ravi 'Ferromagnetism in mechanically milled $\text{Sn}_{1-x}\text{Co}_x\text{O}_2$ ($x=0$ to 0.10) compounds', *Journal of Superconductivity and Novel Magnetism*, DOI 10.1007/s10948-011-1341-z

Tribedi Bora, B. Samantaray, S. Mohanty and S. Ravi 'Ferromagnetism and Bound Magnetic Polaron Behavior in $(\text{In}_{1-x}\text{Co}_x)_2\text{O}_3$ ', *IEEE Transactions on Magnetics*, vol. 47, pp 399, 2011

A. C. Mishra, T. Sahoo, V. Srinivas, A. K. Thakur, B. Samantaray, S. Ravi 'Large enhancement of giant magnetoimpedance property in electrodeposited NiFe/Cu wire with copper additive in plating bath', *Solid State Communications*, vol. 151, pp 1787-1790, 2011

B. Ananthanarayan, Monalisa Patra and P. Poulouse 'Signals of additional Z boson in $e+e \rightarrow W+W-$ at the ILC with polarized beams', *Journal of High Energy Physics (JHEP)*, vol. 1102, pp 043-063, 2011

B. Ananthanarayan, Monalisa Patra and P. Poulouse 'Probing strongly interacting W's at the ILC with polarised beams', *Journal of High Energy Physics (JHEP)*, vol. 1203, pp 060-084, 2012

K. Senapati, D. Mishra, A. Perumal, K. C. Sarma, and P. Phukan 'Microstructural changes upon annealing and its effect on magnetic and mechanical properties of nanosized cobalt', *International Journal of Nanoscience*, vol. 11 (1), pp 125005 (1-12), 2012

P. Saravanan, G. Venkata Ramana, K. Srinivasa Rao, B. Sreedhar and A. Perumal 'Thin magnetic films of Sm-Co nanocrystallites exploiting spin coating deposition', *Thin Solid Films*, vol. 519, pp 6290, 2011

Debabrata Mishra, Akhilesh K. Singh, P. C. Shyni, Deepika Sharma, and A. Perumal 'Enhanced soft magnetic properties in multilayer structured amorphous Fe-Ta-C films', *Journal of Applied*

Physics, vol. 109, pp 07A304, 2011

B. Samantaray, S. Ravi, A. Perumal, I. Dhiman, and A. Das 'Neutron powder diffraction studies and magnetic properties in $\text{Nd}_{1-x}\text{K}_x\text{MnO}_3$ ($x=0.15$ and 0.20) compounds', *Journal of Applied Physics*, vol. 109, pp 07E150, 2011

B. Choudhury, A. Choudhury, A. K. M. Maidul Islam, A. Perumal, and M. Mukherjee 'Effect of oxygen vacancy and dopant concentration on the magnetic properties of high spin Co^{2+} doped TiO_2 nanoparticles', *Journal of Magnetism and Magnetic Materials*, vol. 323, pp 440, 2011

P. Saravanan, B. Sreedhar, D. Mishra, A. Perumal, and V. Chandrasekaran 'Hierarchical assembly of $\text{Sm}_2\text{Co}_7/\text{Co}$ magnetic nanoparticles into highly stable and uniform nanospheres', *Journal of Nanoscience and Nanotechnology*, vol. 11, pp 3706, 2011

P. Dey, D. Sarkar, A. Khan and Saurabh Basu 'Participation ratio and fidelity analyses as tools to study BCS-BEC crossover', *European Physical Journal B*, vol. 81, pp 95-102, 2011

N. S. Sangeetha, A. Thamizhavel, C. V. Tomy, Saurabh Basu, S. Ramkrishnana and D. Pal 'Magnetic ordering and Crystal field effects in the $\text{R}_2\text{Ir}_3\text{Sn}_5$ system', *Physical Review B*, vol. 84, pp 0644301-0644310, 2011

P. Dey, Saurabh Basu and R. Kishore 'Current and spin correlations in the FFLO state of a s-wave superconductor', *Journal of Physics C*, vol. 273, pp 273-276, 2011

P. Becker, S. Das and Truong Le 'Diffusive particle acceleration in shocked, viscous accretion disks: Green's function energy distribution', *Astrophysical Journal*, vol. 743, pp 47, 2011

M. S. Seehra, V. Singh and S. Thota 'Magnetic frustration and short-range ordering in cubic defect spinel MgMnO_3 ', *Journal of Applied Physics*, vol. 110, pp 113907, 2011

National Journal

V. K. Mishra, Alike Khare and Rakhi Chaturvedi 'Assessment of HE-Ne laser Pre-Treatment of seeds on morphological physiological and biochemical properties of *B. Juncea* seedlings', *Journal of Assam Science Society*, vol. 52 (1), pp 1-4, 2011

Conference/Workshop/Seminar/Symposia**International**

S. Dhara and P. K. Giri

'Enhanced ultraviolet photocurrent response from rapid thermal annealed ZnO nanowires', *Proceedings of the International Conference on Materials for Advanced Technologies* (ICMAT 2011), Suntec, Singapore, 26 Jun – 1 Jul 2011

B. Santra, B. Pal and P. K. Giri

'Strong room temperature ferromagnetism in Co-doped anatase TiO₂ nanoparticles grown by a ball milling method', *Proceedings of the International Conference on Materials for Advanced Technologies* (ICMAT 2011), Suntec, Singapore, 26 Jun – 1 Jul 2011

D. K. Singh and P. K. Giri

'Identification of defect induced intermediate frequency modes in Raman spectra of single walled Carbon nanotubes', *Proceedings of the International Conference on Materials for Advanced Technologies* (ICMAT 2011), Suntec, Singapore, 26 Jun – 1 Jul 2011

S. Dhara and P. K. Giri

'On the origin of enhanced photoconduction and photoluminescence from metal nanoparticle decorated ZnO nanowire heterostructures', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

D. K. Singh, P. K. Iyer and P. K. Giri

'Defect-enhanced photoluminescence quenching by carbon nanotubes', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

B. Santara and P. K. Giri

'Signature of Defect Induced Room Temperature Ferromagnetism in CoDoped AnataseTiO₂ Nanoparticles', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

B. Santara and P. K. Giri

'Effect of Growth Temperature on the Synthesis of TiO₂ Nanowires/Nanorods and Nanotubes by a Hydrothermal Method', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

D. K. Singh, P. K. Iyer and P. K. Giri

'Effect of ion species on the structural modification of low-energy ion-irradiated carbon nanotubes', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

R. K. Biroju, Oliver Jost and P. K. Giri

'Excitation wavelength dependence of Raman spectra in single walled carbon nanotubes with different purities', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

D. Kovalenko, A. Majumder, C. Zeh, J. Opitz, G. Cuniberti and P. K. Giri

'Characterisation of non-covalently modified carbon nanotubes by Raman spectroscopy', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

S. Dhara and P. K. Giri

'ZnO/Anthracene based nanowires Photodetector: Photoresponse and Photoluminescence studies', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology* (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

R. Aneesh and S. K. Khijwania

'Nanoparticle doped Sol-gel Optical Fiber as a Humidity Sensor with Linear Response over a Large Dynamic Range', 7th International Workshop on Fibre Optics and Passive Components (WFOPC 2011), Montreal, Canada, 13-15 Jul 2011

P. Gogoi, H. S. Jha and P. Agarwal

'Effect of Silane flow rate on Silicon films deposited by HWCVD', Abstract Book P 261, 24th International conference on Amorphous and Nanocrystalline Semiconductors (ICANS 24), Nara, Japan, 21-26 Aug 2011

H. S. Jha, B. Awasthi, D. Deva and P. Agarwal

'Amorphous silicon films on Teflon substrates by PECVD and HWCVD', Abstract Book P 104, 24th International conference on Amorphous and Nanocrystalline Semiconductors (ICANS 24), Nara, Japan, 21-26 Aug 2011

J. A. Pradeep and P. Agarwal

'Refractive Index Calculation for Composites and Its Application in Fabricating Porous Silicon based Photonic Structures', Abstract Book P 249, 24th International conference on Amorphous and Nanocrystalline Semiconductors (ICANS 24), Nara, Japan, 21-26 Aug 2011

P. Agarwal

'Advances in Thin Film Solar Cells: Challenges and Opportunities', International Congress on Renewable Energy, ICORE 2011, Tezpur University, 2-4 Nov 2011

M. Singh, H. S. Jha, Lalhriatzuala, A. Yadav and P. Agarwal
'Fabrication of two dimensional carbon nanostructure using hot wire chemical vapor deposition technique', Abstract Book P22, International Workshop on Physics of Semiconductor Devices (IWPSD 2011), IIT Kanpur, 19-22 Dec 2011

H. S. Jha, M. Singh, A. Yadav and P. Agarwal
'Nanocrystalline Cubic Silicon Carbide Thin Films for the Window Layer of Solar Cell Deposited by Hot Wire CVD', Abstract Book P61, International Workshop on Physics of Semiconductor Devices (IWPSD 2011), IIT Kanpur, 19-22 Dec 2011

J. A. Pradeep and P. Agarwal
'Fano Effect in Raman Scattering in Porous Silicon', Abstract Book P96, International Workshop on Physics of Semiconductor Devices (IWPSD 2011), IIT Kanpur, 19-22 Dec 2011

P. Agarwal and J. A. Pradeep
'Photoluminescence and Photoluminescence excitation Spectroscopy studies on porous Silicon', Abstract Book P20, Conference on Photochemistry and Luminescence CPL-2012, 9-10 Mar 2012

Lalhriatzuala and P. Agarwal
'Structural and Optical studies of ZnSe Nanoparticles prepared using Solvothermal Process', Abstract Book P63, Conference on Photochemistry and Luminescence CPL-2012, 9-10 Mar 2012

A. K. Sarma and P. Kumar
'Modulation Instability of Few-cycle Pulses in Quadratic Nonlinear Media', 3rd International conference on Current developments in atomic, molecular, optical and nano physics, New Delhi, 14-16 Dec 2011

P. Kumar and A. K. Sarma
'Time dependent optical force on two level atoms by few cycle pulsed Gaussian laser field beyond the rotating wave approximation', 3rd International conference on Current developments in atomic, molecular, optical and nano physics, New Delhi, 14-16 Dec 2011

P. Kumar and A. K. Sarma
'Extreme Nonlinear Optics: Effect of Carrier Envelope Offset Phase on the Dynamics of Two Level Atomic Systems', AIP Conference Proceedings, Volume 1391, pp. 677-679 Optics: phenomena, materials, devices and

characterisation: Optics 2011: International Conference on Light

T. S. Kumar, A. R. James and D. Pamu
'Dielectric and Raman studies on MgTiO₃ ceramics prepared by mechanochemical processing method', AIP Conference Proceedings, Volume 1372, pp. 107-111 (2011)

T. S. Kumar, Y. Sarath Kanth and D. Pamu
'Temperature dependent dielectric Properties of Ba(Zn_{1/3}Ta_{2/3})O₃ ceramics', AIP Conference Proceedings, Volume 1372, pp. 20-23 (2011)

T. S. Kumar, A. Kumar, A. R. James and D. Pamu
'Enhanced microwave dielectric properties of MgTiO₃ ceramics prepared by mechanochemical method', *Proceedings Pac Rim 9th International Meeting of Pacific Rim Ceramics Societies*, Cairns, Australia, 10-14th Jul 2011

D. Pamu, K. Sudheendran, M. G. Krishna and K. C. James Raju
'Microwave dielectric loss and strain correlation in ambient temperature grown nanocrystalline ZrTiO₄ thin films', *Proceedings Pac Rim 9th International Meeting of Pacific Rim Ceramics Societies*, Cairns, Australia, 10-14th Jul 2011

T. S. Kumar, R. K. Bhuyan, S. Ravi and D. Pamu
'Structural and dielectric studies of MgTiO₃ thin films deposited by RF magnetron sputtering', *Proceedings of Taiwan Association for Coating and Thin Film Technology* (TACT 2011), Kenting, Taiwan, 20-23 Nov 2011

R. K. Bhuyan, T. S. Kumar, A. Perumal, S. Ravi and D. Pamu
'Optical properties of ambient temperature grown nanocrystalline Mg₂TiO₄ thin films', *Proceedings of Taiwan Association for Coating and Thin Film Technology* (TACT 2011), Kenting, Taiwan, 20-23 Nov 2011

T. Bora, R. K. Bhuyan, A. Nandy, D. Pamu and S. Ravi
'Electrical resistivity and magnetic properties of Nd_{0.85}K_{0.15}MnO₃ thin films', *Proceedings of Taiwan Association for Coating and Thin Film Technology* (TACT 2011), Kenting, Taiwan, 20-23 Nov 2011

T. S. Kumar, R. K. Bhuyan, S. Thota, A. R. James and D. Pamu
'Effect of annealing on the structural and optical properties of nanocrystalline MgTiO₃ thin films', *Proceedings of International conference on Nano Science and Technology* (ICONSAT), Hyderabad, 20-23 Jan 2012

T. Bora, A. Nandy, R. K. Bhuyan, D. Pamu and S. Ravi
'Magnetic, electrical and optical properties of Nd_{0.85}K_{0.15}

MnO₃ thin films', *Proceedings of International conference on Nano Science and Technology (ICONSAT)*, Hyderabad, 20-23 Jan 2012

S. Thota, K. Singh, D. Pamu, C. Simon and W. Prellier 'Dielectric response of the complex spin ordering processes in Mn₃O₄', *Proceedings of International conference on Nano Science and Technology (ICONSAT)*, Hyderabad, 20-23 Jan 2012

T. Bora, A. Nandy, B. Samantaray, R. K. Bhuyan, D. Pamu and S. Ravi 'Preparation and characterization of Nd_{0.8}K_{0.15}MnO₃ thin films' *Proceedings of 56th DAE Solid State Physics Symposium*, SRM University, Tamil Nadu, 19-23 Dec 2011

A. Nandy, T. Bora, B. Samantaray, R. K. Bhuyan, D. Pamu and S. Ravi 'Preparation and characterization of charge ordered Nd_{0.8}Na_{0.2}MnO₃ thin films', *Proceedings of 56th DAE Solid State Physics Symposium*, SRM University, Tamil Nadu, 19-23 Dec 2011

T. Bora, A. Nandy, R. K. Bhuyan, D. Pamu and S. Ravi 'Magnetic, Electrical and optical properties of Nd_{0.85}K_{0.15}MnO₃ thin films', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011)*, IIT Guwahati, 8-10 Dec 2011

R. K. Bhuyan, T. S. Kumar, A. Perumal, P. Saravanan and D. Pamu 'Effect of annealing on structural and optical Properties of Mg₂TiO₄ nanocrystalline thin films, prepared by RF magnetron sputtering', *Proceedings of the 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011)*, IIT Guwahati, 8-10 Dec 2011

Y.K. Takahashi, A. Srinivasan, B. Varaprasad, A. Rajanikanth, N. Hase, T. M. Nakatani, S. Kasai, T. Furubayashi and K. Hono 'High magnetoresistance in CPP-GMR device with Co₂FeGe_{0.5}Ga_{0.5} Heusler alloy', *INTERMAG 2011*, Taipei, 25-29 Apr 2011

R. Das, A. Perumal and A. Srinivasan 'Magnetic properties and magnetocaloric effect in Ni₅₅Mn_{21-x}Ga_{24+x} alloys', *Condensed Matter Days 2011*, Gauhati University, Guwahati, 24-26 Aug 2011

B. Deka, R. Das and A. Srinivasan 'Magnetic properties of Ru₂MnSi(Ge) alloys', *Condensed Matter Days 2011*, Gauhati University, Guwahati, 24-26

Aug 2011

V. Sankar, O. Mryasov, A. Srinivasan, S. Faleev, Y. Takahashi and K. Hono

'Band structure calculations of Co₂FeGa_{1-x}Ge_x Heusler alloys', *56th Magnetism and Magnetic Material Conference*, Scottsdale, Arizona, USA, 30 Oct –3 Nov 2011

R. Das, A. Perumal and A. Srinivasan

'Magnetic refrigerant properties of Ni₅₀Mn_{37-x}Fe_xSn₁₃ alloy at low magnetic fields', *56th DAE Solid State Physics Symposium*, SRM University, Tamil Nadu, 19-23 Dec 2011

S. Kumari, A. Khushwaha and A. Khare

'Spatial distribution of electron temperature and electron density in Laser induced Ruby plasma using Langmuir probe', *15th International Symposium on LASER-AIDED PLASMA DIAGNOSTICS*, Jeju, Korea, 9 – 13 Oct 2011

A. Nath and A. Khare

'Effect of plasma pressure on TiO₂ nanoparticles synthesized via laser ablation at titanium-water interface', *24th International conference on Amorphous and Microcrystalline Semiconductors (ICANS24)*, Nara, Japan, 21-26 Aug 2011

I. Kumar, A. Nath and A. Khare

'Formation of diamond nanocrystals via pulsed laser ablation of Graphite in liquid', *24th International conference on Amorphous and Microcrystalline Semiconductors (ICANS24)*, Nara, Japan, 21-26 Aug 2011

A. T. T. Mostako, P. Dey, H. S. Jha, M. Singh, P. Agarwal and A. Khare

'Effect of background oxygen pressure and Substrate temperature on the quality of MoO₃ thin films via PLD', *24th International conference on Amorphous and Microcrystalline Semiconductors (ICANS24)*, Nara, Japan, 21-26 Aug 2011

S. Roy and P. Padma Kumar

'Monte Carlo Investigation of Structural Changes in NZP Skeleton on Alkali Ion Substitution', *AIP Conference Proceedings 1349*, pp. 113-114 (2011)

J. A. Ahmed and S. B. Santra

'Analysis of toppling surfaces of stochastic sandpile models', *AIP Conference Proceedings 1349*, 192 (2011)

H. Bhaumik, J. A. Ahmed and S. B. Santra

'Crossover from rotational to stochastic sandpile', *AIP Conference Proceedings 1349*, 198 (2011)

S. B. Santra and J. A. Ahmed

'Percolation transition in the toppling surfaces of sandpile models', *Proceedings of International Conference of Theoretical and Applied Physics*, IIT Kharagpur, 1-2 Dec 2011

H. Bhoumik and S. B. Santra

'Dissipative sandpile on growing random graphs', *Proceedings of 56th DAE Solid State Physics Symposium*, SRM University, Tamil Nadu, 19-23 Dec 2011

S. Ravi

'Magnetic properties of Bulk and Nanoparticles of K and Na doped Nd-Mn-O manganites', Invited talk delivered at International conference on Recent Trends in Advanced Materials (ICRAM-2012), VIT University, Vellore, 20-22 Feb 2012

S. Mohanty and S. Ravi

'Ferromagnetism in mechanically milled $\text{Sn}_{1-x}\text{Co}_x\text{O}_2$ ($x=0$ to 0.10) compounds', IEEE International Magnetism Conference, Taipei, Taiwan, 25-29 Apr 2011

S. Mohanty, M. Kar and S. Ravi

'Magnetic Properties of Nanocrystalline SnO_2 prepared by mechanical synthesis', 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

B. Bhoi, V. Singh, A. Perumal and V. Srinivas

'Influence of synthesis processes on microstructure and magnetic properties in $\text{Fe}_{70}\text{Co}_{30}$ alloy nanoparticles', AIP Conference Proceedings 1347 (2011), pp 115-118

R. Das, S. Sarma, A. Perumal and A. Srinivasan

'Enhanced magnetocaloric effect in cobalt substituted Ni-Mn-Ga Alloys', AIP Conference Proceedings 1347 (2011), pp 107-110

R. Das, A. Perumal and A. Srinivasan

'Room temperature magneto-caloric effect in Fe substituted Ni-Mn-Sn alloy', TMS Annual Meeting 1 (2011) 325

S. Basu and A. Barman

'Band structure effects on bosonic atoms in an optical lattice', in *Strongly Correlated Electron System (SCES 2011)*, University of Cambridge, Cambridge, UK, 29 Aug-3 Sep 2011

A. Das and B. R. Boruah

'Scanning optical microscope with enhanced signal to noise ratio performance', XXXVI OSI Symposium on Frontiers in Optics and Photonics, IIT Delhi, New Delhi, 3-5 Dec 2011

A. Das and B. R. Boruah

'Binary hologram based beam scanning with equal step size', XXXVI OSI Symposium on Frontiers in Optics and Photonics, IIT Delhi, New Delhi, 3-5 Dec 2011

P. Ghosh, A. K. Sharma and A. Khare

'Two-Photon Absorption Induced Photoluminescence in Diamond-like Zinc Oxide Nanostructures', 1st International OSA Network of Students Conference (IONS-1), IIT Delhi, 1-2 Dec 2011

P. Ghosh and A. K. Sharma

'Growth of Diamond-like ZnO Nanostructures by Pulsed Laser Ablation', 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

M. S. Seehra, J. D. Rall, S. Thota and J. Kumar

'Synthesis, structure, and magnetic analysis of the cubic defect spinel ZnMnO_3 ', 56 International conference on Magnetism and Magnetic Materials (MMM), Scottsdale, Arizona, USA, 30 Oct – 3 Nov 2011

S. Thota, A. Kumar, T. Shiyani and J. Kumar

'Influence of binary mixed phase manganese oxides (MnO_{1-n}) on the magnetic properties of Mn_2O_3 nanocrystallites', 2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011), IIT Guwahati, 8-10 Dec 2011

S. Thota and J. Kumar

'Optical and magnetic studies of $\text{Zn}_{1-2y}\text{Ni}_y\text{Co}_y\text{O}$ ($y < 0.05$) degenerate semi-magnetic semiconductors', 56th DAE-Solid State Physics Symposium, SRM University, India, December, 19-23, 2011

A. Das and B. R. Boruah

'Point Scanning Microscope with Adaptive Illumination Beam Intensity', AIP Conference Proceedings, Volume 1391, pp. 324-326, 2011

B. R. Boruah and A. Das

'Wavefront sensing with a flexible detector geometry using an array of binary holograms', *Digital Holography and Three-Dimensional Imaging*, OSA Technical Digest, Optical Society of America, 2011

National

J. A. Pradeep and P. Agarwal

'Optical Properties of Porous silicon', Abstract book Page No.7, Condensed Matter Days 2011, Gauhati University, Guwahati, 24-26 Aug 2011

H. S. Jha, M. Singh, Lalhriatuzuala, A. Yadav and P. Agarwal

'Structural Studies on Nanocrystalline Cubic Silicon Carbide Films deposited by Hot Wire CVD', Abstract book Page No. 84, Condensed Matter Days 2011, Gauhati University, Guwahati, 24-26 Aug 2011

Lalhraitzuala, H. S. Jha, M. Singh, A. Yadav, A. K. Maurya and P. Agarwal

'Structural and Transport Studies of ZnS films prepared by Doctor Blade's Technique', Abstract book Page No.93, Condensed Matter Days 2011, Gauhati University, Guwahati, 24-26 Aug 2011

R. Das, S. Show, A. Perumal and A. Srinivasan

'Comparison of magnetocaloric effect in bulk and ball milled Ni₅₀Mn₃₆Fe₁Sn₁₃ alloy', National Conference on Magnetic Materials and Applications (MagMA 2012), IIT Madras, Chennai, 12-13 Mar 2012

A. Srinivasan

'Magneto-caloric effect in Heusler alloys', National Seminar on Materials Science and Astrophysics, Manipur University, 29 Mar 2012

S. Kumari and A. Khare

'Effect of Laser Fluence on Pulsed Laser Deposited Thin Films of Ruby', 29th National Symposium on Plasma Science and Technology (Plasma 2011), BITS Patna, 20-23 Dec 2011

S. Kumari, A. Khushwaha and A. Khare

'Studies On Laser Induced Ruby (Al₂O₃:Cr³⁺) Plasma Using Langmuir Probe', 29th National Symposium on Plasma Science and Technology (Plasma 2011), BITS Patna, 20-23 Dec 2011

A. T. T. Mostako and A. Khare

'Spectroscopic studies of laser induced Tungsten plasma', 29th National Symposium on Plasma Science and Technology (Plasma 2011), BITS Patna, 20-23 Dec 2011

A. T. T. Mostako and A. Khare

'Architecture of Rh/W/Cu multilayered First Mirror via PLD', 29th National Symposium on Plasma Science and Technology (Plasma 2011), BITS Patna, 20-23 Dec 2011

I. Kumar, A. Kushwaha and A. Khare

'Emission Spectroscopy of Laser Induced Plasma from Graphite Target in Vacuum', 29th National Symposium on Plasma Science and Technology (Plasma 2011), BITS Patna, 20-23 Dec 2011

S. Kumari and A. Khare

'Temperature Dependent Raman Studies of Barium Titanate Thin Film Deposited via Pulsed Laser Deposition',

DAE-BRNS 6th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD-2011), MRC, IISC, Bengaluru, 9-11 Nov 2011

S. Kumari and A. Khare

'Effect of Background Oxygen Pressure on Pulsed Laser Deposited Thin Films of Ruby', DAE-BRNS 6th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD-2011), MRC, IISC, Bengaluru, 9-11 Nov 2011

A. Khushwaha, S. Kumari and A. Khare

'Effect of Excitation intensity on Two photon induced UV Photoluminescence in ZnO thin films using He:Ne laser', DAE-BRNS 6th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD-2011), MRC, IISC, Bengaluru, 9-11 Nov 2011

A. T. T. Mostako and A. Khare

'Pulsed Laser Deposition of Molybdenum thin films', DAE-BRNS 6th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD-2011), MRC, IISC, Bengaluru, 9-11 Nov 2011

A. T. T. Mostako and A. Khare

'Rh/W/Cu multilayer thin films via PLD', DAE-BRNS 6th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD-2011), MRC, IISC, Bengaluru, 9-11 Nov 2011

I. Kumar, A. Khushwaha and A. Khare

'Temporal studies of C₂ species in nanosecond laser-induced graphite plasma', DAE-BRNS 6th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD-2011), MRC, IISC, Bengaluru, 9-11 Nov 2011

A. T. T. Mostako, A. Khare and C. V. S. Rao

'Effect of Helium gas pressure during deposition on the Specular reflectivity of Rhodium thin films via PLD', National Conference on Condensed Matter Days 2011, Gauhati University, Guwahati, 24-26 Aug 2011

S. Kumari and A. Khare

'Tetragonal Barium Titanate Thin Film via Pulsed Laser Deposition Technique', National Conference on Condensed Matter Days 2011, Gauhati University, Guwahati, 24-26 Aug 2011

A. Khushwaha, I. Kumar and A. Khare

'Preparation of Polytetrafluoroethylene (PTFE) Thin films via PLD Technique', National Conference on Condensed Matter Days 2011, Gauhati University, 24-26 Aug 2011

J. A. Ahmed and S. B. Santra

'Flooding transition in toppling surfaces of stochastic sandpile model', *Proceedings of CMDays-2011*, 24 (2011), Gauhati University, 24-26 Aug 2011,

B. Sethi, D. Mishra, S. B. Santra and A. Srinivasan
'Understanding the complex magnetic behaviour of mechanically alloyed Fe₈₀Zr₂₀', *Proceedings of CMDays-2011*, 64 (2011), Gauhati University, 24-26 Aug 2011

B. Ray, H. Bhoumik and S. B. Santra
'Anti percolation in the etching of a random solid', *Proceedings of CMDays-2011*, 65 (2011), Gauhati University, 24-26 Aug 2011

H. Bhoumik and S. B. Santra
'Dissipative sandpile on growing random network', *Proceedings of CMDays-2011*, 85 (2011), Gauhati University, 24-26 Aug 2011

J. A. Ahmed and S. B. Santra
'Continuous phase transition in toppling surfaces of stochastic and rotational sandpile models', *Proceedings of SERC School and Sixth National Symposium on Rheology of Complex Fluids*, 33 (2012), IIT Guwahati, 3-7 Jan 2012

Book, Chapter, etc.

