

THE IITG MONITOR



Indian Institute of Technology Guwahati

Volume: III, Issue: I, The Quarterly Newsletter, January–March 2012

In this issue

- International Conference on Environmentally Sustainable Urban Ecosystems
- Conference on Photochemistry and Luminescence
- COMPFLU 2012
- Workshop on Tone and Intonation
- New Joinings
- German Delegation Visit
- Publications (Research Journal/ Book/ Book Chapter)
- Mechanised Weaving of Muga Fabric
- Visit of Japanese Scholars
- Seminar/ Workshop/Short Term Course Organised
- International Symposium on Advances in Chemical Sciences
- Workshop on Speaker Verification: Development and Application
- Invited Talks
- New Research Projects
- Awards and Honours
- PhDs Completed
- Alcheringa

International Conference on Environmentally Sustainable Urban Ecosystems

The International Conference on Environmentally Sustainable Urban Ecosystems (ENSURE 2012) was organised at IIT Guwahati during 24-26 February 2012 to provide a platform among researchers, planners and field experts from different relevant disciplines seeking a path for environmentally



Dr. R. P. Singh inaugurating the conference in the presence of Prof. Gautam Barua, Prof. V. P. Singh, and Prof. A. K. Sarma

sustainable urban development. The conference was organised by Centre of Excellence for Integrated Landuse Planning and Water Resource Management (ILPWRM), a Ministry of Urban Development, Govt. of India, sponsored centre under the Department of Civil Engineering, IIT Guwahati.

Urbanisation is an unavoidable essential phenomenon but haphazard development without caring much about their impacts on the ecosystems, invariably leads to hazard-prone urban areas. A far sighted developmental planning can only lead to a hazard free ecologically sustainable urbanisation. ENSURE 2012 focussed mainly on this core and other related issues of urbanisation.

Dr. R. P. Singh, Chairman, Board of Governors, IIT Guwahati, was the Chief Guest of the conference.

Seven keynote papers by Prof. V. P. Singh (Texas A&M University, USA); Prof. A. K. Gosain (IIT Delhi); Prof. P. P. Muzumdar (IISc Bangalore); Prof. Nagesh Kumar (IISc Bangalore); Prof. Kapil Gupta (IIT Bombay); Prof. S. Mohan (IIT Madras) and Dr. Taiichi Hayashi (Disaster Prevention Research Institute, Kyoto University, Japan) were presented along with four thematic papers by Prof. A. K. Sarma, Prof. C. Mahanta, Dr. S. Dutta, Dr. R. K. Bhattacharjya, Centre of Excellence, ILPWRM during the conference.

More than 150 delegates from India and foreign countries like Thailand, US, Argentina, Japan, Germany, Poland participated and shared their ideas and experiences through presentation of technical papers. 230 technical papers were accepted for presentation. The topics of the papers covered themes from urban hydrology to ground water management, from integrated landuse planning for urban area to green building and socio-economic aspects of urban development.

A documentary and a video song produced by Centre of Excellence, ILPWRM for creating awareness among planners, administrators and dwellers on sustainable development of hilly urban area was released during the conference.

Prof. A. K. Sarma, Civil Engineering was the convener of the conference.



Dignitaries on the dias with digital copies of conference proceedings and souvenir

Conference on Photochemistry and Luminescence

Conference on Photochemistry and Luminescence 2012 was held at IIT Guwahati during 9-10 March 2012. The focus of the conference was discussing applications of photochemistry and luminescence in various areas such as chemistry, biology and material science. The scientific programmes of the conference consisted of plenary sessions, invited lectures and poster presentations. Prof. Sneh Kumar Dogra, FNA, FNASc, eminent photochemist was the chief guest of the conference.



Prof. Sneh Kumar Dogra along with other dignitaries at the inaugural function

Invited delegates including Prof. Ashok Kumar Mishra, FNASc, IIT Madras, Prof. M. Swaminathan, Annamalai University, Prof. Joykrishna Dey, IIT Kharagpur, Dr. Subit K. Saha, BITS Pilani and Dr. Swadeshmukul Santra, University of Central Florida, USA, and faculty members from IIT Guwahati delivered invited lectures. In addition, several oral and poster presentations were given by the delegates. Dr. P. Phaniraj, Argonne National Laboratory, USA and Prof. Arun Chattopadhyay, Head, Department of Chemistry were among those who chaired the sessions.

Dr. G. Krishnamoorthy and Dr. A. Paul, Associate Professors, Chemistry, were convener and co-convener of the conference respectively.

COMPFLU 2012

IIT Guwahati organised a SERC school and the sixth national symposium on 'Rheology of Complex Fluids' (COMPFLU 2012) during 3-7 January 2012. The focus of COMPFLU 2012 at IIT Guwahati was on the rheology of polymers, suspensions, granular materials and biological fluids. The three day school from 3-5 January 2012 was attended by teachers and research scholars of academic institutions, scientists from R&D organisations and engineers from industrial organisations. The DST sponsored school featured expert lectures and laboratory sessions on various aspects of rheology of complex fluids.