Soumen Dhara and P. K. Giri
'ZnO Nanorods Arrays and Heterostructures for the High Sensitive UV Photodetection', *Nanorod*, Ed. Orhan Yalçın, March 2012, pp.1-32 (ISBN: 978953510209002)

P. K. Giri, D. K. Goswami, A. Perumal and A. Chattopadhyay

Special Issue of *International Journal of Nanosceince*, vol. 10, No. 1 & 2, (Guest Editors) World Scientific Publishing, Singapore, 2011

Sunil K. Khijwania
Co-edited, *SPIE Proceedings for PHOTONICS 2010*, Vol. 8173, SPIE USA, 2011

Sunil K. Khijwania
Co-edited, feature issue on "Fiber Optics and Photonics" of *Applied Optics* (A Journal of Optical Society of America), Vol. 50, No. 25, 1 September 2011

A. Nath and Alike Khare
'Laser Induced Breakdown in Liquid and solid-Liquid Interface', *Laser Ablation in Liquid: Principles, Methods and Applications in the Preparation and Nanostructures Fabrication*, Chapter 18, pp. 947-1011, Pan Stanford Publishing, 2012 (ISBN: 9789814310956)

S. B. Santra and P. Ray
'Statistical mechanics and critical phenomena: A brief overview', *Computational Statistical Physics*, Ed. S. B. Santra and P. Ray, Hindustan Book Agency, New Delhi, 1-34, 2011

S. B. Santra and P. Ray
'Classical Monte Carlo Simulation', *Computational Statistical Physics*, Ed. S. B. Santra and P. Ray, Hindustan Book Agency, New Delhi, 67-122, 2011

S. B. Santra and P. Ray (Eds.)
Computational Statistical Physics, Hindustan Book Agency, New Delhi, 2011

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
Amarendra Kumar Sarma	3rd International conference on Current developments in atomic, molecular, optical and nano physics	New Delhi	14-16 Dec 2011	International
P K Giri	6th International Conference on Materials for Advanced Technologies (ICMAT-2011)	Singapore	26 Jun - 1 Jul 2011	International
P K Giri	2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011)	Guwahati	8-10 Dec 2011	International
P K Giri	Conference on Photochemistry & Luminescence	Guwahati	9-10 Mar 2012	National
Bipul Bhuyan	Lepton Photon 2011	TIFR, Mumbai	22 - 27 August 2011	International

Bipul Bhuyan	LBNE Collaboration Meeting	Argonne National Laboratory, USA	15 -17 December 2011	International
Saurabh Basu	Strongly Correlated Electron System (SCES 2011)	Cambridge, UK	29 Aug - 3 Sep 2011	International
Pratima Agarwal	24th International conference on Amorphous and Nanocrystalline Semiconductors (ICANS 24)	Nara, Japan	21-26 Aug 2011	International
Pratima Agarwal	International Congress on Renewable Energy (ICORE 2011)	Tezpur University	2-4 Nov 2011	International
Pratima Agarwal	International Workshop on Physics of Semiconductor Devices (IWPSD2011)	IIT Kanpur	19-22 Dec 2011	International
Pratima Agarwal	Conference on Photochemistry and Luminescence (CPL-2012)	IIT Guwahati	9-10 Mar 2012	National
Pratima Agarwal	Workshop on Plasmonics Solar cells	BESU, Shibpur	17 Mar 2012	National
Sunil K. Khijwania	2nd International Conference on Trends in Optics & Photonics	Kolkata	Dec 2011	International
Sunil K. Khijwania	7th International Workshop on Fiber Optics & Passive Components	Montreal, Canada	Jul 2011	International
D Pamu	PacRim 9 - the 9th International Meeting of Pacific Rim Ceramic Societies	Cairns, Australia	10-14 Jul 2011	International
D Pamu	TACT 2011 International Thin Films Conference	Kenting, Taiwan	20-23 Nov 2011	International
D Pamu	The International Conference on Nanoscience and Technology (ICONSAT - 2012)	Hyderabad	20-23 Jan 2012	International
A. Srinivasan	INTERMAG 2011	Taipei	25-29 Apr 2011	International
A. Srinivasan	56th DAE-Solid State Physics Symposium	SRM University, Kattamkullatur	19-23 Dec 2011	National
A. Srinivasan	National Conference on Magnetic Materials & Applications	IIT Madras	12-13 Mar 2012	National
A. Srinivasan	National Seminar on Materials Science and Astrophysics	Manipur University	29 Mar 2012	National
Alika Khare	24th International Conference on Amorphous and Nanocrystalline semiconductors	Nara, Japan	21-26 Aug 2011	International
Alika Khare	DAE-BRNS 6th National Symposium on Pulsed Laser Deposition of Thin Films and Nanostructured Materials (PLD-2011)	IISc Bangalore	9-11 Nov 2011	National
P. K. Padmanabhan	National Conference on Solid State Ionics-9	Jay Pee Institute of Information Technology, Noida	15-17 Dec 2011	National

Arunansu Sil	Workshop on High Energy Physics Phenomenology (WHEPP) 2012	Maha-baleswar, Mumbai	1-7 Jan 2012	National
Arunansu Sil	International Workshop on Grand Unified Theories (GUT 2012)	Kyoto University, Japan	14-17 Mar 2012	International
Dipak Kumar Goswami	First International Conference on Plasma Processing of Organic Materials and Polymers (PPOMP 2011)	Kottayam, Kerala	25-27 Nov 2011	International
Dipak Kumar Goswami	National Seminars on recent trends in Condensed Matter Physics including LASER applications	Burdwan University, West Bengal	6-7 Mar 2012	National
Tarak Nath Dey	International Conference on Theoretical and Applied Physics	IIT Kharagpur	1-2 Dec 2011	International
Tarak Nath Dey	NLS-20	Anna University, Chennai	9-12 Jan 2012	National
S B Santra	Some recent trends in condensed matter Physics: Cross-disciplinary contributions, Dept. of Physics	Susil Kar college, West-Bengal	2 Sep 2011	National
S B Santra	International Conference on Theoretical and Applied Physics	IIT Kharagpur	1-2 Dec 2011	International
S B Santra	Fracture and flow through porous media	The Institute of Mathematical Sciences, Chennai	11-14 Jan 2012	International
S. Ravi	IEEE International Magnetics Conference	Taipei	25-29 Apr 2011	International
S. Ravi	International conference on Recent Trends in Advanced Materials (ICRAM-2012)	VIT University, Vellore	20-22 Feb 2012	International
S. Ravi	56th DAE Solid State Physics Symposium	S R M University, Chennai	19-23 Dec 2011	National
Poulose Poulose	Second Linear Collider Forum Meeting	Max Planck Institute, Munich, Germany	14-15 Jul 2011	International
Poulose Poulose	XXV International Symposium on Lepton Photon Interactions at High Energies	TIFR, Mumbai	22-27 Aug 2011	International
Poulose Poulose	Workshop on High Energy Physics Phenomenology XII	Maha-baleswar, Maharashtra	2-15 Jan 2012	International
A. Perumal	International Conference on Nanomaterials and applications	Kodaikanal	28-29 Feb 2012	International
A. Perumal	National conference on magnetic materials and applications	Chennai	12-13 Mar 2012	National
Santabrata Das	Multiwavelength Astronomy with Astrosat	Trivandrum	9-12 Jan 2012	National

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
Amarendra Kumar Sarma	Attosecond Optics: Catching atomic electrons in action	Jorhat Institute of Science and Technology	Jorhat, Assam	27 Aug 2011
P K Giri	Defect Engineering in Carbon Nanotubes: Nondestructive Evaluation, Manipulation and Applications	Sreenidi institute of Science & Technology (SNIST)	Hyderabad	4-7 Jan 2011
P K Giri	Defect-enhanced Fluorescence Quenching of Fluorescein by Single Walled Carbon Nanotubes	IIT Guwahati	Guwahati	10 Mar 2012
Pratima Agarwal	Advances in Thin Film Solar Cells: Challenges and Opportunities	International Congress on Renewable Energy (ICORE 2011)	Tezpur University	2 Nov 2011
Pratima Agarwal	Photoluminescence and Photoluminescence excitation Spectroscopy studies on porous Silicon	Conference on Photochemistry and Luminescence (CPL-2012)	IIT Guwahati	10 Mar 2012
Sunil K. Khijwania	Optical Fiber Sensors: A Versatile Platform for All-optical Structural Health Monitoring	2nd International Conference on Trends in Optics and Photonics	Kolkata	7 Dec 2011
Sunil K. Khijwania	Progress in Optical Fiber Sensing for Structural Health Monitoring	Dept of Electrical Engineering, IIT Madras	Chennai	6 July 2011
Alika Khare	Laser Induced High Pressure and High Temperature conditions at solid-liquid interface and its implication on the properties of nano particles	I I Sc Bangalore	Bangalore	11 Nov 2011
Alika Khare	Some of the Advanced Application of Laser Spectroscopy	NEIST Jorhat	Jorhat	16 Nov 2011
Arunansu Sil	Recent developments in Particle Physics Phenomenology	University of Calcutta	Kolkata	5 Mar 2012
Dipak Kumar Goswami	Self-assembled Growth Of Organic Nanostructures by Thermal Evaporation Technique	Institute of Macromolecular Science and Engineering (IMSE)	Kottayam, Kerala	26 Nov 2011
Tarak Nath Dey	Non-diffracting Optical Beams in a Three-level Raman System	IIT Kharagpur	Kharagpur	2 Dec 2011
Tarak Nath Dey	Non-diffracting Optical Beams in a Three-level Raman System	Anna University	Chennai	11 Jan 2012
S. B. Santra	Phase transitions and critical phenomena: Equilibrium and non-equilibrium lattice statistical models, invited talk in Some recent trends in condensed matter Physics: Cross-disciplinary contributions	Dept. of Physics, Susil Kar college, West-Bengal	West Bengal	2 Sep 2011
S. B. Santra	Percolation transition in the toppling surfaces of sandpile models, invited talk in International Conference on Theoretical and Applied Physics	IIT Kharagpur	West Bengal	1-2 Dec 2011

S. B. Santra	Invasion of a sticky random solid: self-established potential gradient, phase separation and criticality at dynamical equilibrium, invited talk in Fracture and flow through porous media	The Institute of Mathematical Sciences, Chennai	Chennai	11-14 Jan 2012
S. B. Santra	Introduction to Classical and Quantum Statistics, invited talk in Refresher course in Physics (XI)	UGC-Academic Staff College, Gauhati University	Guwahati	20 Feb - 11 Mar 2012
S. Ravi	Magnetic properties of Bulk and Nanoparticles of K and Na doped Nd-Mn-O manganites	VIT Unveristy, Vellore	Vellore	22 Feb 2012

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS / INVITED LECTURES

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date
Prof. Rahul Sinha	Institute of Mathematical Sciences, Chennai	Prospects of CP violation and New Physics with Beauty	1-5 Sep 2011
Prof. P. Saravanan,	Scientist, Defence Metallurgical Research Laboratory, Hyderabad	SmCo5 based materials for permanent magnet application	5 Sep 2011
Prof. Debasish Majumdar	Saha Institute of Nuclear Physics, Kolkata	Dark Matter in the Universe	23 March 2012
Prof. B. Ananthanarayan	CHEP, IISc., Bangalore	Collaborative work	16-20 November 2011

SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
Bosanta Ranjan Boruah	Introductory Workshop on Optical Microscopy	DBT	16-17 Jun 2011	National
Bosanta Ranjan Boruah and Santabrata Das	QIP short term course on Computational Techniques in Physics	AICTE	1-6 Aug 2011	National
P. K. Giri and D. K. Goswami	2nd International Conference on Advanced Nanomaterials and Nanostructures (ICANN-2011)	DST, DBT, DRDO, DoNAR, DIT, BRNS, AICTE and others	8-10 Dec 2011	International
A. Singh, A. K. Dasmahapatra, S. B. Santra, A. Kumar, R. Upadhyay, V Katiyar	SERC School and Sixth National symposium on Rheology of complex fluids	DST	3-7 Jan 2012	National

AWARDS AND HONOURS

Amarendra Kumar Sarma was awarded Indo-US Research Fellowship for the year 2012 for conducting advanced research in the area of physical sciences for duration of 6 months with Prof. Demetrios Christodoulides at University of Central Florida.

P. Poulouse received the "SFB-Fellowship" awarded by DESY, Hamburg and University of Hamburg for the project on 'Electroweak Symmetry Breaking' during 2011-2012.

Dr. P K Giri is awarded the JSPS Invitation Fellowship for research (long-term) in Japan for the year 2012 to carry

out research work at Kobe University, Japan for a period of 10 months.

ANY OTHER (SPECIAL MENTION)

B. Bhuyan visited Fermi National Accelerator Laboratory, USA during 4 May – 21 July 2011 to work on the Long Baseline Neutrino Experiment (LBNE).

B. Bhuyan is a member of the National Organising Committee for DAE-BRNS High Energy Physics Symposium 2012.

B. Bhuyan is a member of the Department Research Committee (DRC) and Committee of Courses and Studies (CCS), Institute of Science and Technology, Gauhati University

A. Sil has visited the Abdus Salam International Centre of Theoretical Physics (ICTP), Italy as a visiting scientist from 10 June to 12 July 2011. He has also visited Institut the Physic Theorique, CEA/Saclay, France from 13 to 22 July 2011 for research collaboration.

T.N. Dey is a Referee for *Physical Review Letters*, *Physical Review A*, *Optics Letters*, *Journal of Optics*, *Optics Communication*, *Physics Letter A*, *Pramana*, *The European journal of physics D*, *European Physics Letters*.

P. Poulose is a member of the Planning Committee on sixth five year cycle of SERC Schools on Theoretical High Energy Physics.

Student Achievement

Ms. Satchi Kumari, a PhD student of the Department received PSSI (Plasma Science Society of India) Poster award for poster entitled 'Studies on Laser Induced Ruby (Al₂O₃:Cr³⁺) Plasma using Langmuir Probe', presented in National Symposium on Plasma Science and Technology (Plasma 2011) organised by PSSI and BIT Patna during 20-23 Dec 2011. Poster award carried a cash component of rupees five thousand.

FACULTY MEMBERS

P. Agarwal

PhD (IIT Kanpur)

Associate Professor

Areas of Interest: Condensed Matter Physics (Expt.), Photovoltaic Materials and Devices

S. Basu

PhD (IIT Kanpur)

Associate Professor and Head of the Department

Areas of Interest: Condensed Matter Physics (Theory), Superconductivity, Ultracold atoms

B. Bhuyan

Assistant Professor

PhD (Delhi University)

Areas of Interest: High Energy Physics (Experiment), CP violation, Rare K and B meson decays, ILC R & D

B. R. Boruah

PhD (Imperial College, London)

Assistant Professor

Areas of Interest: Lasers and Optics (Expt. & Theory): Programmable Diffractive Optics, Confocal Microscopy, Phase Stepping Interferometry, Vectorial Diffraction Theory: Oxide Thin Films and High-k and low loss materials (Experimental)

S. Das

PhD (SNBNCBS, Kolkata)

Assistant Professor

Areas of Interest: Astrophysics (Theory), Astrophysical flows around compact objects, Ultra high energy cosmic rays

T. N. Dey

PhD (PRL, Ahmedabad)

Assistant Professor

Areas of Interest: Quantum Optics (Theory), Coherent control of pulse propagation, Nonlinear optics, Optical solitons, Negative index media, Bose-Einstein condensates

S. Ghosh

PhD (SNBNCBS, Kolkata)

Associate Professor

Areas of Interest: Condensed Matter Physics (Theory), Electronic Structure Theory

P. K. Giri

PhD (IIT Kanpur)

Associate Professor

Areas of Interest: Condensed Matter Physics (Expt.), Nanomaterials and optoelectronics

D. K. Goswami

PhD (I.O.P. Bhubneswar)

Assistant Professor

Areas of Interest: Condensed Matter (Experiment), Organic thin films, heterostructures and nanostructures, surfaces and interfaces

C. Y. Kadolkar (on long leave)

PhD (IIT Bombay)

Associate Professor

Areas of Interest: Condensed Matter Physics (Theory), Defects in Ionic Materials

A. Khare

PhD (IIT Kanpur)

Professor

Areas of Interest: Lasers and Photonics (Expt. & Theory), Laser Physics and Spectroscopy**S. K. Khijwania**

PhD (IIT Delhi)

Associate Professor

Areas of Interest: Fiber Optics (Theory & Experimental), Fiber Optics, Fiber Bragg Gratings, Optical Fiber sensors**M. K. Nandy**

PhD (IIT Kanpur)

Associate Professor

Areas of Interest: Theoretical Physics, Nonlinear dynamics**P. K. Padmanabhan**

PhD (IISc, Bangalore)

Assistant Professor

Areas of Interest: Condensed matter (Theory): Atomistic Modeling and Simulation of Condensed States of Matter**D. Pal**

PhD (TIFR, Mumbai)

Assistant Professor

Areas of Interest: Low Temperature Physics and Material Science (Experimental): Strongly Correlated Electron Systems, Vortex states in superconductors, Superconductivity and Magnetism**D. Pamu**

PhD (Univ. of Hyderabad, Hyderabad)

Assistant Professor

Areas of Interest: Oxide Thin Films and High-k and low loss materials (Experimental)**A. Perumal**

PhD (IIT Kharagpur)

Associate Professor

Areas of Interest: Condensed Matter Physics (Expt.), Nanomagnetic Materials**P. Poulose**

PhD (Phys. Res. Lab, Ahmedabad)

Assistant Professor

Areas of Interest: Theoretical Physics, High Energy Physics Phenomenology**S. Ravi**

PhD (Univ. of Hyderabad)

Professor

Areas of Interest: Condensed Matter Physics (Expt.), Superconductivity and magnetism**S. B. Santra**

PhD (Bose Institute, Kolkata)

Associate Professor

Areas of Interest: Condensed Matter Physics (Theory), Statistical Physics**A. K. Sarma**

PhD (IIT Delhi)

Assistant Professor

Areas of Interest: Photonics (Theory) and Theoretical Physics: Solitons, Nonlinear Fiber Optics, Nonlinear Optics, Bose-Einstein Condensate**A. K. Sharma**

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Lasers and Optics (Experimental): Laser produced plasmas, laser ablation deposition of thin films, laser-based sensors**G. S. Setlur**

PhD (Univ. of Illinois)

Associate Professor

Areas of Interest: Theoretical Physics, Bosonization in higher dimensions, Graphene**A. Srinivasan**

PhD (IISc, Bangalore)

Professor and Dean, Faculty Affairs

Areas of Interest: Condensed Matter Physics (Expt.), Materials science**A. Sil**

PhD (University of Calcutta)

Assistant Professor

Areas of Interest: High Energy Physics & Cosmology (Theory): Phenomenology of Physics beyond the Standard Model, Supersymmetry and its breaking, Neutrino Physics, Matter-antimatter asymmetry of the Universe, Inflation**S. Thota**

PhD (IIT Kanpur)

Assistant Professor

Areas of Interest: Material Science and Engineering, Magnetic Nanostructures, Oxide Heterostructures, Superlattices, Magnetocaloric effects Semimagnetic semiconductors Bandgap Engineering

CENTRE FOR ENERGY

INTRODUCTION

Centre for Energy at IIT Guwahati has completed seven years of existence successfully since its inception in the year 2004. The space and infrastructure provided for the centre at the Academic Complex have been utilised for establishment of office, conference room and various laboratories such as bio-energy, fuel cell, energy efficiency, analytical, biofuel and solar energy. Sitting arrangement for faculty, staff and students have also been made. Three rooms have been newly furnished for teacher–student discussion. A computer room has also been set up for the common use of research scholars, project staff and others.

Involvement of faculty members from various departments have been increasing year wise and as a result academic and research activities of the centre is progressing significantly in various interdisciplinary areas. The research activities related to alternative fuels, clean coal technology, combustion and energy efficiency of systems has got a rapid momentum during the past five years. Some laboratories of the Centre have been shifted to the Technology Complex (TC) for smooth operation of work. Research related to such units is in good progress. Seven sponsored research projects are currently operating from the TC. In addition to the above, the dedicated biogas development and training centre (BDTC) was established in the year 2006 and the same is functioning from TC.

The centre successfully organised a Summer School on 'Efficient Fossil Energy Technologies' during 4-10 July 2011 jointly with the University of Nottingham, United Kingdom (UK). A short term course on 'Hydroelectric Power Development' was also organised by the centre during 5-9 December 2011.

A foreign researcher under the CV Raman International Fellowship for African Researchers, 2010; DST, GOI, visited the centre during May-August 2011.

During the reported year the centre received four

sponsored projects from various funding agencies and few more projects are in the pipeline. To accommodate new laboratory facilities and research projects a proposal for extension of the centre in the academic building has already been submitted.

So far, five students have been awarded PhD degree.

ACADEMIC ACTIVITIES

Currently the centre offers PhD programme, which was started in the year 2005.

STUDENT INTAKE

There are 18 (Eighteen) PhD students on rolls. The enrollment of PhD student is increasing gradually.

FACULTY STRENGTH

Faculty members from various disciplines are participating in the academic and research activities of the centre. Further, they are contributing to the growth of various laboratories.

The following faculty members are actively associated with the centre through research projects and /or supervising PhD students:

Prof. A.K. Ghoshal, Head, Centre for Energy
 Prof. P. Mahanta, Department of Mechanical Engineering
 Prof. Pranab Goswami, Department of Biotechnology
 Prof. U.K. Saha, Department of Mechanical Engineering
 Prof. S. C. Mishra, Department of Mechanical Engineering
 Prof. Arun Goyal, Department of Biotechnology
 Dr. Harshal B. Nemade, Department of Electronics and Electrical Engineering
 Dr. V. S. Moholkar, Department of Chemical Engineering
 Dr. Pratima Agarwal, Department of Physics
 Dr. N. Sahoo, Department of Mechanical Engineering
 Dr. L. Sahoo, Department of Biotechnology
 Dr. A. Verma, Department of Chemical Engineering

Dr. P. Muthukumar, Department of Mechanical Engineering
 Dr. Utpal Bora, Department of Biotechnology
 Dr. Chandramohan Somayaji, Department of Mechanical Engineering
 Dr. Kaustubha Mohanty, Department of Chemical Engineering
 Dr. V V Goud, Department of Chemical Engineering
 Dr. Sasidhar Gumma, Department of Chemical Engineering
 Dr. Karuna Kalita, Department of Mechanical Engineering
 Dr. A. Dalal, Department of Mechanical Engineering
 Dr. V. N. Kulkarni, Dept. of Mechanical Engineering
 Dr. Debasish Das, Department of Biotechnology

MAJOR EQUIPMENT AND FACILITIES

Major equipments purchased in the Financial Year 2011-2012—

- UV-Vis Spectrophotometer
- Data Acquisition System

The following facilities are available in the Centre:

Energy Efficiency Laboratory: Fuel testing facility (calorific value, viscosity, flash point, fire point, cloud and pour point, cetane index), proximate analysis facility, anemometer, pump testing setup, down draft biomass gasifier demonstration unit, circulating fluidized bed gasifier unit, pressurized circulating fluidized bed unit, natural convection grain drier, IC Engine set up, flue gas analyzer, fuel cell demonstration unit, Fischer tropesch process.

Bio-energy Laboratory: Micro propagation facility for energy and bio-fuel crops, autoradiogram development facility, genetic engineering facility, biotransformation and cloning

Solar Energy Laboratory: Demonstration unit for efficient use of solar energy, characterization and study of the photovoltaic module, energy spectrum measuring

facility, spectral response/ photoconductivity/ quantum efficiency and other transport measurements in the presence of light of photovoltaic modules, materials and devices. A facility for preparation of thin films by physical vapor deposition method is also available.

Fuel Cell Laboratory: Fabrication and characterization of biosensors, electrochemical analysis of electrodes, electrolytes etc.

Biofuel Laboratory: Facility for production and analysis of biofuels.

Analytical Laboratory: Gas chromatography facility for analysis of gas, lipids, biofuels, by-product of direct alcohol fuel cells, fuel permeability measurement etc.

Library Books Purchase: Books worth Rs. 1.6 lakh were purchased during the year 2011-2012.

RESEARCH AND DEVELOPMENT ACTIVITIES

The faculty members, associated with the Centre, are carrying out research based projects, funded by various government departments like Department of Science and Technology (DST), Ministry of New and Renewable Energy (MNRE), Defense Research Development Organization (DRDO), Department of Biotechnology (DBT), Assam Science and Technology Environment Council (ASTEC), etc. as well as, foreign funding agencies namely, ADnENERGY. In the last seven years the centre has received 20 (twenty) research projects and as many as 15 (fifteen) consultancies in the area of biomass gasification, biogas technology, wind energy, solar energy, biological fuel cell, engine testing with alternate fuel, biodiesel, energy efficient machines etc with a total value of Rs. 316.84 lakhs, out of which about Rs. 98 lakhs has been utilized for purchase of equipment alone. The details of the research projects and consultancies are presented in the following subsections. MNRE has identified the centre as the hub for promotion of biogas development and training in the NE states and has been funding yearly since 2006.

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
P. Mahanta	Design and Development of Digester for Utilization of Lignocellulosic Waste for Biogas Production	DRL, Tezpur	9.98	-	3 years
P. Mahanta	Design and Development of Compact Cistern System for Blackwater Utilisation	DRL, Tezpur	4.92	-	1 ½ year

U.K. Saha	Utilization of Biowaste for Generating Power in Diesel Engines	DRL, Tezpur	9.912	Niranjan Sahoo	2 years
P. Mahanta and Pankaj Kalita	Design of 25 kWe Pressurized Circulating Fluidized Bed Unit	CPRI, Bangalore	35.00	U.K. Saha	3 years

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
A. Verma	Development of Polymer Electrolyte Membrane Fuel Cell using indigenously prepared low cost composite bipolar plate	CSIR	13	-	3 years
V. S. Moholkar	Design and optimization of 1, 3- Propanediol and n-butanol from biodiesel derived crude glycerol using immobilized Clostridial strains	CSIR	15	-	3 years
U.K. Saha	Development and Analysis of Twisted Two-bladed, Two-stage Savonius Rotor for 500 W Power Generation	ADnENERGY, London	8.83	P. Mahanta, N. Sahoo, D. Bhagawati	2 years
P. Mahanta	Process Development for Fluoride Removal from Drinking Water Utilizing Solar Energy	ASTEC, Assam	2.48	L. Barbora, P. Kalita	2 years
V. S. Moholkar	Synthesis of Green Transportation Fuels (Biomass Gasification Integrated Fischer Tropsch)	MNRE	25.00	P. Mahanta	2 years
V. S. Moholkar	Design, Development and Commercialization of a Circulating Fluidized Bed Biomass Gasifier	MNRE	53.00	P. Mahanta, P. Kalita	3 years
K. Mohanty	Concentration of Biogas Slurry to Preserve Microorganisms in the Inoculum by Novel Separation Techniques	DRL, Tezpur	6.84	C. Das	1 year
P. Mahanta	Biogas Development and Training Centre	MNRE, New Delhi	26.00	P. Mahanta	

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
P. Mahanta	Development of a Multi-fuel Cooking Stove	PCRA, Dehradun	2.30	-	1 year
S. Kakati	Development of a Multi-fuel Cooking Stove	DST	12.00	Mentors- P. Mahanta and S. K. Kakoty	3 years

L. Sahoo	Micro Propagation Technology for Commercial Scale Plantation of Jatropha: A Potential Biofuel Plant	NEDFi, Guwahati	2.35	L. Sahoo	2 years
V. S. Moholkar	Design and Optimization of a Circulating Fluidized Bed (CFB) Biomass Gasifier	DBT	14.13	P. Mahanta	2 years
L. Sahoo	Cloning of Elite Germplasm of Jatropha for Large Scale Plantation	DRDO	10.00	L. Sahoo	2 years
S. C. Mishra and P. Muthukumar	Design and Development of Kerosene Stove with Porous Burner Cooking Stoves	PCRA	9.94	-	2 years
S. C. Mishra and P. Muthukumar	Design and Development of Porous Radiant Burners for Domestic LPG Cooking Stoves	PCRA	9.94	-	2 years
P. Goswami	Design and development of biofuel cell for biomedical applications	DBT	35.00	Anil Verma, U. Bora, M. Barthakur and L. Barbora	3 years

RESEARCH PUBLICATIONS

International Journal

R. S. Patil, M. Pandey and P. Mahanta

'Parametric studies and effect of scale up on wall-to-bed heat transfer characteristics of circulating fluidised bed risers', *Experimental Thermal and Fluid Science - International Journal of Experimental Heat Transfer, Thermodynamics, and Fluid Mechanics*, vol. 35 (3), pp 485-494, 2011

B. Buragohain, P. Mahanta and V. S. Moholkar

'Investigations in gasification of biomass mixtures using thermodynamic equilibrium and semi-equilibrium models', *International Journal of Energy and Environment*, vol. 2 (3), pp 551-578, 2011

A. Ranjan and V. S. Moholkar

'Comparative study of various pretreatment techniques for rice straw saccharification for the production of alcoholic biofuels', *Fuel*, doi:10.1016/j.fuel.2011.03.030, 2011

S. Khanna, A. Goyal and V. S. Moholkar 'Microbial conversion of glycerol: present status and future prospects', *Critical Reviews in Biotechnology*, DOI: 10.3109/07388551.2011.604839, 2011

R. Patidar, S. Khanna, V. S. Moholkar

'Physical features of ultrasound assisted enzymatic degradation of recalcitrant organic pollutants', *Ultrasonics-Sonochemistry*, vol. 19 (1), pp 104-118,

doi:10.1016/j.ultsonch.2011.06.005, 2012

S. S. Mohapatra and P. Mahanta

'Experimental investigation of an indirect type of natural convection dryer for thin layer paddy drying', *International Journal of Mechanical Engineering Research and Development*, vol. 1, pp 47-54, 2011

S. Khanna, A. Goyal, V. S. Moholkar

'Production of n-butanol from biodiesel derived crude glycerol using *Clostridium pasteurianum* immobilised on amberlite', *Fuel*, doi:10.1016/j.fuel.2011.10.071, 2011

B. B. Sahoo, U. K. Saha and N. Sahoo

'Diagnosing the effects of pilot fuel quality on exergy terms in a biogas run dual fuel diesel engine', *International Journal of Exergy*, vol 10 (1), pp 77-93, 2012

B. B. Sahoo, N. Sahoo and U. K. Saha

'Dual fuel performance studies of a small diesel engine using green fuels', *Applied Mechanics and Materials*, vol. 110-116, pp 2101-2108 2012

B. B. Sahoo, U. K. Saha and N. Sahoo

'Effect of load level on the performance of a dual fuel compression ignition engine operating on syngas fuels with varying h₂/co content', *ASME Journal of Engineering for Gas Turbines and Power*, vol. 133, pp 122802-1-12, 2011

B. B. Sahoo, N. Sahoo and U. K. Saha

'Effect of H₂:CO ratio in syngas on the performance of a dual fuel diesel engine operation', *Applied*

Thermal Engineering, August 2011, DOI: 10.1016/j.applthermaleng.2011.08.021

B. B Sahoo, U. K. Saha and N. Sahoo
'Theoretical performance limits for syngas-diesel fueled compression ignition engine from second law analysis', *Energy*, vol. 36, pp 760-769, 2011

Conference/Workshop/Seminar/Symposia

International

P. Kalita, P. Mahanta and U. K. Saha
'Effect of operating parameters on the performance of a pressurized circulating fluidized bed unit - a review', *Proceedings of Summer school 2011 on Efficient Fossil Energy Technologies*, IIT Guwahati, Guwahati, 4-10 Jul 2011

S. S. Mohapatra and P. Mahanta
'Experimental investigation of an indirect type of natural convection grain dryer', *Proceedings of Summer school 2011 on Efficient Fossil Energy Technologies*, IIT Guwahati, Guwahati, 4-10 Jul 2011

J. K. Verma, A. Verma and A. K. Ghoshal
'Performance analysis of solid oxide fuel cells (SOFC) using reformed fuel', *Proceedings of 3rd International Conference on Fuel Cell & Hydrogen Technology (ICFCHT 2011)*, Kuala Lumpur, Malaysia, 22– 23 Nov 2011

D. Yadav, L. Barbora and P. Mahanta
'Characterisation and comparison of locally available biomass waste as feedstock for biogas production', *Proceedings of 3rd International Conference on Advances in Energy Research 2011*, IIT Bombay, 9-11 Dec 2011

M. Das and P. Goswami
'Development of alcohol biosensor using multiwalled

carbon nanotube (MWCNT) -nafion-polyethyleneimine (PEI) as electroactive matrix for immobilization of alcohol oxidase on electrode surface', *Proceedings of 11th Bangalore India Bio, International Conference and Trade Show*, Bangalore International Exhibition Centre, Bangalore, 4-6 May 2011

M. Das, P. Goswami
'Carbon nanotube as electroactive matrix for immobilization of alcohol oxidase on gold electrode for biosensor and biofuel cell application', *Proceedings of 2nd International conference on Advanced Nanomaterials and Nanotechnology (ICANN- 2011)*, IIT Guwahati, 8-10 Dec 2011

S. Singh, V. S. Moholkar and A. Goyal
'Screening, isolation and optimisation of culture conditions of cellulose hydrolytic bacteria from Rhinoceros dung', *Proceedings of the International Conference on Microbial Biotechnology for Sustainable Development*, 52nd Annual Conference of Association of Microbiologists of India, Panjab University, Chandigarh, 3-6 Nov 2011

National

B. B. Sahoo, U. K. Saha and N. Sahoo
'Demonstration of dual fuel technology – gas and diesel for the future', *Proceedings of the National Seminar on Renewable Energy Technology: Issues and Prospects*, NERIST, Itanagar, India, 29–30 Sep 2011

M. Das and P. Goswami
'Electrochemical characterization and development of alcohol oxidase bioelectrode for enzymatic biosensor and biofuel cell application', *Proceedings of 80th Annual meeting of the Society of Biological Chemists*, CSIR-CIMAP Lucknow, 12 -15 Nov 2011

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name	Title of paper	Name of Conf./Workshop	Place	Date	International/National
A.K. Ghoshal	Performance analysis of solid oxide fuel cells (SOFC) using reformed fuel	3rd International Conference on Fuel Cell & Hydrogen Technology	Kuala Lumpur, Malaysia	22-23 Nov 2011	International
M. Das and P. Goswami	Development of 3rd generation bioanode using carbon nanotube (CNT) as a electroactive material based on immobilization of Alcohol oxidase (AOx) for enzymatic Biofuel cell application	Summer School 2011 on Efficient Fossil Energy Technologies	IIT Guwahati	4-10 Jul 2011	International

D. Sahu, A. Verma and S. Gumma	Evaluation of hydrogen sorption in nickel and palladium nanoparticle	Cochin Nano 2011	Cochin, Kerala	14-17 August, 2011	
A. Basu	-	Workshop on Advance Studies and Hands-on Training on plant DNA Fingerprinting	Bose Institute, Kolkata	16-30 Aug 2011	National
S. Singh, V. S. Moholkar and Arun Goyal	Screening, isolation and optimisation of culture conditions of cellulose hydrolytic bacteria from Rhinoceros dung	52nd Annual Conference of Association of microbiologist of India (AMI) (International Conference on Microbial Biotechnology for Sustainable Development)	Panjab University, Chandigarh	3-6 Nov 2011	International
D. Yadav, L. Barbora, U. Guharoy, P. Kalita and P. Mahanta	Algae as Future Biofuel	YETI 2011 (Young Ecological Talk and Interact)	IIT Guwahati	13-15 Dec 2011	National
A. Difusa, K. Mohanty, V. V. Goud	Effect of salinity on growth and fatty acid yield of Scenedesmus species of North East Assam	18th International conference 2012 (post ISCBC), Perspective and Challenges in Chemical and Biological Sciences	IASST, Guwahati	28-30 Jan 2012	International
M. Das, L. Barbora, P. Das, P. Goswami	Development of laccase based biocathode for bio-fuel cell application	18th International conference 2012 (post ISCBC), Perspective and Challenges in Chemical and Biological Sciences	IASST, Guwahati	28-30 Jan 2012	International
A. Difusa, K. Mohanty, V.V. Goud	Effects of pH and media compositions on growth and biomass productivities of Scenedesmus species	International Algal Summit, Algae for Sustainable Development	New Delhi	21-22 Feb 2012	International
P. Kalita, L. Barbora, S. Singh, D. Yadav, M. Das, M. Sharma, V. Kumar, S. Khanna, Hanif A. Choudhury and A. Difusa	-	New and Renewable Sources of Energy (Challenges for Renewable Energy Programme Implementation)	Environmental Watch and Management Institute in Guwahati	21-22 Mar 2012	National

INVITED LECTURES : IN INDIA, ABROAD

Name	Name of Lecture	Name of Inst./Org.	Place	Date
A.K. Ghoshal	Environmentally Benign Liquid Membrane Technology for Chemical, Pharmaceutical and Medicinal Applications	Second Indo German Workshop on Advances in Reaction and Separation Processes	Bad Herrenalb, Germany	20-22 Feb 2012
A.K. Ghoshal	Clean Coal Technology: India's Perspective	Panel discussion session on Relevant Technologies and Gaps Between India & Global Best Practices, Confederation of Indian Industry (CII)	New Delhi	8 Nov 2011
A.K. Ghoshal	Carbon Capture & New Generation Technology	Summer school 2011 on Efficient Fossil Energy Technologies	IIT Guwahati	4-10 Jul 2011
P. Mahanta	Fluidization Engineering applied to coal Combustion and Gasification	Summer school 2011 on Efficient Fossil Energy Technologies	IIT Guwahati	4-10 Jul 2011
Niranjan Sahoo	Heat transfer and force measurement techniques in short duration experimental facilities	Periyar Maniammai University	Thanjavur, Tamil Nadu	27 Feb 2012
Niranjan Sahoo	Engine Technology for Study of Alternative Fuels	Gandhi Institute for Education & Technology	Bhubaneswar, Odisha	30 Mar 2012
P. Kalita	Options for utilization of biomass for power generation	Short term course Recent Trends in Fuels and Combustion	IIT Guwahati	29 Aug – 2 Sep 2011
M. Das	Advances in Biofuel Cell Research: Potential Energy Generating Devices for Bio-medical Applications	National seminar on 'New and Renewable Sources of Energy (Challenges for Renewable Energy Programme Implementation), Environmental Watch and Management Institute	Guwahati	21-22 Mar 2012
L. Barbora	Fuel Cell Technologies as a Source of Renewable Energy	National seminar on 'New and Renewable Sources of Energy (Challenges for Renewable Energy Programme Implementation), Environmental Watch and Management Institute	Guwahati	21-22 Mar 2012

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS / INVITED LECTURES

Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date	Remarks
Prof. B. P. Pundir	IIT Kanpur	Delivered a lecture on 'Combustion Diagnostics on Internal Combustion Engines'	6 May 2011	-
Mr. Joseph Hwani	Research Scientist, Energy Technology Institute (ETI), Zimbabwe	Visiting fellow under the CV Raman International Fellowship for African Researchers, 2010, DST, GOI	28 May – 28 Aug 2011	Host researchers at IIT Guwahati — P. Mahanta and Anil Verma

Dr. N. Nouni	Scientist F, Ministry of New and Renewable Energy, Govt. of India	Discussion on the probable direction of research in the area of alternative fuel	1 Sep 2011	-
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SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
Indian coordinators: Pinakeswar Mahanta, P. S. Robi, Debabrata Chakraborty, Pranab Goswami, Alope K. Ghoshal, Ujjwal K. Saha, Amarendra K. Das, Karuna Kalita, Anamika Barua	Summer School on 'Efficient Fossil Energy Technologies' organized jointly with the University of Nottingham, United Kingdom (UK)	University of Nottingham, UK	4-10 Jul 2011	International
P. Mahanta	QIP Short Term Course on Hydroelectric Power Development	AICTE	5-9 Dec 2011	National
P. Mahanta	Mentored the techno-entrepreneurship development programme on 'Utilisation of new and renewable energy'	Entrepreneurship Development Cell (EDC), Cotton College, Guwahati	4-7 Apr 2011	Regional

AWARDS AND HONOURS

Ms. Swati Khanna received grants from DST International Travel Support and DBT Travel Support for attending ICABBBE-2012 Conference held at Venice, Italy from 11-13 April 2012.

FACULTY MEMBERS ASSOCIATED WITH THE CENTRE

P. Agarwal

Physics

U. Borah

Biotechnology

A. Dalal

Mechanical Engineering

D. Debasish

Biotechnology

A. K. Ghoshal (Head of the Centre)

Chemical Engineering

P. Goswami

Biotechnology

V. V. Goud

Chemical Engineering

S. Gumma

Chemical Engineering

A. Goyal

Biotechnology

K. Kalita

Mechanical Engineering

V. Kulkarni

Mechanical Engineering

P. Mahanta

Mechanical Engineering

S. C. Mishra

Mechanical Engineering

K. Mohanty

Chemical Engineering

V. K. Moholkar

Chemical Engineering

P. Muthukumar

Mechanical Engineering

H. B. Nemade

Electronics and Electrical Engineering

CENTRE FOR THE ENVIRONMENT

INTRODUCTION

Since the Earth Summit in June 1992 in Rio de Janeiro, Brazil, a global consensus has been reached in addressing the pressing environmental problems facing us and preparing the world for the challenges waiting ahead. Great emphasis has been placed on the need for all sections of society to participate in working towards sustainable development — development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Therefore, every action at local level is equally vital for the continued economical and social development of the world without detriment to the environment and natural resources. The Indian Institute of Technology Guwahati has visualized an active role for itself in dealing with new directions and concerns emerging from the mitigatory efforts of environmental problems of the day. In order to give a concrete shape to this visualization, IIT Guwahati established this full-fledged Centre for the Environment, in May 2004.

The main objectives of the Centre for the Environment are to promote interdisciplinary research and development, to impart postgraduate education, to create public awareness, to provide consultancy in challenging area and to train manpower for mitigating emerging environmental problems.

ACADEMIC ACTIVITIES

The Centre has started the interdisciplinary research programme from the academic year 2005-2006 leading to PhD degree. 23 faculty members across various departments of the Institute are involved in providing guidance. The broad areas identified for conducting interdisciplinary research are:

Air pollution-Dispersion, Control and Modeling; Water and Wastewater Treatment; Solid Waste Management and Recycling; Waste Immobilization; Soil-water-contaminant Interaction; Environmental Bioremediation/ Environmental Biotechnology; Biosorption &

Bioremediation of heavy metals; Biofiltration for treating Waste Gases and Green Solvents; Removal of Toxic and Recalcitrant Compounds; Biodegradation/Bio-detoxification of Toxic Wastes; Environmental Genomics and Proteomics; Contaminant Transport and Retention in Porous Media; Green Chemistry; Optimization; Environmental History; Environmental Economics; Green Design; Electrochemical Remediation for Water and Wastewater Treatment, Global Warming and Climate Modelling; GHG Capture and Storage.

The Centre has also initiated a proposal to start MS (by research) an interdisciplinary post-graduate programme in the broader area of the Environment.

STUDENT INTAKE

Four new PhD students were admitted during the reporting period.

FACULTY STRENGTH

The following faculty members are currently associated with the Centre:

G. Das, Chemistry (Head of the Centre)
 M. Jawed, Civil Engineering
 S. Chakraborty, Civil Engineering
 B. K. Patel, Chemistry
 S. Gokhale, Civil Engineering
 C. Mahanta, Civil Engineering
 P. K. Ghosh, Civil Engineering
 K. Pakshirajan, Chemistry
 V. V. Dasu, Biotechnology
 U. Bora, Biotechnology
 L. Kundu, Chemistry
 C. Mukherjee, Chemistry
 A. K. Ghoshal, Chemical Engineering
 A. K. Sarma, Civil Engineering
 A. Goyal, Biotechnology
 A. Barua, Humanities and Social Sciences
 V. K. Dubey, Biotechnology

S. Patra, Biotechnology
 A. Verma, Chemical Engineering
 C. V. Sastri, Chemistry
 A. Kalamdhad, Chemical Engineering
 T. K. Mandal, Chemical Engineering
 M. K. Purkait, Chemical Engineering
 C. Das, Chemical Engineering
 A. K. Golder, Chemical Engineering

Dr. Gopal Das, Associate Professor, Chemistry took over the charge as the Head of the Centre from Prof. Chandan Mahanta in August 2011.

MAJOR EQUIPMENT AND FACILITIES

The Centre has procured and installed the following major equipment/facilities during the reporting period:

Lambda 45 UV-VIS Spectrophotometer
 Prostar 210 Binary Gradient Solvent Delivery Pump Module
 Basic Metrohm Ion Chromatography Model 792
 Water Proof Portable Dissolved Oxygen Meter Orion 3 Star AA240 Atomic Absorption Spectrophotometer Make Varian
 Horizontal Gel Electrophoresis Unit for DNA
 Orion 3 Star Bench Top Conductivity meter Kit, Thermo Fisher
 Portable Autoclave Make -Equitron, Medica Cat No 7407 PAD
 Vortex Shaker Make Tarsons, Model 3020
 COD reactor Model DRB 200 HACH USA
 Digital pH/mv Meter Thermo Fisher Model Orion 3 Star
 Orbital Shaking Incubator with Refrigeration
 Sigma-4-16K High Speed Refrigerated table top Centrifuge
 Operon-86°C Ultra Low Deep freezer KOREA make Model DFU-657CE/P
 Total Kjeldahl Nitrogen Analyser, make: Velp Scientifica Italy (UDK 129)
 Multiparameter water quality Monitoring System
 Cleanair Horizontal Laminar Air Flow Bench
 High Precision Imported Electronic Balance Model AJ-2200E
 Systronics μ p based conductivity TDS meter with Cells

Systronics μ controller based flame photometer with Na, K filters
 Systronics μ controller based pH meter
 Shaking Incubator
 ZEISS Trinocular laboratory Microscope Model AXIOSTAR PLUS
 Peristaltic pump drive Model-VSP2004CSCR
 Sartorius Water Purification system with RO storage tank & final Ultrapure water
 REMI Centrifuge Cat No R-24
 REMI Table Top cooling Cenbrifuge without Rotor Head, C-24
 Ultra Violet Fluorescence Inspection Cabinet JSGW Cat No 1179
 Buchi Rota vapor R-210/V/Basic
 Sigma 1-15 High Speed Microcentrifuge cat No-10115
 Bibby Sterilin Melting Point Apparatus UK make Model SMP3
 NTF(ITALY) Ice Flaker Model: SLF225 Capacity 90 kg/24 Hrs
 IKA Minishaker Model-MS2
 Mini-Protein 3- Electrophoresis System Cat No -165-3322
 NEC-VT 590 Multimedia LCD Projector
 Vortex Shaker Make Tarsons, Model 3020
 Sterilization unit, Autoclave Make: Medica

RESEARCH AND DEVELOPMENT ACTIVITIES

The Centre is engaged in different inter-disciplinary areas of research. The main theme of the research includes: Water and Wastewater Treatment; Solid Waste Management and Recycling; Waste Immobilization; Soil-water-contaminant Interaction; Environmental Bioremediation/Environmental Biotechnology; Biosorption and Bioremediation of heavy metals; Biofiltration for treating Waste Gases and Green Solvents; Removal of Toxic and Recalcitrant Compounds; Biodegradation/Bio-detoxification of Toxic Wastes; Environmental History; Environmental Economics; Green Design; Electrochemical Remediation for Water and Wastewater Treatment, Global Warming and Climate Modeling; GHG Capture and Storage, Air pollution-Dispersion, Control and Modeling; Environmental Genomics and Proteomics; Contaminant Transport and Retention in Porous Media; Green Chemistry; Optimization.

RESEARCH PROJECTS

New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator
Vikash Kumar Dubey	Variations in proteome profile of legume plants in response to heavy metal toxicity	DST	23.28	Anil Verma

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
A. K. Ghoshal	Petroleum Wastewater treatment in packed Bed reactor using suitable micro organism(s)	CSIR	16	-	3 years
Utpal Bora	Establishment of Institutional Biotech Hubs by DBT under special programme for N.E states of India	DBT	19	-	3 years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
Gopal Das	Synthesis, Characterization of Metal Oxides and Their Application to Wastewater Treatment	CSIR	16.89	-	3 years

RESEARCH PUBLICATIONS**Journals**

J. Anandkumar and B. Mandal

'Single, Binary and Ternary metal adsorption using acid treated Aegle marmelos correa shell: Kinetic, Mechanistic and Thermodynamic Study', *Asia-Pacific Journal of Chemical Engineering*, DOI: 10.1002/apj.1612, 2012

N. K. Sahoo, K. Pakshirajan and P. K. Ghosh

'Biodegradation kinetics of paranitrophenol by *Arthrobacter chlorophenolicus* A6', *Applied Biochemistry and Biotechnology*, vol. 165, pp 1587-1596, 2011

N. K. Sahoo, P. K. Ghosh and K. Pakshirajan

'Kinetics of 4-bromophenol degradation using calcium alginate immobilised *Arthrobacter chlorophenolicus* A6', *International Journal of Earth Science and Engineering*, vol. 4, pp 663-668, 2011

P. J. Babu, P. Sharma, M. C. Kalita and Utpal Bora

'Green synthesis of biocompatible gold nanoparticles using *Fagopyrum esculentum* leaf extract', *Frontiers of Materials Science*, vol. 5 (4), pp 379-387, 2011

Conference/Workshop/Seminar/Symposia**International**

J. Anandkumar and B. Mandal

'Multi Contaminant Adsorption behaviour of Activated Carbon: Kinetic and Mechanistic Approach', International Conference on Environmentally Sustainable Urban

Ecosystems (ENSURE-2012), IIT Guwahati, Guwahati, 24-26 Feb 2012

B. Brahmacharimayum and P. K. Ghosh

'A study on efficiency of five different carbon sources on Sulfate Reduction', 4th International Congress of Environmental Research (ICER-11), Surat, 15- 17 Dec 2011

B. Brahmacharimayum and P. K. Ghosh

'Acid mine drainage (AMD) treatment to remove sulfate into elemental sulfur by microaerobic process', National Conference on Forest, Environment and Climate change: Issues and Challenges, Bilaspur, 30-31 Jan 2012

B. Brahmacharimayum and P. K. Ghosh

'Biological sulfate reduction', International Conference on Environmentally Sustainable Urban Ecosystem (ENSURE 2012), IIT Guwahati, Guwahati, 24-26 Feb 2012

S. Singh, A. N. Singh, A. Verma and V. K. Dubey

'Heavy metal stress induced Superoxide dimutase: Purification and characterization from *Cicer arietinum* L. seedlings', 80th Annual Meeting of the Society of Biological Chemists (SBC), Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, 12-15 Nov 2011

N. K. Sahoo, P. K. Ghosh and K. Pakshirajan

'Kinetics of 4-bromophenol degradation using calcium alginate immobilized *Arthrobacter chlorophenolicus* A6', International Conference on advances in Civil Engineering, K L University, Vijayawada, 21-23 Oct 2011

D. Deka, S. P. Das, R. Ravindran and A. Goyal
'Water hyacinth as a potential source of biofuel for sustainable development', International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), IIT Guwahati, Guwahati, 24-26 Feb 2012

R. Ravindran, S. P. Das, D. Deka and A. Goyal
'Lignocellulosic biomass as a sustainable source for bioethanol production', International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012), IIT Guwahati, Guwahati, 24-26 Feb 2012

R. Ravindran, S. P. Das, D. Deka and A. Goyal]
'Bench scale bioethanol production involving recombinant *C. thermocellum* hydrolytic enzymes and fermentative microbes', 52nd Annual Conference of Association of Microbiologists of India, International Conference on Microbial Biotechnology for Sustainable development, Punjab University, Chandigarh, IM 118, p 195, 3-6 Nov 2011

B. P. Sahariah and S. Chakraborty
'Performance evaluation of anoxic fed batch reactor

treating synthetic waste water containing phenol thiocyanate and nitrate-N at different HRT', ENSURE-2012, IIT Guwahati, Guwahati, 24-26 Feb 2012

R. L. Deka, L. Saikia C. Mahanta and M. K. Dutta
'Increasing extreme temperature events in the Guwahati city during 1971-2010', ENSURE-2012, IIT Guwahati, Guwahati, 24-26 Feb 2012

National

D. Deka, S. P. Das, R. Ravindran, M. Jawed, D. Das and A. Goyal

'Approaches for identification of a combination of hydrolytic enzymes and fermentative microbes for bioethanol production from thatch grass', Symposium on Carbohydrates at the Interface of Chemistry and Biology (CARBO XXVI), Indian Institute of Chemical Biology, Kolkata, PP-36, p64, 23-25 Nov 2011

B. Das, T. K. Mandal and S. Patra

'Pathway of phenol degradation in *Chlorella Pyrenoidosa*', Young ecologists talk and interact 2011, IIT Guwahati, Guwahati, 13-15 Dec 2011

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS

Name	Name of Inst./Univ./Org.	Purpose/Name of Lecture	Date
Utpal Das	Department of Neurosciences, School of Medicine, University of California, San Diego	Mechanism of axonal transport of proteins and implications in neuro-degenerative disorders	1 Apr 2011
B. C. Raymahashay	Former Professor IIT Kanpur	Geochemical Techniques for Evaluation of Groundwater quality	21 Apr 2011
Subhankar Chakraborty	YETI	To deliver a Lecture	25 May 2011
Toru Shimada	Department of Agricultural and Environmental Biology, University of Tokyo	Genetic and genomic studies on the food habit of the silkworm	28 Feb 2012
Yumiko Nakajima	Centre of Molecular Biosciences University of the Ryukyus, Okinawa, Japan	Topics of some transposable elements in <i>Bombyx mandarina</i> compared with those of <i>B. mori</i>	28 Feb 2012
Takashi Kiuchi	Department of Agricultural and Environmental Biology, University of Tokyo	Positional Cloning of the Gene Responsible for the black pupa (bp) Mutant of the Silkworm, <i>Bombyx mori</i>	28 Feb 2012
P. Jayaprakash	Scientist D, Muga Silkworm seed Organization Central Silk Board, Govt of India	Challenges to muga silkworm cultures	28 Feb 2012
N.C.Talukdar	Director, IBSD, Imphal, Manipur	Scope of Insect Biotechnology in India	28 Feb 2012
R Rajagopalan	IIT Madras	The Environmental Crisis and Your Responsibility	13 Mar 2012

Dilip Patel	'India, I Care!' Movement	To deliver a Lecture	13 Mar 2012
A. S. RavindraRao	Initiatives of Change (IofC)	To deliver a Lecture	13 Mar 2012

SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of the Sem/Wor./Con.	Funded By	Date	International/National
Utpal Bora	Introductory Workshop on Optical Microscopy	DBT	16-17 Jun 2011	National
Utpal Bora	Cancer Biology 2011: Basic Theoretical Aspects	DBT	26-27 Aug 2011	National
Utpal Bora	Hands on Training on Mammalian cell Culture Techniques for Toxicity Studies	DBT	9-17 Sep 2011	National
Utpal Bora	IITG-DBT Biotech Hub invited Series	DBT	28 Feb 2012	National

FACULTY MEMBERS ASSOCIATED WITH THE CENTRE

A. Barua

Humanities and Social Sciences

U. Bora

Biotechnology

S. Chakraborty

Civil Engineering

G. Das

Chemistry

V. V. Dasu

Biotechnology

V. K. Dubey

Biotechnology

M. K. Dutta

Humanities and Social Sciences

P. K. Ghosh

Civil Engineering

A. K. Ghosal

Chemical Engineering

S. Gokhale

Civil Engineering

A. Goyal

Biotechnology

M. Jawed

Civil Engineering

L. Kundu

Chemistry

C. Mahanta

Civil Engineering

B. Mandal

Chemical Engineering

C. Mukherjee

Chemistry

K. Pakshirajan

Biotechnology

B. K. Patel

Chemistry

S. Patra

Biotechnology

A. Saikia

Humanities and Social Sciences

A. K. Sarma

Civil Engineering

C. V. Sastri

Chemistry

A. Verma

Chemical Engineering

CENTRE FOR NANOTECHNOLOGY

INTRODUCTION

There is significant progress in research and development at the Centre for Nanotechnology during the period 2011-2012. A new interdisciplinary project has been sanctioned to the centre from the Department of Biotechnology. Besides infrastructure development and research activities, the SECOND EDITION of the International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011) was jointly organized by Centre for Nanotechnology and Department of Physics. The conference covered fields on advanced nanomaterials for nanoengineering including theory and experiments to applications of nanostructured materials in technology offering an excellent and open forum for exchange of ideas among academia and industries on the latest of research accomplishments and also cultivated academic partnerships among the professionals. The international conference was concluded successfully on 10 December 2011, which represented by around 400 participants. In addition, 7 plenary talks were delivered by leading experts in the field and a total of 345 papers (through invited talks, oral and poster presentations) by the delegates from 15 countries and 9 areas were covered in 21 sessions.

The basic laboratory facilities for different areas of nanotechnology have been further extended. This year a number of equipment have been procured namely, Tip Sonicator/Ultrasonic Homogenizer, Mass flow controller and XRD accessories. The installation of ZETASIZER NanoZS90 (Part no.: ZEN3690) for the measurement of Nano Particle Size, Zeta Potential and Molecular Weight from Malvern Instruments Limited, U.K. Model: ZEN3690 was completed. Steady State spectrofluorometer (Model: FluoroLog-3 Version: FL3-21 Make: M/S Horiba Jobin-Vyon Inc) and Trinocular Inverted Phase Contrast Microscope have been purchased.

Sophisticated instruments installed at the Centre for Nanotechnology or at the Central equipment facility (CIF) have been a great support for the students

working in different areas at IIT Guwahati. The existing facilities available at the Centre are also shared by other members of various Departments, Centres and academic institutions of the Northeast India. Manpower development has been another area of progress, which was achieved by hiring junior and senior research fellow under the project category. Four students of the Centre have already been awarded PhD degree in the year 2011. The PhD programme in Nanotechnology is now continuing with 10 students and one project staff. Collaboration with the Department of Biotechnology, Chemistry, Physics, Electronics and Communications (ECE) and Chemical Engineering are being carried out at the Centre. Further, students of the Centre and academic departments have taken up an open elective course on Nanobiosciences floated from the Centre.

Student's forum "Corral-Chalk the Talk" is quite fruitful at the Centre as it gives platform to the students to develop communication and presentation skills. Last year students have delivered their presentation in the following topics entitled 'Easy formation of nanowire thin films from solution deposition of organic semiconducting polymers', 'Large Area, Few-Layer Graphene Films on Arbitrary Substrates by Chemical Vapor Deposition' and 'Surface Acoustic Wave Hydrogen Gas sensor using graphene-like nanosheet on LiTaO₃'.

Faculty members, staff and students associated with the Centre delivered lectures at several conferences and symposia. A few BTech students have carried out their BTP work at the Centre for Nanotechnology. Overall, during the previous year, the Centre has witnessed significant growth in various aspects of academic and research activities.

ACADEMIC ACTIVITIES

In the academic year 2010-2011, the Centre offered the following courses:

Course Name: Nanobiosciences
Course Code: NT-701

Instructor: Dr. S. S. Ghosh

STUDENT INTAKE

No. of PhD students admitted during 2011-2012 : 3
Ongoing PhD students : 10

FACULTY STRENGTH

At present, there is no core faculty recruited at the Centre. However, four faculty members from different departments like, Chemistry, Physics, Biotechnology and Electronics and Electrical Engineering are associated since the day of inception of the Centre for Nanotechnology. In addition, there are additional four (04) faculty members from different departments like Chemistry, Physics, Biotechnology and Chemical engineering who are actively collaborating at the Centre through interdisciplinary projects. So, all together, eight faculty members are now actively involved in the Centre for Nanotechnology.

MAJOR EQUIPMENT AND FACILITIES

Scanning Probe Microscope (Project)
High Quality Water Purifier
ZETASIZER NanoZS90
COMSOL Multi-Physics Software
Precision Balance
Particle Size distribution Analyzer
UV-VIS Spectrophotometer
Planetary Ball mill
Ultrasonic Cleaning Bath
Digital Camera
LCD Projector
Deep Freezer

Hot air Oven
Hot plate with Magnetic Stirrer
De-ionizer
Vacuum Coating Unit (both Thermal Evaporation and Electron Beam Deposition)
High Temperature Furnace
Turbo Molecular Pump
RF Power Supply & Matching Network
Transmission Electron Microscope (TEM)
50 MHz Digital-Analog Oscilloscope
20 MHz Functional Generator
Triple Output DC power Supply
Lock-in Amplifier
Electromagnet
Trinocular microscope
Autoclave
Electrophoresis System
UV-Transilluminator
Horizontal Laminar Hood
Refrigerated Centrifuge
Micro-Centrifuge
pH-Meter
Micropipette
Incubator
Incubator Shaker
Rotavapor
Vacuum Pumps
A common laboratory has established with Computers, Laser Printers and Scanner.
Rapid thermal processing unit
Plasma enhanced chemical vapor deposition system for nanomaterials growth
Fluorescence Activated Cell sorter (Project)
Realtime PCR machine (Project)

RESEARCH AND DEVELOPMENT ACTIVITIES

Principal Investigator	Research and Development activities
Siddhartha Sankar Ghosh	Gene Therapy: Our group is mainly focused in developing 'Gene Therapy Vectors'. We have established molecular mechanism of cell death via apoptotic signaling in suicide gene therapy. Combination therapy involving various cytokines, cell signalling molecules and nanomaterials is another area of our interest.
	Nanobiotechnology: We are also pursuing interdisciplinary collaborative research at the Centre for Nanotechnology on "nanoparticles and nanocomposites". We are developing new nanomaterials and nanocomposites for the potential applications as sensors, antimicrobial and anticancer agents.

RESEARCH PROJECTS**New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
S. S. Ghosh	Novel nanoscale materials targeted towards antimicrobial and anticancer activities	DBT *Implemented at the Centre for Nanotechnology	169	A. Chattopadhyay, Biplab Bose	3 years

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
A. Chattopadhyay	Development of Nanoscale Materials for Bacteria Removal from Surface Water	DRL	9.98	Dr.S.S.Ghosh	2 Years
A. Chattopadhyay (Coordinator for the institute-level project)	Novel Nanoscale Materials: Generation, Characterization, and Device Applications	DST	190.60	A number of faculty members from various departments	5 Years
P. K. Iyer	Design and Development and Fabrication of OLED Organic Solar cell and organic TFTs based on Molecular Polymeric and composite materials	DST	523	M.Qureshi, D. K. Goswami, A. Srinivasan	5 Years
D. Bandyopadhyay	A combined experimental and theoretical study on the instability and patterning of thin liquid crystal films	DST	9.60	-	3 Years
D. K. Goswami	Fabrication and Characterization of Organic thin film transistor	DST	34.60	-	2 Years

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
S. S. Ghosh	Nanoscale materials with therapeutic implications	DBT	102.62	A. Chattopadhyay, A. Ramesh, B. Bose	3 Years Completed
A. Chattopadhyay	Newer Chemical and Physical Methods of Engineering Devices with Nanoscale Functional Components	DST	92	-	5 Years Completed

A. Chattopadhyay (Coordinator)	Engineering Nanoscale Materials and their Applications in nanotechnology	DST	202	-	3 Years Completed
A. Khan	Development of Stimuli Sensitive Nanogels/Nanoparticles for Controlled Release System	DST	10	-	3 Years Completed

RESEARCH PUBLICATIONS

International Journal

S. Mallick, S. Sharma, M. Banerjee, S. S. Ghosh, A. Chattopadhyay and A. Paul

'Iodine-Stabilized Cu Nanoparticle Chitosan Composite for Antibacterial Applications', *ACS Applied Materials and Interfaces*, vol. 4 (3), pp 1313-23, 2012

A. Jaiswal, S. S. Ghosh and A. Chattopadhyay
'One Step Synthesis of C-dots by Microwave Mediated Caramelization of Poly(ethyleneglycol)', *Chemical Communications*, vol. 48, pp 407-409, 2012

A. Jaiswal, A. Chattopadhyay and S. S. Ghosh
'Functional Chitosan Nanocarriers for Potential Applications in Gene Therapy', *Materials Letters*, vol. 68 (1), pp 261-264, 2012

A. K. Sahoo, Md P. Sk, S. S. Ghosh and A. Chattopadhyay
'Plasmid DNA linearisation in the antibacterial Action of a new Fluorescent Ag Nanoparticle-Paracetamol Dimer composite', *Nanoscale*, vol. 3 (10), pp 4226-4233, 2011

A. K. Sahoo, S. Sharma, A. Chattopadhyay and S. S. Ghosh
'Quick and simple estimation of bacteria using a fluorescent paracetamol dimer-Au nanoparticle composite', *Nanoscale*, vol. 4 (5), pp 1688-1694, 2012

M. Banerjee, S. Sharma, A. Chattopadhyay and S. S. Ghosh
'Enhanced antibacterial activity of bimetallic gold-silver core-shell nanoparticles at low silver concentration', *Nanoscale*, vol. 3 (12), pp 5120-5125, 2011

V. K. Yata and S. S. Ghosh
'Investigating structure and fluorescence properties of green fluorescent protein released from chitosan nanoparticles', *Materials Letters*, vol. 73, pp 209-211, 2012

S. K. Gogoi, S. M. Borah, K. K. Dey, A. Paul and A. Chattopadhyay
'Optically Definable Reaction-Diffusion-Driven Pattern Generation of Ag-Au Nanoparticles on Templated Surfaces', *Langmuir*, vol. 27 (20), pp 12263-12269, 2011

K. K. Dey, K. K. Senapati, P. Phukan, S. Basu and A.

Chattopadhyay

'Stable Magnetic Chemical Locomotive with Pd Nanoparticle Incorporated Ferromagnetic Oxide', *Journal of Physical Chemistry C*, vol. 115 (26), pp 12708-12715, 2011

R. Begum and A. Chattopadhyay
'In Situ Reversible Tuning of Photoluminescence of Mn²⁺-Doped ZnS Quantum Dots by Redox Chemistry', *Langmuir*, vol. 27 (10), pp 6433-6439, 2011

S. K. Gogoi, A. Paul and A. Chattopadhyay
'Galvanic reaction based generation of electronically transparent corrugated Ag-Au nanoparticle thin films', *RSC Advances*, DOI: 10.1039/c2ra20211e, 2012

J. Deka, A. Paul and A. Chattopadhyay
'Modulating enzymatic activity in the presence of gold nanoparticles', *RSC Advances*, DOI: 10.1039/b000000x, 2012

M. D. Adhikari, B. R. Panda, U. Vudumula, A. Chattopadhyay and A. Ramesh
'A facile method for estimating viable bacterial cells in solution based on "subtractive-aggregation" of gold nanoparticles', *RSC Advances*, vol. 2, pp 1782-1793, 2012

D. K. Singh, P. K. Iyer and P. K. Giri
'Distinguishing defect induced intermediate frequency modes from combination modes in Raman spectrum of single walled carbon nanotubes', *Journal of Applied Physics*, vol. 111, pp 064304, 2012

D. Singh, P. K. Giri, and P. K. Iyer
'Evidence for defect-enhanced photoluminescence quenching of fluorescein by carbon nanotubes', *Journal of Physical Chemistry C*, vol. 115, pp 24067, 2011

P. J. Goutam, D. K. Singh, P. K. Giri and P. K. Iyer
'Enhancing the photo stability of poly-(3-hexylthiophene) by preparing composites with multiwalled carbon nanotubes', *Journal of Physical Chemistry B*, vol. 115, pp 919-924, 2011

D. K. Singh, P. K. Iyer and P. K. Giri
'Defect evolution and structural improvement in low

energy ion irradiated carbon nanotubes: Microscopic and spectroscopic studies', *International Journal of Nanoscience*, vol. 10, pp 49, 2011

D. K. Singh, P. K. Iyer and P. K. Giri
'Improved chemical synthesis of graphene using a safer solvothermal route', *International Journal of Nanoscience*, vol. 10, pp 39, 2011

Conference/Workshop/Seminar/Symposia

International

S. Sharma, M. Banerjee, A. Chattopadhyay and S. S. Ghosh
'Nanomaterials as antibacterial agents', Miami 2012 Winter Symposium: Nanotechnology in Biomedicine, JW Marriott Marquis Miami, Miami, FL, USA, 26-29 Feb 2012

A. K. Sahoo, Md.P. Sk, S. S. Ghosh and A. Chattopadhyay
'Novel antibacterial Ag nanoparticle-paracetamol dimer composite causing linearization in plasmid DNA', India Australia Workshop on Nanotechnology in Materials & Energy Applications (IAWNT 2011), School of Materials Science & Nanotechnology, Jadavpur University, Kolkata, 28–31 Dec 2011

A. Jaiswal, S. S. Ghosh and A. Chattopadhyay
'Facile Synthesis of Carbon dots using Poly(ethylene glycol) as Precursor and Passivizing Agent', International Conference on Nanoscience and Technology (ICONSAT 2012), Hotel Taj Krishna, Hyderabad, 20-23 Jan 2012

R. K. Biroju, O. Jost, P. K. Giri
'Effect of sample purity and laser excitation energy on the intermediate-frequency raman modes of single-walled carbon nanotubes' International Conference on Nanoscience and Technology (ICONSAT 2012), Hotel Taj Krishna, Hyderabad, 20-23 Jan 2012

A. K. Sahoo, Md. P. Sk, S. S. Ghosh and A. Chattopadhyay
'New fluorescent silver nanoparticle- paracetamol dimer composite causing linearization of plasmid DNA in antimicrobial action', 2nd International Conference of Advance Nanomaterials and Nanotechnology (ICANN 2011), IIT Guwahati, Guwahati, 8-10 Dec 2011

S. Sharma, P. Sanpui, A. Chattopadhyay and S. S. Ghosh
'Alginate mediated 'green' synthesis of Silver Nanoparticles and Fabrication of films with antibacterial properties', 2nd International Conference of Advance Nanomaterials and

Nanotechnology (ICANN 2011), IIT Guwahati, Guwahati, 8-10 Dec 2011

R. K. Biroju, O. Jost, P. K. Giri
'Excitation wavelength dependence of Raman spectra in single walled carbon nanotubes with different purities', 2nd International Conference of Advance Nanomaterials and Nanotechnology (ICANN 2011), IIT Guwahati, Guwahati, 8-10 Dec 2011

S. Mallick, S. Sharma, M. Banerjee, S. S. Ghosh, A. Chattopadhyay and A. Paul
'Role of iodine in the antimicrobial activity of silver nanoparticle chitosan as well as copper nanoparticle chitosan composite', 2nd International Conference of Advance Nanomaterials and Nanotechnology (ICANN 2011), IIT Guwahati, Guwahati, 8-10 Dec 2011

A. Jaiswal, A. Chattopadhyay and S. S. Ghosh
'Multifunctional Chitosan Nanocarriers: Synthesis and Application', Indo-US Bilateral Workshop on Nanoparticle Assembly: From Fundamentals to Applications, IIT Delhi, 12-14 Dec 2011

S. Sharma, M. Banerjee, A. Chattopadhyay and S. S. Ghosh
'Bimetallic gold-silver core-shell nanoparticles showing antibacterial activity at low silver concentration', Indo-US Bilateral Workshop on Nanoparticle Assembly: From Fundamentals to Applications, IIT Delhi, 12-14 Dec 2011

P. Das and O. K. Medhi
'Structure, spectra, redox and catalytic behaviour of the active site model complexes for Galactose Oxidase', 18th International Conference on Perspective and Challenges in Chemical and Biological Sciences: Innovation Cross Roads, POST ISCBC 2012, IASST Guwahati, 28-30 Jan 2012

National

A. Jaiswal, S. S. Ghosh and A. Chattopadhyay
'Carbon dots: Emergence of a Newer Nanolight', Conference on Photochemistry and Luminescence (CPL 2012), IIT Guwahati, Guwahati, 9-10 Mar 2012

P. Das and O. K. Medhi
'Biomimetic study of micelle encapsulated models of Vitamin B12', XV National Conference on Surfactants, Emulsions and Bio-colloids (NATCOSEB-2011), Tripura University, 27-29 Dec 2011

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/National
S. S. Ghosh	International Conference on Advanced Nanomaterials and Nanotechnology (ICANN 2011) Chairing Session of "Nanobiotechnology"	IITG	8 Dec 2011	International

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
S. S. Ghosh	Gene Therapy: prospects in combination therapy	Workshop on Molecular tools in Biotechnology Teaching and Research at Department of Botany, NEHU, Shillong	Shillong	21 Mar 2012
S. S. Ghosh	Multiplexing of DNA nanotechnology and Theranostics	Workshop on Molecular tools in Biotechnology Teaching and Research at Department of Botany, NEHU, Shillong	Shillong	21 Mar 2012
S. S. Ghosh	Nanomaterials for potential implications in therapy	Workshop on Application of Molecular Biology in Cancer Diagnostics at Dr B. Borooah Cancer Institute, Guwahati	Guwahati	29 Feb 2012
S. S. Ghosh	1. Multiplexing of DNA nanotechnology 2. Silver nanoparticles as therapeutic agents	Refresher course in Chemistry at Academic Staff College, Gauhati University	Guwahati	19 Nov 2011
S. S. Ghosh	Implications of nanomaterials as Therapeutic Agents	National workshop on Recent Trends in Nanoscience and Technology, Bahona College, Jorhat	Jorhat	20 May 2011
A. Chattopadhyay	Chemical Approaches to Functional Nanomaterials	Chemistry of Functional Materials, organised by IIT Bombay	Goa	12-14 Aug 2011
A. Chattopadhyay	Versatile Chemical Approaches to Nanobiotechnology	Joint ICTP-KFAS Conference on Nanotechnology for Biological and Biomedical Applications Nano-Bio-Med, ICTP, Trieste, Italy	Italy	10-14 Oct 2011
A. Chattopadhyay	Principles of Chemistry for Nanomaterials and Nanostructures	A meeting on Chemistry and Physics of Advanced Materials organized by IACS, Kolkata	Kolkata	29-31 Oct 2011
A. Chattopadhyay	Chemical Approaches to Assembled Nanoparticles	Indo-US Workshop on Nanoparticle Assembly: From Fundamentals to Applications, organized by IIT Delhi and Columbia University, New York	New Delhi	12-14 Dec 2011
A. Chattopadhyay	Chemical Means for Nanoscale Patterning and Chemical Locomotion	Celebration of Chemistry, organized by Department of Chemistry, IIT Kanpur	Kanpur	3-5 Dec 2011
A. Chattopadhyay	Chemical Reactions and Light for Patterned Nanoparticles	Eleventh Trombay Symposium on Radiation & Photochemistry (TSRP-2012), organized by BARC, Mumbai	Mumbai	4-7 Jan 2012
A. Chattopadhyay	Chemical Approaches to Nanotechnology	18th International Conference on Perspective and Challenges in Chemical and Biological Sciences: Innovation Cross Roads (POST ISCBC-2012), organized by IASST, Guwahati, Assam and ISCB, Lucknow	Guwahati	28-30 Jan 2012

SEMINARS/WORKSHOPS/CONFERENCES /SHORT-TERM COURSES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
S.S. Ghosh (Coordinator)	Short-Term Course on Advance Techniques in Biotechnology	DBT	12-15 Oct 2011	National

AWARDS AND HONOURS

Prof. Arun Chattopadhyay has joined as a member of the Advisory Board of *Nanoscale* (a journal of the Royal Society of Chemistry, UK).

Shilpa Sharma received international travel grant from Department of Science and Technology, Govt. of India, to present a poster entitled 'Nanomaterials As Antibacterial Agents' in the Miami 2012 Winter Symposium: Nanotechnology in Biomedicine held at JW Marriott Marquis Miami, Miami, FL, USA during 26-29 Feb 2012.

FACULTY MEMBERS ASSOCIATED WITH THE CENTRE

D. Bandopadhyay
Chemical Engineering

B. Bose
Biotechnology

A. Chattopadhyay
Chemistry

S. S. Ghosh (Head of the Centre)
Biotechnology

P. K. Giri
Physics

D. Goswami
Physics

P. K. Iyer
Chemistry

H. Nemade
Electronics and Communication Engineering

CENTRAL LIBRARY

INTRODUCTION

The Central Library, one of the important central facilities of IIT Guwahati, continued to grow in terms of its resources, facilities and services to meet the requirements of the Institute's wide ranging academic and research programmes.

Following resources have been added to the Central Library during the reporting period:

RESOURCES

9508 selected volumes of books and back-volumes in various fields of science, engineering, technology, social sciences and other related areas were acquired during the Financial Year 2011-2012 at the cost of Rs. 272 lakh.

Total 578 journals, which include 86 Indian journals, were subscribed during the Financial Year 2011-2012. The total strength of Institute subscribed online content collection strength has reached to 7783. The total expenditure for current journals for this financial year was Rs. 301 lakh.

All the documents added to the library were technically processed and the data were added and updated in the computerised databases to facilitate their optimum use.

Total 100 theses were added in to the collection and number of non-books collection has reached to 5841 items during this Financial Year.

821 sets of loose issues of periodicals were processed for binding.

The total collection strength of the Library by the end of this Financial Year stands as 1, 41,365.

SERVICES

a) Automated Circulation System continued to provide a much needed relief to both users and the staff, particularly to cope-up with the heavy rush at the circulation counter. Reminders, recalls, statistical data generation, reservations and other query responses became easy and prompt.

b) The library continued to facilitate its users with online access to various electronic resources and the Current Periodicals wherever on-line versions were available to the library along with the print subscriptions.

c) The subscription for online resources continues to grow with inclusion of eBooks to its resources for IP-based access.

d) A barcode based document issue/return system continues to provide user friendly service to all users.

CENTRE FOR EDUCATIONAL TECHNOLOGY

INTRODUCTION

The Centre for Educational Technology (CET) is a central facility of the institute to assist Teaching- Learning Process. The Centre is primarily focused on development of course works and dissemination of learning resources to the students and teachers. It is also engaged in imparting training in the form of refresher courses for faculty members of Engineering Colleges and technical institutions. At present, the operational objective is to update studio/laboratories for video and web courses making use of information and communication technology. The Centre has state of art of video recording and analysis equipments and macro media software. The centre has also Video Conferencing System

CET has been involved in one of the National level major projects along with other IITs and IISc under MHRD, Government of India namely National Programme on Technology Enhanced Learning (NPTEL). CET has successfully completed the Phase I of NPTEL (National Programme on Technology Enhanced Learning) project. Under this project a total of 16 web Courses and 05 Video Courses are developed. The video courses in the programme comprises of approximately 40 hours lectures for each course and the web supplements contain sufficient materials that a teacher can cover in approximately 40 lecture-hours. The contents are based on the model curriculum suggested by All India Council for Technical Education (AICTE) and the syllabi of major affiliating Universities such as Anna University (Tamil Nadu), Jawaharlal Nehru Technological University (Andhra Pradesh) and Visvesvaraya Technological University (Karnataka). Phase-II of the project has been steadily progressing with aim to develop 63 web courses and 27 video courses suitable for Post graduate curriculum and final year undergraduate electives

The Video courses are uploaded in the you tube (<http://www.youtube.com/iit>) and are also submitted for transmitting through GYANDARSHAN-III called Eklavya channel. The web courses and video courses are

developed in order to provide students extra learning material over the net.

Quality Improvement Programme (QIP), a scheme under the sponsorship of All India Council for Technical Education, New Delhi has been in operation at the IIT Guwahati since 2003-2004. Quality Improvement Programme is being implemented with the objective of upgrading the expertise, qualification and capabilities of the faculty members of degree level technical institutions. The major activities under the QIP include:

- Masters and Doctoral Programme
- Short Term Programme
- Curriculum Development

There are other projects in CET viz. i) Virtual Lab, ii) Development of an Indian Sign Language Recognition System for Hearing Impaired students of India under the National Mission for Education through ICT, iii) Developing suitable Pedagogical Methods for Various classes, Intellectual Calibers & e-learning and iv) Creating Digital Learning Environment for Design in India

MAJOR EQUIPMENT AND FACILITIES

- i. 2 nos. of Video Conferencing system with 2 nos. of 55" LG TV
- ii. 5 nos. of Mac Pro, 3 nos. of Power Mac G5
- iii. 2 nos. of Sony DSR 390 DV CAM Camera, 2 nos. of LCD Projector, 2 nos. of DV CAM Recorder, 2 nos. of DV CAM Player, 2 nos. of Sony Audio Mixer SRP-V110, 1 no. of Sony Editing Control Unit, 2 nos. of Sony Switcher DFS 700A, 2 nos. of Sony DME Switcher DFS 700AP, 2 nos. of Camera Control Unit
- iv. 3 nos. of PHILIPS COLOUR TELEVISION
- v. 4 nos. of Tablet PC, 1 no. of Notebook PC, 3 nos. of Tower Model Acer Server (Altos G710), 1 Interactive Electronic Whiteboard, 1 PLASMA TV
- vi. 1 no. of NI PXI-8108 Core2 Duo 2.56GHz Controller, 1 no. of Rotational Vibrometer, NI ELVIS II, NI PXI-2529 High Density(8 by 16) Matrix, ABBE Refractometer under

Virtual Lab Project

vii. Workstations (High-end systems for image/video processing), Data/Cyber Gloves, HD Cameras, Other Equipment for Computer Animation and Applications

related to virtual realities under the Project “Development of an Indian Sign Language Recognition System for Hearing Impaired students of India” under the National Mission for Education through ICT etc.

RESEARCH PROJECTS**New Sponsored Projects**

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
R. M. Punekar (Dept. of Design)	Creating Digital Learning Environment for Design in India	MHRD	50	-	2 1/2yrs

Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
S. Talukdar	NPTEL II & NPTEL III	MHRD	893	-	5 years
Ratnajit Bhat-tacharjee	Virtual Lab	MHRD	576	-	2 years
Manas Kamal Bhuyan	Development of an Indian Sign Language Recognition System for Hearing Impaired students of India under the National Mission for Education through ICT	MHRD	130 (For Pilot Phase)	P. K. Bora	3 years
J. K. Deka	Developing suitable Pedagogical Methods for Various classes, Intellectual Calibers & e-learning	MHRD	6	-	2 years (Pilot Phase)

Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration
A. Dewan, S. Nandi, R. Tiwari	NPTEL Phase I	MHRD	138	A. Singh	3 years

SEMINARS/WORKSHOPS/CONFERENCES ORGANISED

Name of Faculty	Name of Sem./Wor./Con.	Funded By	Date	International/National
S. Talukdar	Deployment and use of video/ web courses for enriching technical education in India	MHRD	4-5 Nov 2011	National
K. Sreenivasan, S. Biswas, Arijit Sur	What is common in cloud computing, nano technology and green computing?	AICTE	19-21 Jan 2012	National
R. K. Bhattacharyya, K. Kalita	Engineering Optimization using EXCEL and MATLAB	AICTE	29 Feb - 2 Mar 2012	National

12 Short Term Courses were held under QIP in the year 2011-2012 as given below:

Sl. No.	Name of Course	Date	Department/ Centre	Coordinator
1	Data Structures & Algorithms	4-8 Jul 2011	Computer Science and Engineering	Pinaki Mitra
2	Tools for Bioresources Conservation	11-15 July 2011	Biotechnology	Latha Ranjan, Utpal Bora
3	Society and the Web	19-23 Sep 2011	Computer Science and Engineering	Sanasam Ranbir Singh, Amit Awekar
4	VLSI Architectures for Image and Video Processing Systems	19-24 Sept 2011	Electronics and Electrical Engineering	S. R. Ahamed
5	Computational Techniques in Physics	1-6 Aug 2011	Physics	B. R. Boruah, S. Das
6	Recent Trends in fuels and Combustion	29 Aug – 2 Sep 2011	Mechanical Engineering	P. Muthukumar, N. Sahoo
7	Digital Communication Techniques	12-16 Sept 2011	Electronics and Electrical Engineering	P. R. Sahu
8	Recent Advancements in Micro Fluidics Technology	31 Oct – 4 Nov 2011	Mechanical Engineering	Ashis Kr. Sen, S. Kanagaraj
9	Hydroelectric Power Development	5-9 Dec 2011	Centre for the Environment	Pinakeswar Mahanta, Rajib K. Bhattacharjee, Karuna Kalita
10	Integrated Solid Waste Management	9-13 Jan 2012	Civil Engineering	Ajay Kalamdhad
11	Graphic Design	6-10 Feb 2012	Design	D. Udaya Kumar
12	Large River Management: Hydraulics, Hydrology and Ecology	16-21 Jan 2012	Civil Engineering	Bimlesh Kumar, S. Dutta

FACULTY MEMBER ASSOCIATED WITH THE CENTRE

S. Talukdar (Head of the Centre, and Coordinator, QIP)
Civil Engineering

CENTRAL INSTRUMENTS FACILITY

INTRODUCTION

The Central Instruments Facility (CIF) was set up in May 2004. The concept of CIF evolved around the need for locating expensive equipment required by the faculty of multiple departments/centres for carrying out their research in a central place. The needs of the other researchers working under various universities, research institutes, and industries situated in the northeastern region of India were also considered while formulating the CIF. The CIF accommodates sophisticated analytical instruments, which cater to the cutting-edge research in many areas of modern science and technology.

These equipment are of inter/multidisciplinary utility and thus offer scope for their optimum utilization. At this stage, the CIF houses equipment like Nuclear Magnetic Resonance (NMR) Spectrometer (400 MHz), Scanning Electron Microscope (SEM), Confocal Laser Scan Microscope (CLSM), Electron Spin Resonance (ESR) Spectrometer, Transmission Electron Microscope (TEM), Liquid Chromatography Mass Spectrometer (LC MS/MS), Vibrating Sample Magnetometer (VSM) etc. Phase-wise induction of more number of highly sophisticated equipment to meet the demand on advanced R&D work at IIT Guwahati is under active consideration.

MAJOR EQUIPMENT AND FACILITIES

Existing facilities (Major Equipment)

- 400 MHz Nuclear Magnetic Resonance (NMR) Spectrometer, Make: Varian, Model: Mercury plus
- Electron Spin Resonance (ESR) Spectrometer, Make: JEOL, Model: JES-FA200
- Scanning Electron Microscope (SEM), Make: LEO, Model: 1430vp
- Confocal Laser Scanning Microscope (CLSM), Make: Zeiss, Model: LSM 510Meta
- Field Emission Scanning Electron Microscope (FESEM), Make: Zeiss, Model: Sigma
- Atomic Force Microscope (AFM) and Scanning Tunneling Microscope (STM), Make: Agilent, Model 5500 series
- Laser Micro Raman System, Make: Horiba Jobin Vyon,

Model LabRam HR

- High Temperature Differential Scanning Calorimetry (DSC)/Thermo Gravimetric (TG) System, Make: Netzsch Model: STA449F3A00
- Transmission Electron Microscope (TEM), Make: JEOL, Model: JEM 2100
- Vibrating Sample Magnetometer (VSM), Make: Lakeshore, Model:7410 series
- Magnetic Property Measurement System (MPMS), Make: Quantum Design, Model: MPMSXL
- Liquid Chromatography Mass Spectrometer (LCMS/MS), Make: Waters, Model: Q-ToF Premier
- Picosecond Time-resolved cum Steady State Luminescence Spectrometer, Make: Eddinburg Instruments, Model: FSP920
- Desktop Helium Liquefier, Make: Cryomech, Model: LHEP18
- Physical Property Measurement System (PPMS), Make: Quantum Design, Model: PPMS-9

Equipment installed in the reporting year:

- Nanoindentor Make: CETR, Model: UNMT-1
- Spectroscopic Ellipsometer Make: SEMILAB, Model: GES5E

Equipment purchased in the reporting year:

- 600 MHz FT-NMR Spectrometer Make: Bruker Model: AVANCE-III 600 MHz FT-NMR Spectrometer. Cost: Rs. 4.7 crore (approximately)
- Single Crystal X-ray Diffractometer, Make: Agilent Model: Single source supernova E (Mo source). Cost: Rs. 1.6 crore (approximately)

ANY OTHER (SPECIAL MENTION)

An amount of rupees eighty six thousand (approx) has been collected as charges of external samples analysis carried out at the centre during the reporting year.

FACULTY MEMBER ASSOCIATED WITH THE CENTRE

A. K. Saikia (Head of the Centre)
Chemistry

CENTRE FOR MASS MEDIA COMMUNICATION

INTRODUCTION

Mass media usually are thought of as sources of news and entertainment. They also carry messages of persuasion. Important, though often overlooked, is how mass messages bind people into communities, even into nations. United Nations study based on the data on the number of television and radio sets around the globe and these data segregated into western democracies and developing countries shows a direct correlations between media use, education and prosperity.

Centre for Mass Media Communication (CMMC) of the Institute was started in May 2004 with an objective to achieve some of the above mentioned outcomes. Presently the Centre has state-of-the-art pre-press, offset press and post-press facilities. In addition to training students of the Department of Design regarding various aspects of print media design, it caters to various in-house design and printing requirements of IIT Guwahati. Vision for the Centre is to have an integrated facility including other elements of mass media like electronic and photographic media.

MAJOR EQUIPMENT AND FACILITIES

Heidelberg offset printing machine, Model: Speed Master SM-74 bi-colour, maximum print size 530x740 mm

Heidelberg polar cutting machine, Model: 92 E

Heidelberg scanner, Model: Nexscan F 4100

Heidelberg imagesetter, Model: Primesetter 74

IBM server XSeries 225

Power operated Stitching Machine

Power operated title creasing cum Micro Perforation Machine

Paper Folding Machine F4PS

Paper Jogging Machine

FACULTY MEMBER ASSOCIATED WITH THE CENTRE

A.K. Das (Head of the Centre)
Design

COMPUTER AND COMMUNICATION CENTRE

INTRODUCTION

The Computer and Communication Centre of IIT Guwahati holds the responsibilities for computing and telecommunication needs of the Institute. The centre maintains the major part of all computing resource pool in the Institute.

The services provided by the Computer and Communication Centre include:

- Provides Internet access to IITG community
- Provides and maintains Email facilities of the institute
- Caters general purpose as well as high computational needs of the users
- Plans, implements and maintains the campus network
- Hosts and maintains the web sites of the institute
- Keeps the official intranet pages up and running
- Manages telephone and broadband services
- Implements computational security
- Builds in-house software for the institute
- Provides technical assistance to the Academic Institutes and Organisations in and around Guwahati.
- Provides facilities to the students who come from various academic institutes from all over the world for their Short-term Course, Project Work and Summer Training etc.

These facilities are constantly upgraded to meet the evolving standards of IT.

COMPUTING FACILITIES

The Computer and Communication Centre is equipped with a mix of high-end servers of different specifications to meet the diverse computing requirements of the end users. The centre is well equipped with servers of different brands like IBM, HP, Dell, Sun etc.

In the financial year 2011-12, the centre has purchased/upgraded around 110 desktop computers. These PCs are now being used in the Computer and Communication Centre laboratory and in many other places of the

Institute. At present, the Computer and Communication Centre Lab has approximately 260 computers having configurations like 4/2 GB RAM, 2nd generation Intel core-i3/dual/tri core processors etc.

In this financial year, the centre has acquired four high-end IBM servers. These servers are now being used to upgrade the web services of the institute, to provide computational facility to the students and in the IITG automation system.

Computer and Communication Centre has two clusters; a high availability cluster intended to fulfil the regular programming requirements and a High Performance Computing (HPC) cluster integrated to the nation-wide Garuda Grid.

The centre has implemented a few notable changes in the core structure of the web services of the institute. Now, a centralized DBMS and backup facility are integrated with the web services.

Further, the email facility provided by the centre in collaboration with Microsoft to the IITG Alumni has been upgraded and new interface has been added which enables administrative rights to manage user accounts. In the departmental server floor space of the centre, two new clusters have been installed.

NETWORKING

The Computer and Communication Centre solely manages the huge campus network of the institute. The Computer and Communication Centre has successfully upgraded the existing network backbone to 10 Gigabit capacity. Further, the network capability to the Academic and Administration building has been upgraded to Gigabit capacity with new L2+ and L3 switches.

The centre has extended the IITG network and voice facility to some new offices and buildings. Network has

been extended to the Dibang and Brahmaputra hostels. Almost all old manual OFC terminations have been re-spliced vide precision splicing machine to minimize data loss. Wi-Fi connectivity has been provided in some important buildings/ locations.

Internet Facility

Internet facility is provided to the users through four links – NKN (100 Mbps), BSNL (45Mbps), Airtel(27Mbps) and ERNET (8Mbps). Internet facility has been provided to all residential quarters through ADSL2+ technology.

Telephone Facility

The institute has a full-fledged Telephone Exchange and provides telephone connectivity to all the offices and residences of the Institute. With the expansion of the campus, the Computer and Communication Centre has increased the capability of the existing EPABX system to around 250 new users including newly built B,D,E and F type Quarters and also some academic and administrative areas. Looking into smooth functioning and possible future needs, the ESS-7 EPABX system has been renovated.

Renewal of Licenses/ MoU

The Centre has renewed the Microsoft Volume License for all languages Licenses/SA pack, McAfee antivirus License, RHEL subscription, MoU between IITG and CDAC for Garuda Grid Computing facility.

Support

The Centre provides and maintains the PCs of the Faculty and Staff members of the institute. In addition to providing direct support to the members of the Institute, the Centre also frequently hosts write-ups (HOW-TOs, FAQs, etc) in its Intranet website. The Centre also maintains an online e-notice board for posting and viewing notices electronically campus-wide, web-based Course Management System and Complaint Management System, an online forum, etc.

Training and Consultancy

The technical staff of the Centre regularly provides training and consultancy to various Govt. and private organisations. The staffs of the centre provide summer training and guides in the project works of visiting students from other institutes. The Centre also provides training with stipend to fresh candidates who have passed out from technical institutes in and around the region.

Recently, a software namely “Assam Brail” has been developed in the centre to convert texts to Braille letters. This software is now being used by the Braille Press, Assam, under the ministry of Social Welfare to emboss

Braille text in Assamese.

Support in Office Automation

Under an intension to fully automate the office works of the institute, the Centre has constantly been working on its in-house office automation project since last few years. A major portion of the project has been implemented in this financial year. Faculty online leave application, Faculty administration, online course registration, online admission procedures etc. are now fully functional. For rapid enhancement of the project, four project staffs have been appointed in the project.

ONGOING SPONSORED PROGRAMMES

National Knowledge Network (NKN) Project

IIT Guwahati is an active partner of the National Knowledge Network (NKN). At present, the institute has been connected to 01Gbps connectivity for video conferencing, virtual classrooms and high-speed internet services.

Under the project NP-TEL Phase-II, the video and web lectures developed in Centre for Educational Technology of the institute, are delivered to IIT Madras vide the connectivity provided under NKN project.

ERNET Point-of-Presence

IIT Guwahati is a PoP (Point-of-Presence) of category B for ERNET India in the north-eastern region of India. Currently, nine educational and research institutes of the region have been subscribing to Internet connectivity of this ERNET PoP. The ERNET PoP is housed inside the Centre. Two System Engineers have been exclusively assigned to look after the affairs of the ERNET PoP at IITG.

Under this project, two new 30 KVA UPS (make APC) have been installed during this financial year against the buy back of an old 10 KVA UPS. An amount of rupees three Lakhs has been sanctioned in the project for the financial year 2011-2012.

WORKSHOP ATTENDED

Mr. J. K. Ghosh, SO-II, attended a meeting cum workshop on “North Eastern Regional NKN Meet”, held at IASST, Guwahati.

Mr. Iqbal Inam, SO-II, attended a workshop on IIT System Portal held in IIT Kanpur.

FACULTY MEMBER ASSOCIATED WITH THE CENTRE

D. Goswami (Head of the Centre)
Computer Science and Engineering

PART III

APPENDICES

Faculty

Officers and Scientific Staff (Group A)

Degree Awardees

Progress in Construction Works

Details of Research and Development Projects

Summary of Institute Accounts

Appendix–I

FACULTY

Name	Designation	Department
Baskaran, A.	Asst. Professor	Biotechnology
Bora, U.	Assoc. Professor	Biotechnology
Bose, B.	Asst. Professor	Biotechnology
Chaturvedi, R.	Assoc. Professor	Biotechnology
Chaudhary, N.	Asst. Professor	Biotechnology
Das, D.	Asst. Professor	Biotechnology
Dasu, V. V.	Assoc. Professor	Biotechnology
Dubey, V. K.	Assoc. Professor	Biotechnology
Ghosh, S. S.	Assoc. Professor	Biotechnology
Goswami, P.	Professor	Biotechnology
Goyal, A.	Professor	Biotechnology
Jaganathan, B. G.	Asst. Professor	Biotechnology
Limaye, A. M.	Asst. Professor	Biotechnology
Mandal, B. B.	Asst. Professor	Biotechnology
Pakshirajan, K.	Assoc. Professor	Biotechnology
Patra, S.	Asst. Professor	Biotechnology
Ramakrishnan, V.	Asst. Professor	Biotechnology
Ramesh, A.	Assoc. Professor	Biotechnology
Rangan, L.	Assoc. Professor	Biotechnology
Sahu, L.	Assoc. Professor	Biotechnology
Saini, G. K.	Assoc. Professor	Biotechnology
Sivaprakasam, S.	Asst. Professor	Biotechnology
Swaminathan, R.	Professor	Biotechnology
Tamuli, R.	Asst. Professor	Biotechnology
Trivedi, V.	Asst. Professor	Biotechnology
Balasubramanian, P. (up to 24.11.11)	Asst. Professor	Chemical Engineering
Bandyopadhyay, D.	Asst. Professor	Chemical Engineering
Banerjee, T.	Asst. Professor	Chemical Engineering
Das, C.	Asst. Professor	Chemical Engineering
De, M.	Asst. Professor	Chemical Engineering
Ghosh, P.	Assoc. Professor	Chemical Engineering
Ghoshal, A. K.	Professor	Chemical Engineering
Golder, A. K.	Asst. Professor	Chemical Engineering
Goud, V. V.	Asst. Professor	Chemical Engineering
Gumma, S.	Assoc. Professor	Chemical Engineering

Name	Designation	Department
Katiyar, V.	Asst. Professor	Chemical Engineering
Kishore, N.	Asst. Professor	Chemical Engineering
Kotecha, P.	Asst. Professor	Chemical Engineering
Kumar, A.	Asst. Professor	Chemical Engineering
Mahapatra, A. D.	Asst. Professor	Chemical Engineering
Majumder, S. K.	Assoc. Professor	Chemical Engineering
Mandal, B.	Assoc. Professor	Chemical Engineering
Mandal, T. K.	Asst. Professor	Chemical Engineering
Mohanty, K.	Assoc. Professor	Chemical Engineering
Moholkar, V. S.	Assoc. Professor	Chemical Engineering
Pugazhenthii, G.	Assoc. Professor	Chemical Engineering
Purkait, M. K.	Assoc. Professor	Chemical Engineering
Saha, P. K.	Assoc. Professor	Chemical Engineering
Singh, A.	Assoc. Professor	Chemical Engineering
Upadhyay, R. K.	Asst. Professor	Chemical Engineering
Uppaluri, R. G. V. S.	Assoc. Professor	Chemical Engineering
Verma, A.	Assoc. Professor	Chemical Engineering
Bag, S. S.	Asst. Professor	Chemistry
Baruah, J. B.	Professor	Chemistry
Chattopadhyay, A.	Professor	Chemistry
Chaudhuri, M. K.	Professor	Chemistry
Das, D.	Asst. Professor	Chemistry
Das, G.	Assoc. Professor	Chemistry
Dutta, S.	Asst. Professor	Chemistry
Gupta, A. K.	Assoc. Professor	Chemistry
Iyer, P. K.	Assoc. Professor	Chemistry
Jana, C. K.	Asst. Professor	Chemistry
Khan, A. T.	Professor	Chemistry
Krishnamoorthy, G.	Assoc. Professor	Chemistry
Kundu, L. M.	Asst. Professor	Chemistry
Mandal, B.	Asst. Professor	Chemistry
Manivannan, V.	Assoc. Professor	Chemistry
Manna, D.	Asst. Professor	Chemistry
Mondal, B.	Assoc. Professor	Chemistry
Mukherjee, C.	Asst. Professor	Chemistry
Pan, S. C.	Asst. Professor	Chemistry
Panda, A. N.	Asst. Professor	Chemistry
Patel, B. K.	Professor	Chemistry
Paul, A.	Assoc. Professor	Chemistry
Paul, S.	Asst. Professor	Chemistry
Punniyamurthy, T.	Professor	Chemistry
Qureshi, M.	Asst. Professor	Chemistry
Ray, M.	Professor	Chemistry
Sahu, K.	Asst. Professor	Chemistry
Saikia, A. K.	Professor	Chemistry
Sarma, M.	Asst. Professor	Chemistry
Sastri, C. V.	Asst. Professor	Chemistry

Name	Designation	Department
Sudhakar, A. A.	Asst. Professor	Chemistry
Barua, G.	Assoc. Professor	Civil Engineering
Bhattacharjya, R. K.	Assoc. Professor	Civil Engineering
Chakraborty, A.	Asst. Professor	Civil Engineering
Chakraborty, S.	Assoc. Professor	Civil Engineering
Choudhury, R.	Asst. Professor	Civil Engineering
Das, S.	Asst. Professor	Civil Engineering
Dasgupta, K.	Asst. Professor	Civil Engineering
Dash, S. K.	Assoc. Professor	Civil Engineering
Deb, S. K.	Professor	Civil Engineering
Dey, A.	Asst. Professor	Civil Engineering
Dutta, A.	Professor	Civil Engineering
Dutta, S.	Assoc. Professor	Civil Engineering
Ghosh, P. K.	Assoc. Professor	Civil Engineering
Gokhale, S. B.	Assoc. Professor	Civil Engineering
Jawed, M.	Professor	Civil Engineering
Kalamdhad, A.	Asst. Professor	Civil Engineering
Kartha, S. A.	Asst. Professor	Civil Engineering
Kaushik, H. B.	Asst. Professor	Civil Engineering
Kumar, B.	Asst. Professor	Civil Engineering
Mahanta, C.	Professor	Civil Engineering
Mallikarjuna, C.	Asst. Professor	Civil Engineering
Maurya, A. K.	Asst. Professor	Civil Engineering
Mishra, A. K.	Asst. Professor	Civil Engineering
Murali Krishna, A.	Asst. Professor	Civil Engineering
Pekkat, S.	Asst. Professor	Civil Engineering
Pradhan, B.	Asst. Professor	Civil Engineering
Ryntathieng, T. L.	Asst. Professor	Civil Engineering
Sarma, A. K.	Professor	Civil Engineering
Sekharan, S.	Assoc. Professor	Civil Engineering
Sharma, H.	Asst. Professor	Civil Engineering
Singh, A. K.	Assoc. Professor	Civil Engineering
Singh, B.	Assoc. Professor	Civil Engineering
Singh, K. D.	Asst. Professor	Civil Engineering
Singh, L. B.	Asst. Professor	Civil Engineering
Talukdar, S.	Professor	Civil Engineering
Anand, A.	Asst. Professor	Computer Science & Engineering
Awekar, A. C.	Asst. Professor	Computer Science & Engineering
Barua, G.	Professor & Director	Computer Science & Engineering
Bhaduri, P.	Assoc. Professor	Computer Science & Engineering
Bhattacharya, S.	Asst. Professor	Computer Science & Engineering
Biswas, S.	Asst. Professor	Computer Science & Engineering
Das, P. K.	Assoc. Professor	Computer Science & Engineering
Deka, J. K.	Assoc. Professor	Computer Science & Engineering
Goswami, D.	Professor	Computer Science & Engineering
Inkulu, R.	Asst. Professor	Computer Science & Engineering
Kapoor, H. K.	Assoc. Professor	Computer Science & Engineering

Name	Designation	Department
Karmakar, S.	Asst. Professor	Computer Science & Engineering
Kenkireth, B. G.	Asst. Professor	Computer Science & Engineering
Kesh, D.	Asst. Professor	Computer Science & Engineering
Mitra, P.	Assoc. Professor	Computer Science & Engineering
Nair, S. B.	Assoc. Professor	Computer Science & Engineering
Nandi, S.	Professor	Computer Science & Engineering
Rao, S. V.	Assoc. Professor	Computer Science & Engineering
Sahu, A.	Asst. Professor	Computer Science & Engineering
Sajith, G.	Assoc. Professor	Computer Science & Engineering
Saradhi, V. V.	Asst. Professor	Computer Science & Engineering
Shannigrahi, S.	Asst. Professor	Computer Science & Engineering
Singh, S. R.	Asst. Professor	Computer Science & Engineering
Sreenivasan, K.	Visiting Professor	Computer Science & Engineering
Sur, A.	Asst. Professor	Computer Science & Engineering
Venkatesh, T.	Asst. Professor	Computer Science & Engineering
Avital, I. A.	Visiting Professor	Design
Avital, N. R.	Visiting Assoc. Professor	Design
Barua, U.	Assoc. Professor	Design
Chakrabarti, D.	Professor	Design
Das, A. K.	Professor	Design
Dharmalingam, U. K.	Asst. Professor	Design
Iqbal, S.	Asst. Professor	Design
Karmakara, S.	Asst. Professor	Design
Madhukaillya, M.	Asst. Professor	Design
Majhi, M.	Asst. Professor	Design
Punekar, R. M.	Professor	Design
Shende, A.	Asst. Professor	Design
Sorathia, K. B.	Asst. Professor	Design
Yammiyavar, P. G.	Professor	Design
Acharyya, A.	Asst. Professor	Electronics & Electrical Engineering
Ahamed, S. R.	Asst. Professor	Electronics & Electrical Engineering
Bhattacharjee, R.	Professor	Electronics & Electrical Engineering
Bhuyan, M. K.	Asst. Professor	Electronics & Electrical Engineering
Bora, P. K.	Professor	Electronics & Electrical Engineering
Bose, S. K.	Professor	Electronics & Electrical Engineering
Chouhan, S.	Asst. Professor	Electronics & Electrical Engineering
Dandapat, S.	Professor	Electronics & Electrical Engineering
Deb, D.	Asst. Professor	Electronics & Electrical Engineering
Gogoi, A. K.	Professor	Electronics & Electrical Engineering
Jacob, T.	Asst. Professor	Electronics & Electrical Engineering
Kar, I.	Asst. Professor	Electronics & Electrical Engineering
Karthik, K.	Asst. Professor	Electronics & Electrical Engineering
Kumar, P.	Asst. Professor	Electronics & Electrical Engineering
Maganlal, F. D. (up to 08.04.11)	Asst. Professor	Electronics & Electrical Engineering
Mahanta, A.	Professor	Electronics & Electrical Engineering
Mahanta, C.	Assoc. Professor	Electronics & Electrical Engineering
Majhi, S.	Professor	Electronics & Electrical Engineering

Name	Designation	Department
Mishra, A. (up to 05.04.11)	Asst. Professor	Electronics & Electrical Engineering
Mitra, A. (up to 30.12.11)	Assoc. Professor	Electronics & Electrical Engineering
Nayak, S. K.	Asst. Professor	Electronics & Electrical Engineering
Nemade, H. B.	Assoc. Professor	Electronics & Electrical Engineering
Palathinkal, R. P.	Assoc. Professor	Electronics & Electrical Engineering
Prasanna, S. R. M.	Assoc. Professor	Electronics & Electrical Engineering
Rai, B. K.	Asst. Professor	Electronics & Electrical Engineering
Rajesh, A.	Asst. Professor	Electronics & Electrical Engineering
Sahambi, J. S.	Assoc. Professor	Electronics & Electrical Engineering
Sahu, P. R.	Assoc. Professor	Electronics & Electrical Engineering
Sethi, A.	Asst. Professor	Electronics & Electrical Engineering
Singh, K. R.	Assoc. Professor	Electronics & Electrical Engineering
Sinha, R.	Assoc. Professor	Electronics & Electrical Engineering
Sonkar, R. K.	Asst. Professor	Electronics & Electrical Engineering
Tripathy, P.	Asst. Professor	Electronics & Electrical Engineering
Trivedi, G.	Asst. Professor	Electronics & Electrical Engineering
Ahmed, A. N. S. (up to 31.12.11)	Visiting Professor	Humanities and Social Sciences
Barua, A.	Professor	Humanities and Social Sciences
Barua, A.	Asst. Professor	Humanities and Social Sciences
Barua, K.	Professor	Humanities and Social Sciences
Bedamatta, R.	Asst. Professor	Humanities and Social Sciences
Borbora, S.	Professor	Humanities and Social Sciences
Das, D.	Asst. Professor	Humanities and Social Sciences
Das, L.	Assoc. Professor	Humanities and Social Sciences
Dutta, M. K.	Assoc. Professor	Humanities and Social Sciences
Hussain, D.	Asst. Professor	Humanities and Social Sciences
Kashyap, N.	Asst. Professor	Humanities and Social Sciences
Mahanta, S.	Asst. Professor	Humanities and Social Sciences
Mallick, S.	Asst. Professor	Humanities and Social Sciences
Punekar, R. M.	Professor	Humanities and Social Sciences
Ray, S.	Asst. Professor	Humanities and Social Sciences
Saikia, A.	Assoc. Professor	Humanities and Social Sciences
Saikia, P.	Asst. Professor	Humanities and Social Sciences
Sarmah, P.	Asst. Professor	Humanities and Social Sciences
Sengupta, B.	Asst. Professor	Humanities and Social Sciences
Sharma, S.	Asst. Professor	Humanities and Social Sciences
Som, B.	Asst. Professor	Humanities and Social Sciences
Tripathi, N.	Assoc. Professor	Humanities and Social Sciences
Venkataraman, P.	Asst. Professor	Humanities and Social Sciences
Alam, R.	Professor	Mathematics
Bandyopadhyay, S.	Asst. Professor	Mathematics
Bhattacharjya, B.	Asst. Professor	Mathematics
Bora, S.	Asst. Professor	Mathematics
Bora, S. N.	Assoc. Professor	Mathematics
Chakrabarty, A. K.	Asst. Professor	Mathematics
Chakrabarty, S. P.	Asst. Professor	Mathematics
Dalal, D. C.	Professor	Mathematics

Name	Designation	Department
Das, G. K.	Asst. Professor	Mathematics
Dey, A. K.	Asst. Professor	Mathematics
Kalita, J. C.	Assoc. Professor	Mathematics
Kapoor, K.	Asst. Professor	Mathematics
Krishna, K. V.	Asst. Professor	Mathematics
Mandal, P. S.	Asst. Professor	Mathematics
Palaparthi, A. S. S. K.	Asst. Professor	Mathematics
Pati, S.	Assoc. Professor	Mathematics
Prasad, M. G. P.	Assoc. Professor	Mathematics
Ramesh, H.	Asst. Professor	Mathematics
Saikia, A.	Assoc. Professor	Mathematics
Sarma, B. K.	Professor	Mathematics
Selvaraju, N.	Assoc. Professor	Mathematics
Sinha, R. K.	Professor	Mathematics
Srikanth, K. V.	Asst. Professor	Mathematics
Srinivasan, N.	Professor	Mathematics
Swain, J.	Asst. Professor	Mathematics
Upadhyay, S.	Asst. Professor	Mathematics
Wagh, V. V.	Asst. Professor	Mathematics
Bag, S.	Asst. Professor	Mechanical Engineering
Bandopadhyaya, D.	Asst. Professor	Mechanical Engineering
Banerjee, A.	Asst. Professor	Mechanical Engineering
Biswas, P.	Asst. Professor	Mechanical Engineering
Chakraborty, D.	Professor	Mechanical Engineering
Dalal, A.	Asst. Professor	Mechanical Engineering
Das, A. K. (up to 18.07.11)	Asst. Professor	Mechanical Engineering
Dass, A. K.	Professor	Mechanical Engineering
De, A. K.	Asst. Professor	Mechanical Engineering
Dixit, U. S.	Professor	Mechanical Engineering
Dwivedy, S. K.	Professor	Mechanical Engineering
Joshi, S. N.	Asst. Professor	Mechanical Engineering
Kakoty, S. K.	Professor	Mechanical Engineering
Kalita, K.	Asst. Professor	Mechanical Engineering
Kanagaraj, S.	Assoc. Professor	Mechanical Engineering
Kore, S. D.	Asst. Professor	Mechanical Engineering
Krishna Murthy, K. S. R.	Assoc. Professor	Mechanical Engineering
Kulkarni, V. N.	Asst. Professor	Mechanical Engineering
Mahanta, P.	Professor	Mechanical Engineering
Mamilla, R. S.	Asst. Professor	Mechanical Engineering
Mishra, S. C.	Professor	Mechanical Engineering
Muthukumar, P.	Assoc. Professor	Mechanical Engineering
Narayanan, R. G.	Asst. Professor	Mechanical Engineering
Natarajan, G.	Asst. Professor	Mechanical Engineering
Pal, S.	Asst. Professor	Mechanical Engineering
Panda, S.	Asst. Professor	Mechanical Engineering
Pandey, M.	Professor	Mechanical Engineering
Robi, P. S.	Professor	Mechanical Engineering

Name	Designation	Department
Saha, U. K.	Professor	Mechanical Engineering
Sahasrabudhe, A. D.	Professor	Mechanical Engineering
Sahoo, N.	Assoc. Professor	Mechanical Engineering
Sen, A. K. (up to 09.12.11)	Asst. Professor	Mechanical Engineering
Senthilvelan, S.	Assoc. Professor	Mechanical Engineering
Sharma, D.	Asst. Professor	Mechanical Engineering
Somayaji, C.	Asst. Professor	Mechanical Engineering
Tiwari, R.	Professor	Mechanical Engineering
Agarwal, P.	Assoc. Professor	Physics
Alagarsamy, P.	Assoc. Professor	Physics
Basu, S.	Assoc. Professor	Physics
Bhuyan, B.	Asst. Professor	Physics
Boruah, B. R.	Asst. Professor	Physics
Das, S.	Asst. Professor	Physics
Dey, T. N.	Asst. Professor	Physics
Ghosh, S.	Assoc. Professor	Physics
Giri, P. K.	Assoc. Professor	Physics
Goswami, D. K.	Asst. Professor	Physics
Kadolkar, C. Y.	Assoc. Professor	Physics
Khare, A.	Professor	Physics
Khijwania, S. K.	Assoc. Professor	Physics
Nandy, M. K.	Assoc. Professor	Physics
Padmanabhan, P. K.	Asst. Professor	Physics
Pal, D.	Asst. Professor	Physics
Pamu, D.	Asst. Professor	Physics
Poulose, P.	Assoc. Professor	Physics
Ravi, S.	Professor	Physics
Santra, S. B.	Assoc. Professor	Physics
Sarma, A. K.	Asst. Professor	Physics
Setlur, G. S.	Assoc. Professor	Physics
Sharma, A. K.	Asst. Professor	Physics
Sil, A.	Asst. Professor	Physics
Srinivasan, A.	Professor	Physics
Thota, S.	Asst. Professor	Physics
Vajpeyi, A. P. (up to 20.07.11)	Asst. Professor	Physics

Appendix–II

OFFICERS AND SCIENTIFIC STAFF (GROUP A)

Officers (Group A)

Name	Designation	Dept./Section
Raychoudhury, B. N.	Registrar	Registrar's Office
Barua, S. K.	Deputy Registrar	Academic
Das, U. C.	Deputy Registrar	Administration (on deputation)
Goswami, D. J.	Deputy Registrar	Administration (on deputation)
Bhuyan, K.	Assistant Registrar	Quality Improvement Programme
Borgohain, P.	Assistant Registrar	Faculty Affairs
Boro, D.	Assistant Registrar	Alumni Affairs and External Relations
Choudhury, S.	Assistant Registrar	Establishment
Das, G.	Assistant Registrar	Engineering Section
Deka, S.	Assistant Registrar	Administration
Haokip, T. T.	Assistant Registrar	Stores and Purchase
Hazarika, P.	Assistant Registrar	Finance and Accounts (on lien)
Konwar, L. K.	Assistant Registrar	Public Relations
Mandal, S.	Assistant Registrar	Research and Development
Mishra, Amardip	Deputy Registrar	Finance and Accounts
Sharma, D.	Assistant Registrar	Students Affairs
Shyam Kumar, L.	Assistant Registrar	Establishment (on lien)
Goswami, A.	Superintending Engineer (Elect.)	Engineering Section
Singh, T. J.	Superintending Engineer (Civil)	Engineering Section
Baishya, P.	Exe. Engineer (Civil)	Engineering Section
Bhagawati, D.	Exe. Engineer (Elect.)	Engineering Section
Roy, N.	Exe. Engineer (Civil)	Engineering Section
Gogoi, A. K.	Asst. Exe. Eng. (Civil)	Engineering Section
Senapati, S.	Asst. Exe. Eng. (Civil)	Engineering Section
Saibaba, B.	Deputy Librarian	Central Library (on lien)
Guha, T. K.	Assistant Librarian	Central Library (on lien)
Rajbangshi, R. Kr.	Assistant Librarian	Central Library
Borthakur, M.	Chief Medical Officer	Medical
Barua, L.	Sr. Medical Officer	Medical
Baruah, A. Kr.	Sr. Medical Officer	Medical
Gogoi, L. C.	Sr. Security Officer	Security

Scientific Staff (Group A)

Name	Designation	Department/Centre
Biswanath, H.	Scientific Officer Gr. II	Chemical Engineering
Kalita, R.	Scientific Officer Gr. II	Chemical Engineering
Das, B.	Scientific Officer Gr. II	Chemistry
Borsaikia, A. C.	Scientific Officer Gr. II	Civil Engineering
Kumar, P.	Scientific Officer Gr. II	Civil Engineering
Saikia, J.	Scientific Officer Gr. II	Civil Engineering
Borah, B.	Scientific Officer Gr. II	Computer Science and Engineering
Kachari, N. A.	Scientific Officer Gr. II	Computer Science and Engineering
Das, M. P.	Scientific Officer Gr. II	Electronics and Electrical Engineering
Das, S.	Scientific Officer Gr. I	Electronics and Electrical Engineering
S., Josephine	Scientific Officer Gr. II	Electronics and Electrical Engineering
Sharma, L. N.	Scientific Officer Gr. I	Electronics and Electrical Engineering
Paul, P.	Scientific Officer Gr. II	Mechanical Engineering
Saikia, R.	Scientific Officer Gr. II	Mechanical Engineering
Sarma, D. K.	Workshop Supdt.	Mechanical Engineering
Sarma, S.	Scientific Officer Gr. II	Physics
Borghain, C.	Scientific Officer Gr. II	Central Instruments Facility
Senapati, K. K.	Scientific Officer Gr. II	Central Instruments Facility
Barbora, L.	Scientific Officer Gr. II	Centre for Energy
Kalita, P.	Scientific Officer Gr. II	Centre for Energy
Deka, D.	Scientific Officer Gr. II	Centre for the Environment
Borah, M. M.	Scientific Officer Gr. II	Computer and Communication Centre
Chakrabartty, R. (on lien)	Scientific Officer Gr. II	Computer and Communication Centre
Das, S.	Scientific Officer Gr. II	Computer and Communication Centre
Dutta, P. K.	Technical Officer Gr. I	Computer and Communication Centre
Ghosh, J. K.	Scientific Officer Gr. II	Computer and Communication Centre
Inam, I.	Scientific Officer Gr. II	Computer and Communication Centre
Islam, J.	Scientific Officer Gr. II	Computer and Communication Centre
Saikia, G. K.	Scientific Officer Gr. II	Computer and Communication Centre
Sairam, A. S. (on lien)	Technical Officer Gr. I	Computer and Communication Centre
Acharyya, K.	Scientific Officer Gr. II	Nanotechnology
Das, P.	Scientific Officer Gr. II	Nanotechnology

Appendix–III

DEGREE AWARDEES

List of students who have fulfilled the requirements for the award of BTech degree in Computer Science and Engineering

Roll No	Name
07010101	Aatish Rathi
07010102	Agrawal Sagar Nandkishore
07010103	Ajay Choudhary
07010104	Ajeet Kumar Tiwari
07010105	Amlan Pradhan
07010106	Ankit Bhatnagar
07010107	Bharat Lodha
07010108	Bhaskar Brahma
07010109	Bhaskar Pratim Sarma
07010110	Chandan Kumar Jha
07010111	Deepanshu Gupta
07010112	Devadeep Shyam
07010114	Garima
07010115	Jackey Mohan Boro
07010116	Jalapally Karthik
07010118	K Navin Kumar
07010119	Kasturi Ravindra
07010120	Komal Jalan
07010122	Kondeti S. Phani Prakash
07010123	Kuppannagari Sanmukh Rao
07010124	M Durgaprasad
07010125	Maddula Aditya Nihar
07010126	Manav Verma
07010127	Mane Vishnu Rajendra
07010128	Manpreet Singh
07010129	Nitin Dua
07010130	Om Prasad Patri
07010131	Ponugoti Gowtham Kumar
07010132	Pranav Kumar
07010133	Rahul Chaki
07010134	Rajan Singh
07010136	Rajendra Vellisetti
07010138	Rakesh Yarlagadda
07010139	Ravi Ranjan
07010140	Rohan Khot

07010141	Rohan Kohli
07010142	Sadhwi S
07010143	Sai Sheshank Burra
07010144	Shekhar Chandra
07010146	Sumit Kumar Tomer
07010147	Tuniki Vishal Kumar
07010148	Utkarsh Deep Srivastava
07010149	Surbhi Maheshwari
07010150	Gurmeet Singh
07010151	Shailendra Agarwal
07010152	Deepak Kumar
07010153	Vidur Taneja
07010154	Jatin Matani
06010115	Deepesh Kumar Matholia
06010121	Gourav Roy
06010127	Jitendra Kumar Kharadi
06010137	Pranay Karnany
04010139	Suhas Aggarwal

List of students who have fulfilled the requirements for the award of BTech degree in Electronics and Communication Engineering

Roll No	Name
07010202	Abhijit Mukhopadhyay
07010203	Abhishek Narayan Sinha
07010204	Akash Gupta
07010205	Aniketh Talwai
07010206	Anshul Gupta
07010207	Ashwani Kadian
07010208	Avijit Gahtori
07010209	Avinash Kumar
07010210	Bendapudi Satya Sasikanth
07010211	Chaitanya Narra
07010212	D Srikanth
07010213	Darsha Sharath Chandra
07010214	Debabrata Sengupta
07010215	Deepak Garg
07010216	Devendra Kumar Rathore
07010217	Eddu Sundeep

07010218	Gaurav Mehta	07010310	C Anand Vijay Kartha
07010219	K Bharadwaj Sharma	07010311	Chatterjee Abhranil Malay
07010221	Kuldeep Karwa	07010312	Chheda Dhiral Laxmichand
07010222	Lalji Chandra	07010313	Deopuje Shankar Kishanrao
07010223	Lokmanya Alok	07010314	Dhage Laxmikant Anilrao
07010224	Malyala P V Bhaskara Rao	07010315	Ganguly Shameek Prodosh
07010226	Manisha Srivastava	07010318	Himanshu Ailawadhi
07010227	Manoj Kumar Kaushik	07010319	Hitesh Parwani
07010228	Marturi Krishna Chaitanya	07010320	Ishita Jha
07010229	Mayank Goyal	07010323	Karra Varun Reddy
07010230	Naresh Palaiya	07010324	Kunuthur Ajay Karthik
07010231	Nishanth Kadiyala	07010327	Nidamanuri Phanidhar
07010232	Palash Ranjan	07010328	Nithin Reddy G
07010233	Paritosh Singh	07010329	P Ranjith
07010234	Piyush Jain	07010330	Pankaj Kumar Sahu
07010235	Prabesh Kumar Mili	07010331	Pargi Bharadhwaj
07010237	Raj Dixit	07010332	Piyush Bagdi
07010238	Ranjeet Kumar	07010334	Prateek Kumar
07010239	Rohit Kumar Garg	07010335	Priyank J Bharadwaj
07010240	Sandeep Poonia	07010338	Rakesh Bhunatar
07010241	Satya Prateek Bommaraju	07010339	Sachidanand Sahoo
07010242	Sonteni Naveenkumar	07010340	Sahare Kushal Arvind
07010243	Sudheerkumar Kurakula	07010341	Sampathrushi Kodi
07010244	Suman Pateer	07010342	Sanchit
07010245	Suraj Sheth	07010343	Saroj Mandal
07010246	Vipul Garg	07010344	Shakun Bansal
07010247	Vishal Sharma	07010345	Sharma Ashish Sitaram
07010249	Vivek Sharma	07010347	Sushant Kumar Dev
07010250	Akash Dwivedi	07010349	Vattipally Sriram
07010251	Ankit Shrivastava	07010350	Vikram Singh Rawat
07010252	Harsh Kumar	07010351	Vishal Singh
07010253	Sahil Goyal	07010352	Voruganti Achyuth Reddy
07010254	Debanga Raj Neog	07010353	Yegireddi Prasada Rao
06010210	Chandan	07010354	Aakash Golia
06010211	D Vikas	07010355	Adeel Ahmad
06010215	Hareesh Reddy Shamirpeta	07010356	Venkateshwar Rao Maddila
06010216	Harpreet Singh	07010357	Rajiv Sharma
06010221	Madavi Nagaraju	07010358	Dushyant Sharma
06010226	Naveesh Nayar	07010359	Tejas Mehrotra
06010232	Rakesh Krishna Velama	07010360	Akshay Pasricha
06010235	Ravi Charan Manne	06010323	M Usha Kiran
06010246	Vanlalhriata	06010325	Mushyam Aditya
05010242	Trapti Patil	06010326	Naresh Nallamala
		06010340	Sansiddha Pani
		06010353	Udit Varshney
		06010355	Yash Dalmia

List of students who have fulfilled the requirements for the award of BTech degree in Mechanical Engineering

Roll No	Name
07010302	Aditya G V
07010304	Alok Jain
07010305	Alok Kumar Jha
07010307	Arijit Biswas
07010308	Ashish Kumar
07010309	Bhushan Maskay

List of students who have fulfilled the requirements for the award of BTech degree in Civil Engineering

Roll No	Name
07010401	A S K Chaitanya
07010404	Akash Garg
07010406	Alok Mani Singh

07010407	Amandeep Aggarwal
07010408	Amandeep Singh
07010411	Aveedibya Dey
07010412	Bhaskara Tejaswi E
07010413	Brij Bhushan Meena
07010414	Dinesh Kumar Meena
07010416	Doel Behl
07010418	Gagandeep Singh
07010422	Kakula Siva Krishna
07010423	Kapinjal Kishore Sharma
07010424	Manikonda Othniel
07010425	Mittal Prateek Rajesh
07010426	Moka Sunil Raj
07010427	Nalla Manoj K Choudary
07010428	Nalla Nakul Reddy
07010429	Narahari Payala
07010430	Neeraj Kumar Thakur
07010431	Nitin Kumar Singh
07010433	Parag Raipuria
07010434	Pranjal Saraswat
07010435	Prateek Ropia
07010437	R Sudarshan Brahma
07010439	Rahul Kumar Verma
07010440	Rajroop Bhattacharya
07010441	Satish Kumar Singh
07010442	Shah Mohit Shailesh
07010443	Shashank Gheek
07010444	Shiv Prakash
07010445	Suyog Singh
07010446	Tarun Mohan Sagar
07010449	Vishwanath Bajpai
06010402	Ajay Kumar Jorwal
06010406	Ambuj Kumar Sriwastava
06010448	Sripuram Srikanth Reddy

List of students who have fulfilled the requirements for the award of BTech degree in Biotechnology

Roll No	Name
07010601	Abhishek Goyal
07010602	Amer Ahmed
07010603	Ankur Tyagi
07010604	Anurag Mohta
07010605	Ashay Agrawal
07010606	Atul Kumar
07010607	Bhaskara Ganesh Chennuri
07010609	Debraj Das
07010611	Hifzur Rehman
07010612	Ishan Gupta
07010614	Kamsali Adithyachari
07010615	Kumar Saurabh

07010616	Mehta Tejas Pankaj
07010617	Mohit Goel
07010618	Mudit Gupta
07010620	Neeraj Suthar
07010621	Potukuchi Abhishek
07010622	Pradeep Syal
07010625	Roshan Mandrawalia
07010627	Sandeep Kasani
07010628	Smiti Saswati Sahoo
07010629	Srishti Bhutani
07010630	Thetakali Venkata Ramesh
07010631	Uttej Talakola
07010632	V Abhinav
06010606	Anurag Khare

List of students who have fulfilled the requirements for the award of BTech degree in Chemical Engineering

Roll No	Name
07010701	Abhijit Langthasa
07010702	Abhishek Panigrahi
07010703	Akash Anand
07010704	Akshat Jain
07010705	Anurag Soni
07010706	Ch S N Mahesh Babu
07010708	Dinesh Kr Lahoti
07010709	Disha Gupta
07010710	G. Gopal
07010711	Gaurav Kumar
07010713	Harish Mangalampalli
07010714	Himanshu Goyal
07010719	Manosij Basu
07010721	Neeraj Kumar Verma
07010722	Nilesh Agarwal
07010724	Nirmal Agrawal
07010725	Peeush Kumar
07010726	Prashant Kumar
07010727	Rahil Vijay
07010729	Ritesh Prakash
07010730	Shashikant Sagar
07010731	Shubham Gupta
07010732	Singh Naik Jatavath
07010733	Sonam Gupta
07010734	Sudeep Yadav
07010735	Suraj Mudaliar
07010736	Tarun Kumar Kankhedia
07010737	Ved Prakash
07010738	Venkata Mahanth Sanka
07010739	Vineet Mohan
07010741	Vukyam Saikiran
06010718	Mandeep Singh
06010728	Pranay Pingle

List of students who have fulfilled the requirements for the award of BTech degree in Engineering Physics

Roll No	Name
07012101	A Venkata Satya Yasaswy
07012102	Abhinav Rastogi
07012103	Adarsh Shankar Prasad
07012104	Amit Chaudhary
07012105	Arjun Agarwal
07012106	Balakrishna Sandeep H.
07012107	Gaurav Mamtani
07012108	Geetansh Kakkar
07012110	Joshi Chaitanya Suhas
07012112	Mallikarjuna Gurrum
07012113	Manoj Kumar Mridha
07012114	Rahul Bhiwagade
07012115	Rishabh Mishra
07012116	Saurabh Mishra
07012117	Shweta Raizada
07012118	Subhojit Sarkar
07012120	Valivarthi V Ramana Raju
07012123	Yalmarthy Sarath Kanth
06012114	Rupendra Gajbhiye
06012115	S Abhishek

List of students who have fulfilled the requirements for the award of BTech degree in Chemical Science and Technology

Roll No	Name
07012201	Abhimanyu Bhaker
07012202	Akshay Gundu Rao
07012203	Akshay Mishra
07012204	Ankit Jain
07012205	Anvita Ghritlahre
07012207	Goli Venkata S Kumar
07012208	Gyan Prakash
07012211	Karttikay Moudgil
07012212	Kranthi Kumar Reddy B
07012213	Neha Ladha
07012214	Nikhil Biyani
07012215	Nikhil Sharma
07012217	Rajdeo Das
07012218	Raman Kumar Singh
07012219	Rohit Raj
07012220	Sandeep Bedi
07012222	Shubham Agarwal
07012223	Sunil Kumer Gro

List of students who have fulfilled the requirements for the award of BTech degree in Mathematics and Computing

Roll No	Name
07012301	A. Abhinava Kashyap
07012302	Abhishek Kumar

07012303	Abhishek Kumar Singh
07012304	Abhishek Mehra
07012305	Arihant Jain
07012307	Badida Venkata K. Chaitanya
07012308	Bollibisai Giridhar
07012309	Deepak Dagar
07012311	Hemant Kesarwani
07012312	Karthik V. S.
07012313	Manjeet Sudhanshu
07012316	N Vikas Reddy
07012317	Nandamuri Sravan Kumar
07012319	Rajan Goyal
07012320	Rangoju Abilash
07012322	Vishal Kumar G.
07012325	Harshal Goel
07012326	Gaurav Pagaria
07012327	Pranjal Kumar
07012328	Gunuganti Aditya
07012329	N J Ajay
06012308	Madiga Rajesh

List of students who have fulfilled the requirements for the award of BDes degree in Design

Roll No	Name
07020501	Aditya Bandi
07020502	Ankita Gautam
07020503	Anuraj Dadhich
07020505	Gaikwad Rohan Rajendra
07020506	Harshal Verma
07020507	Himangshu Ranjan Borah
07020511	Jitendra Kumar Mehra
07020513	Pushpender Hudda
07020514	Rajkumar Gupta
07020515	Rishabh Kumar
07020516	Rode Tejas Pradip
07020517	Rohit Sharma
07020518	Shamik Ray
07020519	Shobhan Deepak Shah
07020520	Supal Sandeep Purushottam
07020522	T. Theophilus
07020524	Trupti Telang
07020525	Vinay Kumar
06020510	Nikunj Khandelwal
991505	Ashish Sharma

List of students who have fulfilled the requirements for the award of MSc degree in Physics

Roll No	Name
09212101	Abhijit Ghosh
09212103	Anshuman Nandy
09212104	Anup Kumar Mandal
09212105	Arnab Kumar Das

09212106	Arundhati Das
09212108	Ashimananda Modak
09212111	Dhirendra Kumar
09212113	Gulab Singh Maurya
09212115	Jiarul Midya
09212116	Jishnu Goswami
09212117	Jit Sarkar
09212118	Kartik Sau
09212120	Krashtra Mohan Tripathi
09212121	Nitesh Kumar Singha
09212122	Paban Mandal
09212125	Ravi Kiran Saripalli
09212128	Shipra Jain
09212129	Shivendra Singh
09212130	Soumen Koner
09212131	Sumit Das
09212132	Suwendu Rakshit
09212133	Tanmoy Chakraborty
09212134	Tapas Singha
08212105	Bhawana Jha
08212120	Prakash Vardhan
08212125	Srijit Dutta

List of students who have fulfilled the requirements for the award of MSc degree in Chemistry

Roll No	Name
09212201	Anup Bhunia
09212202	Arghya Deb
09212203	Arpa Hudait
09212204	Basudeb Baidya
09212205	Bhaswati Sengupta
09212206	Bulbul Maji
09212207	Chandramohan Jana
09212208	Deb Pratim Mukhopadhyay
09212209	Dibyendu Mondal
09212210	Hridesh Agarwalla
09212211	Indranil Sinha
09212212	Ivy Sarkar
09212213	Jashobanta Sahoo
09212214	Julfikar Hassan Mondal
09212215	Kaushik Ghosh
09212216	Koushik Bhowmik
09212218	Milan Dinda
09212219	Mouni Roy
09212220	Mritunjoy Maity
09212222	Nimai Pathak
09212223	Nitish Roy
09212225	Prasenjit Barman
09212226	Prativa Mazumdar
09212227	Pritam Mondal
09212229	Rita Das Mahapatra
09212230	Saikat Santra
09212231	Saugata Sahu

09212232	Soumya Bhattacharyya
09212233	Sourav Kumar Santra
09212234	Suman Das
09212235	Supratim Chakraborty
09212236	Susmitnarayan Chaudhury
09212237	Tulika Gupta
09212238	Vanjarapu Kesava Rao
08212205	Ashim Malakar

List of students who have fulfilled the requirements for the award of MSc degree in Mathematics and Computing

Roll No	Name
09212301	Abhishek Das
09212303	Amit Kumar Laha
09212305	Arpan Dhara
09212306	Arpan Ganguli
09212307	Asrifa Sultana
09212313	Debarhana Ghosh
09212315	Dipankar Ghosh
09212316	Gayatri S Panicker
09212317	Gouranga Mallik
09212318	Iqbal Hossein Sarkar
09212320	Jismy Joseph
09212324	Mitra Koley
09212325	Mridul Saikia
09212329	Prakash Kumar Jhawar
09212332	Sahadeb Kuila
09212333	Samit Ghosh
09212336	Shuchita Goyal
09212337	Shweta Srivastava
09212339	Urmi Nayak
08212302	Anand Kumar Jha
08212304	Devendra Pratap Singh
08212309	Jatin Kumar
08212313	Mayank Dwivedi
08212321	Sandeep
08212323	Singh Hrisikesh Devendra
08212327	Tapas Kanti Chattopadhyaya

List of students who have fulfilled the requirements for the award of MA degree in Development Studies

Roll No	Name
09224101	Arup Kumar Vishwakarma
09224103	Barnali Das
09224104	Bhaskar Jyoti Gogoi
09224105	Bhupen Mili
09224106	Chandana Kakati
09224111	Madhulika Kumari
09224112	Mahsina Rahman
09224113	Manikankana Bhattacharyya
09224114	Manzil Gogoi

09224116	Pranti Dutta	09224120	Riju Moni Baishya
09224118	Pronoy Rai	09224122	Trishna Mani Thakuria

List of students who have fulfilled the requirements for award of MTech degree in Computer Science and Engineering

Name	Roll No	Project Title
Anwikar Vallabh Ramesh	08410101	Timing Analysis of Real-Time Embedded Systems using Model Checking
Pavan Agrawal	08410102	Global Checkpoint Algorithm in Cluster Federation
Manish Goyal	08410103	Reachability Analysis of Hybrid Systems: An Evaluation of PHAVer and HSolver
Prabhat Kiran	08410104	k-th Order Geometric Spanners for Wireless Ad Hoc Networks
Subhan Alisha Sheik	08410107	Push-Based Middleware for Data Exchange in SOA Environments
Sashibhusan Pain	08410108	Dynamic Route Updation for Layered Routing in Wireless Mesh Network (DRULAR)
Chandrakant Sharpa Surti Shirishkumar	08410109	SINR based QoS Aware handoff between IEEE 802.11 and GPRS network
Jayantilal	08410111	Pseudo-stabilizing and Self-stabilizing Casual Ordering Algorithms
Shirshendu Das	08410112	Formal Modelling of Multiple Clock Latency Insensitive Systems
Parabattina Bhagath	08410113	Characterization of Spoken English vowels in Acoustic Phonetic Approach
Vishal Jagannath Parage	08410114	Performance Evaluation of Hindi Soft Keyboard for Small Screen Devices
Nahar Singh	08410115	Aesthetic Adaptation of User Interface
Golla Veera		
Sekhar Babu	08410116	Connectivity Based Dual Vdd for Low Power FPGA
Lalit Chandnani	08410117	DVS-based Power Management for Multiple Server System in presence of server failure & repair
Karthik. R	08410118	An Open Cloud Architecture for Provision of Infrastructure as a Service
Subrata Laha	08410119	A Study on Bengali Virtual Keyboards for Small Display Devices
Ankur Gupta	08410120	A Novel real-Time Proficient Algorithm for Edge Detection
Joshi Shantanu Shrinivas	08410121	Context Aware Handoff in Heterogeneous Wireless Networks
Ajeet Kumar Singh	08410123	TPW: A Transport Protocol for Wireless Mesh Networks using Active Bandwidth Measurement
Lopamudra Chatterjee	08410124	Clustered Caching for Improving Performance and Energy Requirements in NoC based Multiprocessor
Hari Prabhat Gupta	08410125	(DBET) Demand Based Energy Efficient Topology for MANET
Kushagra Misra	08410126	FDES application to on-line Testing of Asynchronous Circuits
Ajit Kumar Tapse	08410129	Energy Efficiency Routing in Wireless Mesh Networks with Discrete Battery Power Levels
Ashish Mehta	08410132	Dynamic Power Management With Reliability Constraints for Non-Markovian Workloads over SOC
Sumit Kumar	08410135	Implementation of a Dynamic Emotion Generation Model for Mobile Robot
Bindu Agarwalla	08410136	Dynamic Task Allocation in NOC

List of students who have fulfilled the requirements for award of MTech degree in Computer Science and Engineering with Specialization in Information Security

Name	Roll No	Project Title
Ritesh Ratti	08410106	Active Detection Mechanism for attacks in Autonomous Systems
Vengala Satish Kumar	08410110	Secure Network Steganography Scheme Exploiting TCP sequence Number

Sapna Kushwaha	08410127	Detection of Kernel Level Rootkits using Loadable Kernel Modules
Roopa S.	08410128	Active Detection Mechanism for Attacks in Autonomous System
Santosh Kumar	08410130	Network Anomaly Detection using One-Class Support Vector Machine
Anand S. Nair	08410133	Packet Length Based Network Steganography and Its Detection
Vishal Kurup	08410134	Mail Plugin for IBM Mashup Center
Vikrant Kumar Singh	08410137	Anomaly Detection through Clustering

List of students who have fulfilled the requirements for award of MTech degree in Electronics and Electrical Engineering with Specialization in Signal Processing

Name	Roll No	Project Title
Aditya Sri Ram Saladi	08410205	Design, Fabrication and Testing of RFID Tag Antennas
Sanjeev Sharma	08410208	A New Set of Orthogonal Pulses and a Combined Modulation Scheme for UWB Communications
Balaram Aiahthippireddy	08410209	Fractal Based Image Authentication
Suresh Babu Damma	08410210	FPGA implementation of Single Carrier-FDMA
Ramana Kasireddy	08410211	Implementation of Block Floating Point Based Adaptive Decision Feedback Equalizer using FPGA
Ram Mohan Madabushi	08410212	Automatic Abstraction of Broadcast Cricket Videos
Vinod Jha	08410213	Modeling of Indoor Propagation Scenarios
Karthik K	08410214	FFT Implementation on FPGA for Spectrum Analyzer
B Sunil	08410215	An Investigation on Narrowband and Ultra Wideband Beamforming Techniques
Jiju. P.P	08410216	FPGA Implementation of Low Power Systolic Array Based Viterbi Decoder
Bhasker Penta	08410218	Non-Blind Symbol Timing Offset Estimation for MIMO-OFDM based WLAN Systems
T. Srinivas Yadav	08410219	Hand Gesture Recognition Systems using Neural Networks
M. Harshvardhan	08410220	FPGA and Relay Based Reconfigurable Controller
Suresh Babu Y	08410221	Exploring Speaker Normalization in Large Margin Training Framework in ASR
Sarada Prasad Gochhayat	08410222	Person Identification using Electrocardiogram
Sasivarnan. C	08410224	Robust Person Tracking for Intelligent Visual Surveillance
Aragala Jagan	08410225	Person Identification using GAIT
Rajeev Gangula	08410226	On Cooperative Communications with Distributed Space-Time Coding and Relay Selection including Security Aspects
Cherukuri Sujith	08410227	Studies in Discriminative Keyword Spotting
N.V. Aswani Kumar		
Pabbathi	08410228	Narrow Band Interference in UWB Communication Systems
Krishna. C.V.	08410229	Investigation of Keyhole Effects in MIMO Channel
Tarun Choubisa	08410230	Normalization and Fusion Techniques for Multimodal Biometric Person Verification
Santosh Reddy		
Mallipeddi	08410231	Interference Mitigation and Coexistence Issues with UWB Systems
Anushree Neogi	08410233	Blind Estimation of Synchronization Errors for a Convolutionally Coded OFDM System
Sowmya. S.	08410234	Isolated Handwritten Numeral Recognition
Santosh Chary .B	08410235	Cooperative Ultra-Wideband Communication System
Durga Prasad Rao		
Mandala	08410237	Compression Sensitive Semi-Fragile Watermarking For Image Authentication
R. Veerendra Kumar	08410238	Noise Cancellation in ECG Signal Using Computationally Efficient Adaptive Filtering Algorithms: Application to Biotelemetry
Rangeet Mitra	08410240	A Class of Fast Converging Blind Adaptive Equalizers with

Constellation		Matching Cost Functions
Mohit Kumar Sharma	08410243	New Developments in Vector Quantizers and Permutation Vector Quantizers
Soyuj Kumar Sahoo	09410217	Multimodal Biometric Person Authentication Using Speech and Face Under Degraded Condition
Manoj B.R	09410224	Performance Analysis of Switched Diversity Receivers Over Composite Fading Channels
Raju Jaitwar	09410243	Sliding Mode Control of an active suspension system
Madhusudhan Mishra	09410248	Diabetic Retinopathy Using Fundus Image Analysis

List of students who have fulfilled the requirements for award of MTech degree in Electronics and Electrical Engineering with Specialization in VLSI

Name	Roll No	Project Title
Diptaman Hazarika	08410202	Precision Temperature Sensor in CMOS Technology
Chinthala Ramesh	08410203	Design and Implementation of UWB Modulators and Reduced Complexity Demodulator for Impulse Radio in 180nm CMOS Technology
Naveen Suda	08410204	Design of a 0.5 V Low Power Analog Front-End for Heart-rate detector
Sanyasi Rao Rupiti	08410206	DVB-SH RF Tuner with Wireless Inductive Link to Base-band Processor
Gurram Koteswara Rao	08410207	ASIC Design Pulse Mode Ultra Wide Band (UWB) Transceiver

List of students who have fulfilled the requirements for award of MTech degree in Mechanical Engineering with Specialization in Machine Design

Name	Roll No	Project Title
More Vijay Vasant	08410301	Geometrically Nonlinear Analysis of Non-Axisymmetric Annular Plate
A. Venkata D. Reddy	08410303	Optimum Design and Analysis of Tapered Roller Bearings using Genetic Algorithms
Mekala Narasimha Rao	08410304	Non Linear Finite Element Analysis of Smart Composite Structures
Fapal Anand Mohan	08410305	Non-Linear Time Transient Stability Analysis of Rotors Mounted on Gas foil Bearings (GFBS)
Sudarshan Kumar	08410306	Stability Analysis of Multi Lobe Pressure Dam Bearings
Garlapati Nagababu	08410307	Finite Element Determination of Shape of the Three Parameter Zone at the Crack Tip
Prince. R	08410308	Finite Element Analysis of FGM Plates with Cracks
Devendra Kumar Sahu	08410309	A Study in Performance of the interior collocation method for determination of stress intensity factors
Ratna Kumar Kommogi	08410310	Design and Development and Performance Evaluation of Asymmetric composite Gears
Pawan Kumar Rathore	08410312	Optimal Sensors-Actuators Placement in Smart FRP Structures using Genetic Algorithm
Bodake A. Raghunath	08410313	Geometrically Nonlinear Analysis of Functionally Graded Plates and Panels
Dinesh Kumar Yadav	08410315	A Study on performance of the interior collocation method for the determination of T-Stress
Kiran Kumar N	09410304	Dynamic Analysis of MRE Cored Sandwich Beam with Composite Skins using FEM
Thamarai Selvan V	09410318	Modeling of Thermal Stress in a Thick Walled Cylinder
Pallekonda Ramesh Babu	09410320	Design and Analysis of Single Component Accelerometer Balance for High Speed Aerospace Applications

List of students who have fulfilled the requirements for award of MTech degree in Mechanical Engineering with Specialization in Fluids and Thermal Engineering

Name	Roll No	Project Title
Gundavarapu V.S. Kumar	08410329	Computation of Micro and Macro Fluid Flows using Lattice Boltzmann Method
Dinkar Brajeshkumar Kishorilal	08410330	Study of Combustion Emission Characteristics in a Biogas Run Fuel Engine
Anil Stephen	08410333	Analysis of Combined Mode Conduction and Radiation Heat Transfer in Spherical, Cylindrical and Rectangular Geometries with Non-Fourier Effect
Bhogilla Satya Sekhar	08410335	Performance Studies on Metal Hydride based Thermal Energy Storage Systems
Praveen Agrawal	08410336	Analysis of Radiative Transport in a Cylindrical Medium Subjected to Collimated Radiation
Shete Viraj Vilas	08410337	Application of Immersed Boundary Method to Incompressible Viscous Flows
Maqsood Alam	08410338	Development and analysis of unsteady aerodynamic reduced order models based on rational function approximation
Saptarshi Mandal	08410339	Reduction of Emission Level in a Diesel Engine using CO ₂ nano particle mixed diesel (Nanofuel)
Chilukoti Hari Krishna	08410341	Application of the Modified Discrete Ordinates Method for Radiative Transport in Cylindrical and Spherical Media
Raju Kumar	08410344	Finite Volume Computation of Fluid Flows with Strong Shocks
Mahesh Kumar Yadav	08410345	Modelling & Simulation of a combined Cycle
Nirmal Halder	08410346	Design and Development of Multifed Thermophilic Biogas Digester
Prem Kumar M R	08410348	Simulation of Low-amplitude Sloshing Motion in Fixed and Vertically Excited Tanks
H. Lalhmingsanga	08410349	Experimental Study of Free Surface Elevation of Liquid in an Excited Rectangular Tank
Bikramaditya Kumbang	08410350	Performance Analysis of a Natural Convective Grain Dryer
Yogesh Kumar Rathore	08410352	Numerical Study of Shock Reflection Process in a Shock tube for optimizing test conditions
Vaidya Ajinkya Anil	09410329	Numerical Simulation of the Dynamics of Bubbles with and Without Phase Change
Chandra Shekhar Pant	09410330	Stagnation Point Injection Analysis for DRAG Reduction in Hypersonic Application
Pramod Kisan Patil	09410335	3-D Lattice Boltzmann Model for Dynamics of Bubbles or Drops Through Inclined Channel and Sudden Contraction
Atreyo Chowdhury	09410337	Transpiration Cooling Analysis for Hypersonic Applications

List of students who have fulfilled the requirements for award of MTech degree in Mechanical Engineering with Specialization in Computer Assisted Manufacturing

Name	Roll No	Project Title
Swapnita Kakati	07410341	Performance Enhancement of a conventional stove using a new class of fuel-Nanofuel
V. Shashi Mohan Rao	08410319	Recrystallization Phenomenon in Cold Rolled Steels
Ajay Sharma	08410320	Mechanical Characterization of CNT/HDPE nanocomposites using conventional and small punch technique
Nilesh Murlidhar Bondre	08410321	Weld region Representation during the formability prediction of friction stir welded tailored blanks
Marrapu Bhargava	08410322	Deformation Mechanism Map for Cast Zr-2.5 Nb Alloy

Ravi Kant	08410323	Investigation on the forming of the adhesive bonded Blanks
Susanta Kumar Dey	08410325	Computing the Tensile Behavior of Tailor Welded Blanks by ANN based Expert System
P. Surya Anjaneyulu	08410326	Experimental Study and Modeling of Wire-cut Electrical Discharge Machining Process
Mahat Das	08410354	A Study if Microstructure Evolution in Cold Flat Rolling Process

List of students who have fulfilled the requirements for award of MTech degree in Civil Engineering with Specialization in Structural Engineering

Name	Roll No	Project Title
Mane Ashish Laxman	08410401	Effect of cracked section on lateral response of RC structures
Narendra Babu Battina	08410402	Model updating of Saraighat bridge using field data
Rajesh Gunukula	08410404	System identification of two storey scaled steel building
Shashank Saurabh	08410406	Element free palerking method for stress resultant elastoplastic plate bedina problem
Rajkumar Gajula	08410407	Structural health monitoring using nonparametric system identification techniques
Prahallad Bhoi	08410409	Behaviour of concrete in severe environment
Kelhousithie Vizo	08410410	Seismic rehabilitation of RC Beam-Column joint
Saroj Kumar	08410412	Earthquake analysis of framed structures
Ajay Kumar	08410456	A parametric study of single and double edge notched plates under antiplane loading using finite element method
Manchanda Sagar Virendra	08410459	Influence of ductile detailing on strength and stiffness of masonry infilled reinforced concrete frames
Rajesh Kondamudi	08410460	Strength and durability characteristics of concrete made with supplementary cementitious materials

List of students who have fulfilled the requirements for award of MTech degree in Civil Engineering with Specialization in Water Resources Engineering and Management

Name	Roll No	Project Title
Amit Kumar Dubey	08410413	Probabilistic runoff generation for different land use/land cover in preferential path nested catchments
Vishal Deshpande	08410414	Generation of an n-parameter instantaneous unit hydrograph of a watershed by routing through linear reservoirs
Hriday Mani Kalita	08410415	2D flow simulation using MIKE software
Shyamal Ghosh	08410418	Impact of Climate and land use changes on flood vulnerability of the Brahmaputra Basin
Pranjit Shil	08410419	Water quality evaluation in a part of the Ghorajan stream, a tributary to the Brahmaputra river
Dilip Kumar	08410420	Distributed rainfall-runout approach using WMS and HEC-HMS
Durga Sharma	08410421	Analysis of extreme stream flow condition in Brahmaputra river
Arpit Chouksey	08410449	Non-Point source pollution of small streams at different altitudes

List of students who have fulfilled the requirements for award of MTech degree in Civil Engineering with Specialization in Geotechnical Engineering

Name	Roll No	Project Title
Mohamed Younus M	08410422	Laboratory investigations to maximize the utility of fly ash for landfill liner
Sandeep Rai	08410423	A study on influence of piles on response of raft foundations
Syam. P.S.	08410424	Bearing capacity of geocell reinforced foundation

Animesh Basu	08410425	A study on stability analysis of flood embankments
Shinde Bhushan Vilas	08410426	Modulus of elasticity of geocell reinforced foundation beds
Bablu Kirar	08410428	Dynamic properties of soils for the design of machine foundations
Sumesh M	08410429	An experimental study on strength behavior of soils blended with fly ash and cement
Mamu Loying	08410430	Experimental investigation on multiple contaminant migration in soil
Bablu Chaudhary	08410452	Seismic earth pressures on reinforced soil retaining structures
Chandan Kumar	08410453	Study on seismic earth pressure on retaining structures

List of students who have fulfilled the requirements for award of MTech degree in Civil Engineering with Specialization in Environmental Engineering

Name	Roll No	Project Title
Rajesh Kumar Paswan	07410451	Groundwater and surface water quality evaluation in the IIT Guwahati campus
Anand Hiremath	08410439	Vulnerability to acidification of surface water of IIT Guwahati
Patil Sudhir Bandopant	08410440	Effect of sulphate and nitrate on phosphate adsorption by calcinated Fe-Mg double layered hydroxides coated with silica gel
Santosh Krishna M	08410441	Removal of fluoride from water by adsorption using calcinated Fe-Mg coated on silica gel
Rajesh Ranjan	08410443	Characterization of precipitation over an increasingly urbanizing area and implication to ground water and surface water quality
Ganesh Chandra Dhal Baviskar Shirishkumar	08410444	High rate composting of water hyacinth
Madhukar	08410447	Leaching of iron, controlling factors and implication on arsenic mobilization in groundwater

List of students who have fulfilled the requirements for award of MTech degree in Civil Engineering with Specialization in Transportation Systems Engineering

Name	Roll No	Project Title
Rahul T.M	08410431	Macroscopic models for Heterogeneous traffic
Manoj. M	08410432	Performance evaluation of asphaltic concrete and flexible rigid pavement overlays
Kuleshwer Verma	08410433	Analysis of the relationships between heterogeneous traffic characteristics
Venkatramanaiah Aitha	08410435	Effect of maximum aggregate size with its replacement by lower size and fillers on bituminous mix
Darukumalli Ramesh	08410436	Influence of laboratory mix design in manufacturing of interlocking concrete blocks at factory
Arpan Mehar	08410437	Microscopic simulation of rotary traffic using VISSIM
Binanda Khungur Narzary	08410438	Development of a more realistic cellular automata based traffic flow model
Mario Gerard Pradeep	08410451	Analysis of Macroscopic characteristics under Heterogeneous traffic conditions
E. Obulu Reddy	09410447	Moisture Susceptibility of Bituminous Mixes with Different Fillers
Amit Kumar Rathi	09410448	Role of Fillers in design of Bituminous Mixes
Gavvala Rajesh	09410449	Evaluation of Stiffening Potential of Fillers in Bituminous Mixes

List of students who have fulfilled the requirements for award of MTech degree in Biotechnology

Name	Roll No	Project Title
C. Narendra Reddy	08410605	Assembly and successful operation of fluorescence correlation spectroscopy facility

Uma. K	08410607	Medium optimization for enhanced production of L-Asparaginase from <i>Erwinia aroideae</i> NRRL B 136 using Taguchi's method
Amit Jaiswal	08410608	Synthesis, characterization and applications of water dispersible ZnS quantum dots
Leelakrishna Bankapalli	08410611	Purification, characterization and immobilization of urease from <i>Momordica charantia</i> seeds
Kapil Dev Singh	09410601	Aggregation of hen lysozyme protein up to nanomolar concentrations in alkaline pH: A FCS Investigation
Aditya Sriraman Iyer	09410602	Employing enzyme kinetics to monitor functional perturbations in proteins subsequent to conjugation with quantum dots
R Sarath	09410603	Nuclear and plastid genome characterization of <i>Hedychium</i> species
Abhishek Gupta	09410605	Studies on the production and analysis of a mycotoxin, beauvericin from <i>Beauveria bassiana</i>
Deblina Chakraborty	09410606	Studies on ornithine decarboxylase of <i>Leishmania donovani</i>
Himanshu Vyas	09410607	Isolation and differentiation of stem cells from human limbal tissue and extra ocular muscle into retinal progenitor cells
Debatosh Das	09410608	Molecular cloning, overexpression and characterization of abiotic stress related non-fermenting-1 related protein kinases family genes, SnRK2.8, 2.10 and lea4.1
Ruchi	09410610	Bioconversion of agricultural waste to ethanol by SSF using recombinant cellulose from <i>Clostridium thermocellum</i>
Samir Gupta	09410612	Cytoskeletal modification in human bone marrow mesenchymal stem cells during adipogenic and osteogenic differentiation
Umakanth Vudumula	09410613	Interactions of N-methyl-8-alkoxy quinolinium iodide with bacterial cells
Neha Sharma	09410614	Study on various potential modulators of redox metabolism of <i>Leishmania</i> parasite
Shubaash A R G	09410615	Nanocarrier for suicide gene delivery
Rajesh Kumar Chaurasia	09410616	Physio-chemical and biological studies of novel anionic conjugated polymers to develop antimicrobial medicament
Lokanadha Rao G.	09410617	Cloning and molecular characterization of Atpyl13 and Atpyl19 – abscisic acid reporter genes of <i>Arabidopsis thaliana</i>
Santhosh M	09410618	Studies on electron transport mediation in alcohol oxidase-based bioelectrode for biosensor applications
Sumeet Kheria	09410619	Industrial wastewater treatment using <i>Phanerochaete chrysosporium</i> in a rotating biological contactor reactor
Anoop. R	09410620	Studies on inhibitory properties of <i>Agaricus bisporus</i>
Pradeepkumar Suragala	09410621	Studies on hydrophobins and spore proteins from entomopathogenic fungi: adhesion aids on insect cuticle
Ravi Gedela	09410622	Studies on heterokaryon incompatibility in <i>Neurospora crassa</i>
Devendra Kumar Maravi	09410623	Antimicrobial activity and chemical characterization of <i>Lantana camara</i> plants
Ramavathu Eshwar Naik	09410624	Production of cutinase from <i>Pseudomonas cepacia</i> NRRL B 2320

List of students who have fulfilled the requirements for award of MTech degree in Chemical Engineering with Specialization in Petroleum Refinery Engineering

Name	Roll No	Project Title
P. Shailesh Nandkishorao	08410702	Extraction of Aromatic Compound using mixed ionic liquid
Chenchiah Sudulagunta	08410703	Adsorption and Coalescence in Aqueous Solutions of Surfactants and Alcohols
Dhadge Vijaykumar Laxman	08410704	Production of Flavonoids from Natural Resources using Membrane Separation Technology

Anirban Patra	08410705	Optimal Control of Chemical Processes
Veera Venkata Vara Prasad P.	08410706	Chromium removal from waste water by zero valent iron: Batch and Column studies
Nirmal Ravi Varma	08410707	Desulphurization of Fuels using Ionic Liquids: Experiments, Correlations and COSMO-RS Predictions
Madeti Girish Kumar	08410708	CFD Simulation of Shear Induced Particle Migration
S.V. Ravikumar Bandaru	08410709	Nitration of Chlorobenzene at high-concentrations of sulfuric acid
Chilukoti Balaji	08410710	Mechanistic Studies in Sono-Photo Catalytic Degradation of Recalcitrant Organic Compounds
Satyanjay Sahoo	08410711	Amine Impregnated Adsorbent Synthesis for Carbon Dioxide Adsorption
Ritesh Patidar	08410712	Physical Features of Ultrasound Assisted Enzymatic Degradation of Recalcitrant Organic Pollutants
Sama Vijaya Krishna	08410713	Properties and Thermal Degradation Kinetics of Polymer/Organoclay Nanocomposites: Effect of Processing Conditions and Organoclay Loading
Naresh Kumar Meena	08410714	Development of Membrane Based Technology for the separation of Coal from Organic Solvent
Biswakant Pradhan	08410716	Biodegradation of Phenolic Wastewater using indigenous mixed microbial culture
O. Chandra Shekar	08410718	Effect of Surface Roughness and Mass Transfer enhancement on the performance characteristics of nickel-hypophosphite electrodeless plating baths for metal-ceramic composite membrane fabrication
Anusha Chandra	08410719	Assessment of Design Parameter Guidelines for Shell and Tube Heat Exchangers in Refinery Heat Exchanger Networks
Durgesh Songera	08410720	Synthesis and characterization of Metal Nanowires for Hydrogen Storage
Nivedita Shrotri	08410721	Modification of Nafion Membrane with Inorganic Additive for Enhanced Performance of Direct Alcohol Fuel Cell
Ranjith Muraleedharan	08410722	CO ₂ Capture using Sterically Hindered Amines
Dilip Kumar Mondal	08410723	Preparation and Characterization of Low Cost Adsorbent For Color Removal
Arijit Das	08410725	Preparation of Low Cost Stevioside by Ultrafiltration
Suresh Kumar Patel	08410726	Pressure drop and drag reduction in non-newtonian fluid flow system in packed bed
Satyadas Yerravarapu	08410727	Stabilization of Hydroxide Sludge containing heavy metals by Microwave Radiation
Kamal Kumar Bhatluri	08410728	Preparation and Characterization of Alumina-titania mixed oxide supported catalysis for carbon monoxide methanation reaction
Vinay Kumar	08410730	Gas Entrainment and Holdup Characteristics in an Ejector Induced gas-liquid two-phase machine
Venkateswara Reddy S.	08410731	Study of Instabilities and Dynamics of Suspensions via experimental measurements and numerical simulations
M. Samuel Jedidiah	08410732	Synthesis and Measurement of Adsorption of CH ₄ , CO ₂ , CO and N ₂ gases on ZnDABCO Metal Organic Framework
Bhusare Vishal Hanumant	09410703	A Generalized Kinetic Modeling Methodology for first order irreversible reaction systems
Tijo Sebastian	09410708	Equilibrium Solubility of CO ₂ different Polymeric Membranes
Anwesha Basu	09410709	Instability and Dynamics of Thin Leaky Bilayers
Hemant Kumar	09410713	Biodegradation of Phenol using mixed microbial culture
Sri Harsha K	09410723	Carbon Dioxide Separation by Polybenzimidazole Membrane

Sai Kiran Cheruku	09410728	Containing an Amine carrier Liquid Liquid Equilibrium Studies on Ionic Liquid-Thiophene-Diesel Compounds: Experiments and Predictions
Nalwala Rohitbabu Gangadhar	09410734	Steady State and Dynamic Behaviour of CSTR

List of students who have fulfilled the requirements for award of MDes degree in Design

Name	Roll No	Project Title
Chagantipati Gokul Venkatesh	09420502	Design of Operator's Area of Indian Tractor for 2015 (For TAFE)
Gurjot Singh Mamik	09420503	To in tune (Graphic Novel)
Mufaddal Shabbir Husein	09420504	Food Design (Feedium)
Apoorv Tomar	09420505	Space/Time and Experience)
Abhishek Bora	09420506	Preservation of Ethnic cuisines by exploration of kitchen activities and processes
Shreyoshi Ghosh	09420508	ChitraKatha
Jagriti	09420510	Design and Development of Information System to Educate women about Prenatal & Postnatal issues and care
Patil Vilas Karbhari	09420511	Design and Development of Assistance Device for Elderly
Dipanka Boruah	09420512	DOLA-Concept Rural Ambulance
Parimala Bandlamudi	09420513	Personal Cleaning system for less abled and patients
Amit Ranjan	09420514	Design and Development of Information System to Educate women about Prenatal & Postnatal issues and care
Supradip Das	09420515	Trata 0.1-Mobility system for disaster management for Indian Army
Prajyot Ashok Kadam	09420516	To Explore new identity of one toner (rural and passenger) carrier
K Markandeya	09420517	Sarsayya- Know your Mythology

List of the students who have fulfilled the requirements for the award of PhD degree

Biotechnology

Name	Thesis Title
Atul Kumar Singh	Molecular detection and characterization of antagonistic and in vitro adhesion property of lactic acid bacteria
Priyanka Srivastava	Plant tissue culture and production of Triterpenoids from medicinal plants Azadirachta Indica A. Juss. and Lantana Camara L.
Uzma Mustafa	Studies on abiotic stress tolerance, virulence determinants and molecular characterization of Metarhizium Anisopliae and Beauveria Bassiana isolates, and toxin production by M. Anisopliae (Arsef-2735)
Vigya Kesari	Characterization of candidate plus trees (CPTs) of Pongamia pinnata (L.), a versatile legume from North Guwahati, Assam
Sanjay Kumar	Production, purification and characterization of Glutaminase-free L-Asparaginase from Pectobacterium Carotovorum MTCC 1428
Achlesh Daverey	Studies on Sophorolipids production and pretreatment of high fats and oils containing dairy wastewater using Candida Bombicola
Preeti Vatsyayan	Studies on heme-based redox enzymes from Aspergillus terreus MTCC 6324 and their potential applications for bioelectronic devices
Seema Patel	Production, structure analysis and biotechnological applications of dextran from a novel strain of Pediococcus pentosaceus isolated from microbial diversity hot spot Assam

Chemical Engineering

Name	Thesis Title
Ramesh Chandra Borah	Devolatilization of Coal of Northeastern India in Argon, Air, and Oxygen-Enriched Air under Fluidized Bed Conditions
Sanjay K. Chattopadhyay	Development of Natural Fiber Reinforced Polypropylene Composites and their Biodegradability Studies
P. Aadaleesan	NASH game based mixed H ₂ /H _∞ model predictive control applied with Laguerre-Wavelet Network Model

Chemistry

Name	Thesis Title
Sonit Kumar Gogoi	Nanoscale silver and gold for chemical and biological applications
Bolin Chetia	Molecular Recognition and Metallo-supramolecular Complex Forming Ability of some Tridentate Ligands and Oligomers
Subash Chandra Sahoo	Chiral Cavities with Amino Acid Derived Ligands and their Interactions with Chiral and Achiral Guests
Rajeev Mishra	Study of high harmonic generation beyond dipole approximation
Jashmini Deka	Interacting Gold Nanoparticles and Proteins in Diagnostics and Catalyses
Chandramoulali Reddy U	Stereoselective Synthesis of Substituted Dihydro- and Tetrahydropyrans
Gunin Saikia	Novel Conjugated Polymers for Application in Optoelectronic Devices and Sensors
Harisadhan Ghosh	Exploration of Hypervalent Iodine(III) & Dinitribromide (EDPBT) in Organic Synthesis
Harjyoti Thakuria	Development of heterogeneous catalysts and solid state methodologies for organic synthesis
Nihar Dash	Dual Fluorescence of 2-(4'-N,N-dimethylaminophenyl) imidazo [4,5-b]pyridine : Effect of homogeneous and microheterogeneous environments
Ramesh Yella	Newer Strategies for the Synthesis of Heterocycles Using Thiophilic Reagents
Wangkheimayum Marjit Singh	Supramolecular aspects of some quinone derivatives and coordination polymer of flexible dicarboxylic acids
Bimlesh Ojha	Photophysical Approach to Study the Interaction between Synthetic Amphiphiles and Proteins
Rupam Sarma	Coordination and supramolecular chemistry of aromatic N-oxides

Civil Engineering

Name	Thesis Title
Minaxi Rai	Geocell-Sand Mattress Overlying Soft Clay Subgrade : Behaviour under Circular Loading
Potsangbam Albino Kumar	Application and evaluation of amine based polymers for heavy metals adsorption and recovery from wastewater
Kamal Uddin Ahamad	Batch and Column Adsorption Studies for Simultaneous Removal of Iron, Arsenic and Fluoride by Wooden Charcoal and River Sand used as Filter Media in Indigenous Household Iron Filter Units of Rural and Semi-Urban Assam (India)
Md. Monowar Hussain	A study on performance improvement of expansive soil using residual soil and lime
Ray Maya Rajnarayan	Reservoir operation considering downstream impact of a hydroelectric project
Abdul Munim Choudhury	Study on size effect of RC beam-column joints with and without retrofitting under cyclic loading
Tapas Karmaker	Stochastic erosion in the composite banks of alluvial river bends
Mukul Chandra Bora	Performance improvement of weak clay foundation using stone column and geocell-sand mattress

Computer Science and Engineering

Name	Thesis Title
D. SatyanarayanaDelaunay	Triangulation based Spanners for MANET
Sraban Kumar Mohanty	I/O efficient algorithms for matrix computations

Electronics and Electrical Engineering

Name	Thesis Title
Navajit Saikia	Perceptual hashing for wavelet-based Scalably-coded video
Senthilkumar D	Design of robust fuzzy controllers for uncertain nonlinear systems
Rupaban Subadar	Performance Analysis of Diversity Combining Receivers Over Hoyt, $\eta - \mu$ and $\kappa - \mu$ Fading Channels

Humanities and Social Sciences

Name	Thesis Title
Malini Nair	The Stock English Comic Character in Selected Novels of P.G. Wodehouse
Merry Baruah Bora	Family in selected novels of Shashi Deshpande
Narsingh Kumar	Determinants of stress and well-being in call centre employees: Role of self-efficacy and social support
Arpana Nath	Mothers and Daughters: A Study of Selected Fiction by Indian Women Novelists in English

Mathematics

Name	Thesis Title
Cosmika Goswami	Performance analysis of working vacation Queueing models in communication systems

Mechanical Engineering

Name	Thesis Title
Swarup Kumar Laha	Analysis of stability and unbalance response of flexible rotor supported on hydrodynamic porous journal bearing
Sanjib Banerjee	Mechanical Properties and High Temperature Deformation Behavior of Al-Cu-Mg Alloys Microalloyed with Sn
D. Santhosh Kumar	Multigrid Computation of Steady and Time-Dependent Incompressible Viscous Flows
D. Arumuga Perumal	Lattice Boltzmann computation of micro and macro fluid flows and heat transfer
A. Satheesh	Thermal Modeling and Performance Investigations of Metal Hydride Based Heat Pumps
C. Subramanian	Design, development and performance of thermoplastic composite leaf springs
Manjuri Hazarika	A fuzzy set based setup planning expert system considering fixturing aspects for machining of prismatic parts

Physics

Name	Thesis Title
Kishore Dutta	Statistical Field Spectral Calculations in Some Problems of Anisotropic Turbulence
Purabi Gogoi	Preparation and Study of High Quality Hydrogenated Silicon Films from Amorphous to Microcrystalline Transition Range for Photovoltaic Applications
Poulumi Dey	Disorder and spin imbalance induced exotic phases in weakly coupled s-wave superconductors

Centre for Energy

Name	Thesis Title
Bibhuti Bhusan Sahoo	Clean development mechanism potential of compression ignition diesel engines using gaseous fuels in dual fuel mode
Patil Ranjit Shankarrao	Parametric Studies and Effect of Scale-up on Heat Transfer Characteristics of Circulating Fluidized Beds

Centre for the Environment

Name

Shampa Sen
Jayashree Nath

Thesis Title

Studies on production and applications of Alkaline Protease from *Bacillus Pseudofirmus*
Green Synthetic Methodologies Using Innocuous Reagents & Removal of Nitrobenzene
Using Cloud Point Extraction

Centre for Nanotechnology

Name

Pallab Sanpui
N. Ramakrishnan

Dilip Kumar Singh

Thesis Title

Implications of Nanoparticle-Polymer Composites as Probes and Therapeutic Agents
Mass Loading Effect of Resonant Structures in Surface Acoustic Wave Devices Suitable
for Sensing Applications
Spectroscopic Studies of Diameter Dependent Properties, Defects and Defect
Engineering in Single-Walled and Multi-Walled Carbon Nanotubes

Appendix–IV

PROGRESS IN CONSTRUCTION WORKS

Sl. No.	Works	Cost of works (` in lakhs)	Physical Progress		Total Progress upto 31.03.2012		Remarks
			Upto 31.03.11	During 2011–2012	Physical	Financial (` in lakhs)	
1	Boys' Hostel No. 8 (504 capacity with 15161 Sqm floor area)	2608.98	66%	14%	80%	2072.31	1. Slab of all floors including roof slab of 17 blocks completed out of 20 blocks. 2. Kitchen is completed. Structural work and floor of Dining hall is completed. 3. 360 rooms are already handed over. 4. 48 rooms are expected to be ready by Jun 2012.
2	Boys' Hostel No. 9 (1000 capacity with 31050 Sqm floor area)	5968.32	50%	30%	80%	4676.56	Work is in progress. 504 rooms are under occupation. The remaining rooms will be ready by September 2012.
3	Extension of Girls' Hostel	1152.63	90%	10%	100%	1064.56	Work is complete.
(a)	Phase-I (10000 Sqm)						
(b)	Phase-II (2820 sqm)	783.34	-	3%	3%	13.66	Work is in progress. Initial Load Test & Pile Completed.
4	Extension of Academic Complex						
	(Phase-I)						
	Group-A (Physics 1700 Sqm)	380.24	90%	10%	100%	333.11	Work is complete.
(a)	Group-B (Chemistry 960 Sqm)	340.85	80%	20%	100%	334.43	Work is complete.
	Group-C (EEE 1700 Sqm)	408.88	85%	10%	95%	353.00	1. Structural work 100% completed 2. Plastering work 100% completed

Sl. No.	Works	Cost of works (₹ in lakhs)	Physical Progress		Total Progress upto 31.03.2012		Remarks
			Upto 31.03.11	During 2011-2012	Physical	Financial (₹ in lakhs)	
(b)	(Phase-II) Department of Design (DOD) Chemical Engineering & Central Instrumental Facility (CIF) (5960 sqm)	1531.63	75%	20%	95%	1226.00	1. Civil works in CIF 100% completed. 2. Civil works in Chemical Engineering 100% completed. 3. Civil works of Design Department 100% completed.
(c)	(Phase-III) Departments of CSE, Chemistry (1st floor), Civil Engineering, HSS and Mathematics (7450 sqm)	2241.83	5%	40%	45%	765.07	All roof slab of Dept. of Civil Engg, HSS, Maths Deptt. completed and 50% of CSE is completed.
5	Extension of Kendriya Vidyalaya Phase-II (3960 sqm)	789.74	35%	20%	55%	454.64	All structural work is complete. Finishing & Roofing work is going on.
6	Residential Quarters 30 units of F type in 6 blocks (5738 Sqm)	1002.37	5%	20%	25%	241.55	1. Foundation completed in 6 blocks. 2. Site development work is completed 70%. 3. Brickwork including plastering in 4 units complete. 4. Roof Slab completed in 2 blocks. 5. Sanitary work 10% completed. 6. Electrical work 20% completed. 7. Site grading 100% completed.
(a)	24 units of E- type in 4 blocks (3638 Sqm)	571.00	60%	25%	85%	448.56	1. 2nd two blocks-structural work 95% completed. 2. Brick work 90% completed. 3. Plastering work 80 % completed. 4. Sanitary work is in progress. 5. Site Development work 100% completed.
(b)	30 units of E- type in 5 blocks (4548 Sqm)	918.88	5%	15%	20%	176.00	1. Foundation of 4 blocks completed. 2. Slab upto roof of 2 blocks completed. 3. Brickwork 70% completed. 4. Site development for hilltop area is completed.

Sl. No.	Works	Cost of works (₹ in lakhs)	Physical Progress		Total Progress upto 31.03.2012		Remarks
			Upto 31.03.11	During 2011-2012	Physical	Financial (₹ in lakhs)	
(d)	18 units of D-type in 3 blocks (2806 Sqm)	531.78	10%	50%	60%	276.39	1. Foundation work 100% completed. 2. Structural work 80% completed. 3. Site development work 70% completed. 4. Brick work 90% completed. 5. Plastering work is 70% completed.
(e)	28 units of B-type in 2 blocks (2403 Sqm)	392.34	85%	15%	100%	368.01	Work is complete and under occupation.
(f)	28 units of B-type in 2 blocks (2403 Sqm)	455.83	7%	34%	41%	152.83	1. Structural work 90% completed; 2. Brick work 60% completed; 3. Plastering work is in progress.
7	Construction of Student's Activity Centre building Phase-II (9015 Sqm)	2929.94	10%	40%	50%	1057.16	Work is in progress. Status of works: 1. Structural work 90% completed; 2. Brick work 20% completed; 3. Foundation work in SAC Building, Faculty Canteen and Student Canteen AND Open Stage completed.
8	Earthwork filling in proposed SAC building and Future Boys' Hostel Area	394.83	50%	40%	90%	193.99	Work is expected to be completed within 2012.
9 (a)	Construction of Security Road along the Boundary wall of the Campus (Phase-II)	161.73	5%	95%	100%	161.57	Work is complete.
(b)	(Phase-III)	301.39	16%	54%	70%	198.14	Laying of WBM is in progress.
10 (a)	Supply of 11/0.433 KV Cast Resin type Transformers	57.95	-	100%	100%	58.99	Supply of the Transformers has been completed in this year.
(b)	Supply of HV & LV XLPE insulated underground power Cables	60.90	-	100%	100%	59.87	Supply of the items completed within this year.
(c)	Supply, installation, testing & commissioning of D.G. Sets	674.44	-	55%	55%	294.00	Out of 4 nos. of DG sets 3 nos. have been received. Balance items like AMF panels, cables are putting in this year.
11	Low Side Air Conditioning Works of New 4 x 300TR HVAC Plant (Phase – II)	369.60	-	10%	10%	29.25	Laying of underground chilled water piping work is in progress.

Appendix–V

DETAILS OF RESEARCH AND DEVELOPMENT PROJECTS

COMPLETED RESEARCH PROJECTS

The following projects were completed during the year 2011-2012:

Department	Project Title	Funding Agency	Principal Investigator
Biotechnology	Microbial conversion of cellulose to sugar for ethanol production	DBT	A. Goyal
Biotechnology	Production of microbial glucans and glucooligosaccharides for healthcare	DBT	A. Goyal
Biotechnology	In situ Production of Sophorolipid by the Yeast <i>Candida bombicola</i> for Pre-treatment of Fats and Oils Containing Dairy Wastewaters	DST	K. Pakshirajan
Biotechnology	Non-Conventional Two phase Partitioning Bioreactor Systems for Biodegradation of Polycyclic Aromatic Hydrocarbons by <i>Mycobacterium Frederiksbergense</i>	DBT	K. Pakshirajan
Biotechnology	Development of novel therapeutics against leishmaniasis	DIT, New Delhi	V. K. Dubey
Biotechnology	Purification, Characterization and Production of Microbial	DST	V. V. Dasu
Chemical Engineering	Optimization of Mass Transfer enhanced Electroless plating process parameters for Dense Metal Composite Membrane Fabrication	CSIR	R. Uppaluri
Chemical Engineering	Study of Mixed Gas Adsorption on Metal Organic Frame Works	Rubotherm, Germany	S. Gumma
Chemical Engineering	Simultaneous Desulphurization and Denitrification of Diesel Oil using ionic liquids with Quantum Chemical Prediction and Validation	DST	T. Banerjee
Chemistry	Precursor synthesis of inorganic mineral through complexes of mixed donor ligands	DST	G. Das
Chemistry	Chiral main chain polymer catalysts for asymmetric catalysis	DST	T. Puniyamurthy
Chemistry	New Chiral Dentic Catalysts for Asymmetric Catalysis	CSIR	T. Puniyamurthy

Civil Engineering	Spatio-temporal analysis of natural resources in the Brahmaputra basin	DST	S. Dutta
Computer Science and Engineering	Fault Tolerance with Checkpoint and Recovery Protocols in Cluster based Distributed System	DST	D. Goswami
Computer Science and Engineering	Resource Centre for Indian Language Technology Solution (2nd Phase) (Assamese and Bodo)	DIT, MICT	G. Barua
Electronics and Electrical Engineering	Study of Source Features for Speech Synthesis and Speaker Recognition	UKIERI	S. R. M. Prasanna
Electronics and Electrical Engineering	Effect of Fading Correlation on the performance of Equal Gain Combining Diversity Receiver in Hoyt Fading Channels	DST	P. R. Sahu
Electronics and Electrical Engineering	Efficient Download Transmission, Error correction and encryption techniques for IRNSS Data	DoS	Abhijit Mitra
Electronics and Electrical Engineering	Research in UWB (Ultra Wide Band) Radio Technology and its Application	DIT	A. Mahanta
Electronics and Electrical Engineering	Gesture based interface for control application	DST	Chitrallekha Mahanta
Humanities and Social Sciences	The Life and Times of Historian Surya Kumar Bhuyan : A Study into the Professionalization of Modern Historical Research in the 20th Century Assam	ICRA	A. Saikia
Mathematics	Laplacian Eigenvalues of Graphs	DST	S. Pati
Mathematics	Simulation of Incompressible Viscous Flows by the Biharmonic Approach	DST	J. C. Kalita
Mechanical Engineering	Modelling and Computation of three-dimensional turbulent convective heat transfer for design of energy efficient pin fin heat exchange	DST	A. Dewan
Mechanical Engineering	Optimum Design and Active Vibration Control of Smart FRP Structures on Parallel	DST	D. Chakraborty
Mechanical Engineering	Design Development and Performance Evaluation of Asymmetric Composite Gears	DST	S. Senthivelan
Mechanical Engineering	Feasibility study on Carbon Nanotubes/ Ultrahigh Molecular Weight Polyethylene Nanocomposites for total joint replacement	DST	S. Kanagraj
Mechanical Engineering	Multimaterial representation in CAD for layered manufacturing	DST	G. Saravana
Mechanical Engineering	Development of a metal hydride based thermal energy storage systems	DST	P. Muthukumar
Mechanical Engineering	Development of Model to Calculate Radiative Heat Transfer in Fuel Channels of PHWRs	AERB	S. C. Mishra
Mechanical Engineering	Design, Development and Performance Evaluation of Self Lubricated Cutting Tools for High Speed Machining	ARDB	S. Senthilvelan
Physics	Physics of the Pseudogap phase: Possible routes - A BCS-BEC crossover & a kinetic energy driven pairing scenario	CSIR	S. Basu
Centre for Energy	Construction of Enzymatic Biofuel Cell for Biomedical Application	DBT	P. Goswami

Centre for Energy	Porous radiant burners for LPG cooking stove	PCRA	S. C. Mishra
Centre for Energy	Design & Development of Kerosene stove with porous burner	PCRA	S. C. Mishra
Centre for Energy	Oil analysis and DNA fingerprinting of Jaropha and Patchouli accessions	NEDFi	L. Sahoo
Centre for the Environment	Synthesis Characterization of Metal Oxides and their Application to Waste Water Treatment	CSIR	G. Das

NEW RESEARCH PROJECTS

The research projects received during the year 2011-2012 are given below:

Department / Centre	Project Title	Funding Agency	Principal Investigator
Biotechnology	Molecular and functional characterization of dextran production in weissela spp.- superior dextran producers for cereal applications	DBT	A. Goyal
	Structural basis for the masuration of Prokaryotic siRNA	DBT	B. Anand
	Dynamical Aspects era GTPase 16SrND Interactions and its implication in Ribosome Assembly	BRNS	B. Anand
	Bioengineered silk vascular grafts for blood vessel engineering	BRNS	B. B. Mandal
	Cytoskeletal organization and migration potential of mesenchymal stem cells (MSC) during different stages of differentiation	DST	B.G. Jaganathan
	Novel microalgal isolates as cell factory for Biodiesel production: Identification of multiple targets and designing of optimal process via system biology and biology and biochemical engineering approach	DBT	D. Das
	Understanding the role of Cation- TT interaction in the self assembly of amyloidogenic and de novo designed particles	DBT	N. Chaudhary
	Yield enhancement strategies for production of therapeutic compound by cell and tissue cultures of Tinspora Cordifolia Miers ex Hook. F. & Thoms	DST	R. Chaturvedi
	Studies on the Cellular role of Calcium signaling proteins in Nurespora Crassa	DBT	R. Tamuli
	Development of Aptamer Based Molecular Diagnostics for Breast Cancer	DBT	U. Bora
	Development of silk protein derived artificial nerve growth conduits for neural tissue engineering	Central Silk Board	U. Bora
	Studies on typanothione synthetase, a key enzyme of redox metabolism of Leishmania donovani	DBT	V. K. Dubey
	Computation Engineering of protein folding pathways: Implication on stability, mis- folding & aggregation	DBT	V. Ramakrishnan
	Regulating of Macrophage CD36 mediated immune response during malaria	SERB	V. Trivedi
Variation in proteome profile of legume of legume plants in response to heavy metal toxicity	DST	V. K. Dubey	

Chemical Engineering	Sub and Subortical water pretreatment of Lignocellulosic Biomass for bioconversion to Ethanol	SERB	V. V. Goud
	Investigation of Diblock Copolymer Crystallisations by molecular simulation	DST	A.K. Dasmahapatra
	Development of plant prototype for removal of ammonia, arsenic and odorous compounds from water/ wastewater by ozone microbubbles	DST	P. Ghosh
	Fabrication of low cost dense Palladium composite membrane for Hydrogen energy applications	DST	Dr. R. Uppaluri
	Development of low cost membranes for juice clarification	DBT	R. Uppaluri
	Visualisation of Pebbles movement in innovative high temperature reactor by using radioisotope technique	BRNS	R. K. Upadhyay
	Design fabrication of a membrane based hydrogen separation system	DRDO	R.K Upadhyay
	Assesment of matel Nanostructure for Hydrogen Stroage	CSIR	S. Gumma
Chemistry	Development simple fluorecence sensors for Chemical applications	DST	G. krishnamoorthy
	Crbon-Sulphar bond cleavage as route to syntgesize inorganic complexes	CSIR	J. B. Baruah
	Synthesis of Nucleobases with modified base- pairing properties and synthesis of non-natural oligonucleotides to develop fret based probes for detection of single nucleotide polymorphisms and DNA lesions	CSIR	L.M. Kundu
	Chiral recognition and separation of amines and amino alchols inside Ni (II) based metallocavity	DST	M. Ray
	Synthesis Charecterisation of New nitrogenous liganda and their transition metal complexes	DST	V. Manivannan
Civil Engineering	Potential of aerobic digestion (composting) and Anaerobic digestion of kitchen waste	MDWS	A. Kalamdhad
	Sesmic Requalification of Geotechnical structure	UKIERI	A. Murali Krishna
	Seismic Vulnerability Assesment of Building Tupes in India	NDMA	K. Dasgupta
	Application of amine based for Polymers for removal and recovery of acid azodyes from waste water	CSIR	S. Chakraborty
Design	Visual and tactile information processing in product selection process	DBT	S. Karmakar
Electronics and Electrical Engineering	Computer assisted therapy and rehabilitation for speech, hearing and language pathologies	IBMC	S. R. M. prasanna
	Development of prosodically guided phonetic engine for searching speech database in Indian language	DIT	S.R.M Prasanna
	Development of text to speech system in Indian Language Phase II	DIT	S.R.M Prasanna
	Development of speech based multi-level person authentication system	DIT	SRM Prasanna
Mechanical Engineering	Development of thermal energy stroage system for solar thermal power plant	DST	P. Muthukumar
	Development walking apparatus (concept validation.... Feasibility, prototyping and testing)	DIT	S. K. Dwivedy

Physics	Development of Heusler Alloys based thin films for Magneto-catoric and Spintronic applications	DRDO	A. Srinivasan
	Design and implementation of a high speed wavefront sensor of light beam	DIT	B. R. Boruah
	Development of High quality SiC and Diamond thin films using hot wire chemical vapor desposition technique for plasma diagnostics applications	BRFST	A. Khare
	Development of facilities for fabrication of amorphous silicon-crystalline silicon Heterojunction solar cells	DST	P. Agarwal
	Diffraction-less multidimensional light propagation in coherently controlled media	DST	T. N. Dey
Energy	Studies on structure of Enzymes and their interaction with nanostructure materials for bio electronics device and other application	DBT	P. Goswami
	Design of 25kWe pressurised circulating fluidised bed unit	Centre for Power Research Institute	P. Mahanta
Nanotechnology	External field driven flow induced micro/ nano scale patterning, mixing heat and mass transfer in micro/nano fluidic devices	DST	D. Bandyopadhyay
	Novel nanoscale materials targeted towards antimicrobial and anticancer activities	DBT	S. S. Ghosh

Appendix–VI**SUMMARY OF INSTITUTE ACCOUNTS****Balance Sheet as at 31 March 2012**

Liabilities	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)
Capital Fund and Liabilities		
Capital Fund	7,285,933,414	6,587,314,224
Earmarked/Endowment Funds	1,291,442,906	1,203,576,393
Unsecured Loans and Borrowings	-	-
Current Liabilities and Provisions	741,921,196	614,606,770
Total :	9,319,297,516	8,405,497,387
Assets		
Fixed Assets	7,217,198,544	6,436,665,148
Investments - from Earmarked/Endowment Funds	505,023,460	443,625,508
Investments - Others	37,733,761	186,932,322
Current Assets, Loans and Advances etc.	1,559,341,751	1,338,274,409
Miscellaneous Expenditure	-	-
Total :	9,319,297,516	8,405,497,387

Income and Expenditure Account for the year ended on 31 March 2012

Income	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)
Grants/Subsidies	869,814,256	674,685,037
Fees/Subscriptions	108,181,854	86,962,857
Income from Investments	-	-
(Income on investment from earmarked/endowment, funds transferred to fund)	-	-
Interest Earned	3,008,378	2,547,513
Other Income	48,212,060	41,712,397
Total (A):	1,029,216,548	805,907,804
Expenditure		
Establishment Expenses	573,863,635	577,904,927
Other Administrative Expenses, etc.	460,973,319	395,208,816
Total (B):	1,034,836,954	973,113,743
Balance being excess of Expenditure over income (A-B)	-	-
Balance being Surplus/(Deficit) for the year	(5,620,406)	(167,205,939)
Prior Period Adjustments	(3,807,828)	(907,065)
Balance being Surplus/(Deficit) carried to Capital Fund	(9,428,234)	(168,113,004)

Receipts and Payment Account for the Period Ended on 31 March 2012

RECEIPTS	AMOUNT (Rs.)	TOTAL (Rs.)	PAYMENTS	AMOUNT (Rs.)	TOTAL (Rs.)
I. Opening Balance :					
Cash in hand	130,500.00		I. Expenses:		497,790,710.00
Cash at Banks - i) In Current Accounts	349,173,900.74		a) Establishment Expenditure		
ii) In Deposit Accounts	586,278,550.57	935,582,951.31	b) Administrative Expenses		460,973,318.89
II. Grants Received:			II. Payments made against funds/various projects:		
a) From Govt. of India	869,814,256.00		a) R&D Exps	311,861,992.53	
b) From Govt. of India	935,185,744.00		b) CSIR/QIP/UGC/NBHM/AICTE Exp	15,987,192.00	
c) From Other Sources	-	1,805,000,000.00	c) JEE/GATE/JAM	89,138,024.00	
III. Income on Investment :			d) Gold Madel/Women Association & Others	583,764.00	417,570,972.53
IV. Interest Received :			III. Investments and Deposits made		
a) On Bank deposits	2,515,998.00		IV. Expenditure on Fixed Assets/others		1,028,509,037.00
b) Fixed Deposit	17,009,648.00		IIT (General)		
c) Loans & Advances	164,092.00	19,689,738.00	V. Payments of Loans:		
V. Other Income :			VI. Financial Charges (Interest):		-
Fees & Subscription	108,181,854.00		VII. Other Payments (Specify):		
Other Receipts	48,231,904.56		a) Loans & Advances & Others		730,935,949.00
Interest on Corpus Fund	298,028.00	156,711,786.56	b) Deposit of Deductions from Salary:		
Others Receipts against:			Against C.P.F. Subscription	1,452,882.00	
a) R&D Fund	392,890,394.00		Against G.P.F. Subscription	6,548,335.00	
b) CPF	5,634,580.00		Against the CPS	17,957,557.00	
c) GPF	11,961,763.00		Against GPF/CPF Tier-II	2,963,100.00	
d) CPS	635,650.00		Against GSLI, GIS & LIC & SSP	4,676,150.00	
e) GPF/CPF Voluntary Contribution	3,378,661.00		Other Deductions	753,450.00	34,351,474.00
e) CSIR/QIP/UGC/NBHM/AICTE	15,581,256.00				3,606,268.00
f) JEE/GATE/ JAM	73,817,155.00		c) Caution Money		
g) Gold Madel/Women Association & Others	1,239,999.00	505,139,458.00			
VI. Amount Borrowed					
C/F		3,422,123,933.87	C/F		3,173,737,729.42

Receipts and Payment Account for the Period Ended on 31 March 2012

RECEIPTS	AMOUNT (Rs.)	TOTAL (Rs.)	PAYMENTS	AMOUNT (Rs.)	TOTAL (Rs.)
B/F		3,422,123,933.87	B/F		3,173,737,729.42
VII. Any Other Receipts:					
a) Recovery of Loans and Adv /Current Assets:			d) Deposit of deductions of Govt. Dues:		
b) Deduction from Salary :		461,145,482.00	Income tax	61,460,214.00	
Against C.P.F. Subscription	1,452,882.00		Professional Tax	1,518,596.00	
Against G.P.F. Subscription	6,572,540.00		VAT	37,954,630.00	
Against CPS	17,964,422.00		Forest Royalty	13,819,535.00	
Against GPF/CPF Tier -II	2,963,100.00		Cess	7,783,787.00	
Against GSLI, GIS, LIC & SSP	4,679,954.00		VAT, AGST, FR Etc - R&D	7,315,201.00	129,851,963.00
Against Other Deductions	754,050.00	34,386,948.00	e) Payments of Outstanding Liabilities & Others:		
c) Caution Money Received		4,221,220.00	Misc. Receipts/Payments	18,617,066.00	
d) Deduction of Govt. Dues:			Alumni Fund	540,510.00	
Income Tax	61,877,242.00		Other Liabilities	282,637,672.00	
Professional Tax	1,518,596.00		EMD	25,068,440.00	
VAT	39,221,660.00		Security Deposit - others	68,051,001.00	
Forest Royalty	19,869,594.00		Investment (STDTR)	850,276,518.00	
Cess	7,121,619.00		Investment STDTR (R&D)	24,602,337.00	
VAT, AGST, FR, etc. - R&D	7,190,412.00	136,799,123.00	Loans & Adv & Others GPF/CPF/CPS	1,038,612.00	
e) Other Receipts:			LTDR(CPF & GPF & CPS)	47,634,733.00	
Other Liabilities	311,173,270.00		VIII. Closing Balance :		1,318,466,889.00
Alumni Fund	560,250.00		Cash in hand	147,000.00	
Misc. Receipts/Payments	23,927,539.50		Cash at Banks - i) In Current Accounts	183,511,661.13	
Investment (STDTR)	982,577,736.00		ii) In Savings Accounts	696,718,445.82	
EMD	17,247,400.00				880,377,106.95
Security Deposit - others	79,904,780.00				
Loans & Adv & Others GPF/CPF/CPS	629,545.00				
LTDR (CPF & GPF & CPS)	26,136,461.00				
Investment STDTR (R&D)	1,600,000.00	1,443,756,981.50			
TOTAL		5,502,433,688.37	TOTAL		5,502,433,688.37



Shri Jairam Ramesh, Minister of State (Independent Charge), Environment and Forests, Govt. of India, at the 13th Convocation along with Dr. R. P. Singh, Chairman, Board of Governors, IIT Guwahati



Shri Jairam Ramesh giving medal to a degree recipient



Students participating at a hand-made paper making workshop



MHRD, DHE regional meeting on formulation of 12th five year plan



Students visiting the Institute are given informative lectures by faculty members



Prof. Gautam Barua exchanging MoUs with the representative of IDIAP Research Institute, Martigny, Switzerland



A panoramic view of IIT Guwahati campus with the mighty Brahmaputra flowing by its side



Cultural performance in Alcheringa



A musical band performing in Alcheringa



Prof. Gautam Barua planting a sapling in the campus



Participants of the workshop on optical microscopy



Campus children performing at the Independence Day ceremony



An exhibition of Indian Army at Techniche



IIT Guwahati Guest House