The sixth national symposium held on 6 and 7 January 2012 was open to the participants of the school. This was intended to expose them to the recent developments in the area of complex fluids besides giving them a chance to interact with the experts. The symposium featured 25 invited lectures and

33 poster presentations. The event was attended by nearly 110 participants from various institutions of the country. Dr. Anugrah Singh, Associate Professor and Dr. Ashok Kumar Dasmahapatra, Assistant Professor of Chemical Engineering were the co-ordinators of COMPFLU 2012.

Workshop on Tone and Intonation

A workshop on Tone and Intonation: Theory, Typology and Computation was held during 26-27 January 2012 with special reference to the languages of North-East India. The workshop featured talks by speech scientists from both linguistics 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.

Scholars and scientists from across the country participated in the workshop. The workshop was sponsored by LDCIL, Mysore and the North Eastern Council. Dr. Shakuntala Mahanta, Assistant Professor, Humanities and Social Sciences was the convener and Dr. S. R. M. Prasanna, Associate Professor, Electronics and Electrical Engineering; and Dr. P. Sarmah, Assistant Professor, Humanities and Social Sciences were the co-conveners.

New Joinings



Deepanjan Kesh
Assistant Professor
Computer Science
and Engineering



Mamila R. Sankar
Assistant Professor
Mechanical
Engineering



Deepak Sharma
Assistant Professor
Mechanical
Engineering



A three member German delegation, Mr. Rainer Schmiedchen (L), Consul General; Mr. Rajesh Nath (C); Mr. Jan Thorsten Kotschau (2R), met the Director, Dean of Alumni Affairs and External Relations, Prof. Sanjay Bose (3R), and Dean of Institute Works, Prof. Anjan Dutta (R) and had a brief discussion relating to possible collaboration between German research institutes and IIT Guwahati.

Publications (Research Journal/Book/Book Chapter)

Research Journal

Biotechnology

U. Saxena, P. Goswami, "Electrical and optical properties of gold nanoparticles: Applications in gold nanoparticles-cholesterol oxidase integrated systems for cholesterol sensing", *Journal of Nanoparticle Research*, 2012 (DOI: 10.1007/s11051-012-0813-9)

V. Ramakrishnan, S. Srinivasan, S. M. Salem, M. J. Zaki, S. J. Matthews, W. Colon, C. Bystroff, "GeoFold: Topology-based protein unfolding pathways capture the effects of engineered disulfides on kinetic stability", *Proteins*, 80 (3), pp. 920-934, 2012

Chemical Engineering

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

S. K. Patel and S. K. Majumder, "Frictional pressure drop of an additive-based non-Newtonian flow in a packed bed", *Special Topics and Reviews in Porous Media*, 3 (2), pp. 97-106, 2012

S. Chakma and V. S. Moholkar, "Mechanistic features of ultrasonic desorption of aromatic pollutants", *Chemical Engineering Journal*, 175, pp. 356-367, 2012

P. Kumar, S. Khanna and V. S. Moholkar, "Flow regime maps and optimisation thereby of hydrodynamic cavitation reactors", *AIChE Journal*, 2012 (DOI: 10.1002/aic.13771)

P. A. Parkar, H. A. Choudhury and V. S. Moholkar, "Mechanistic and kinetic investigations in ultrasound assisted acid catalysed biodiesel synthesis", *Chemical Engineering J.*, 187, 248-260, 2012

Electronics and Electrical Engineering

P. Das, K. Karthik, B. C. Garai, "A robust alignment-free fingerprint hashing algorithm based on minimum distance graphs", *Elsevier Journal on Pattern Recognition*, 2012 (DOI: 10.1016/j.patcog.2012.02.022)

Humanities and Social Sciences

S. Katyaini, A. Barua, B. Mili, "Assessment of adaptation to floods through bottom up Approach: A case study of three agro – climatic zones of Assam", *The Clarion*, 1 (1), pp. 157-164, 2012

B. Som, "Towards a Cognitive Linguistics Understanding of Folk Narratives", *Lokaratna*, IV, pp. 54-63, 2012

D. Das, S. Borbora, M. K. Dutta, "Living Environment and Quality of Life: A Case Study", *International Journal of Ecological Economics and Statistics*, 25 (2), 2012

Rohini Mokashi-Punekar, "Is it possible to be Dalit in Medieval India?" *JSL*, xv, pp. 25-38, 2012

Mathematics

M. Tripathy and R. K. Sinha, "Superconvergence of H¹- Galerkin mixed finite element methods for second-order elliptic equations", *Numerical Functional Analysis and Optimisation*, 33 (3), pp. 320-337, March 2012.

R. B. Bapat, D. Kalita, S. Pati, "On weighted directed graphs", *Linear algebra and its Applications*, 436, pp. 99-111, January 2012

Mechanical Engineering

M. Lal and R. Tiwari, "Multi-fault identification in simple rotor-bearing-coupling systems based on forced response measurements", *Mechanism and Machine Theory*, 51, 87-109, 2012

J. 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*, 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*, 13, pp. 108-127, 2012

P. Muthukumar, P. I. Shyamkumar, "Development of a novel porous radiant burner for LPG cooking applications", *Fuel*, 2012 (DOI: 10.1016/j.fuel.2011.09.006)

P. Muthukumar, K. S. Patel, P. Sachan, N. Singhal, "Computational study on metal hydride based three-stage hydrogen compressor", *International Journal of Hydrogen Energy*, 37, pp. 3797-3806, 2012

B. S. Sekhar, P. Muthukumar, R. Saikia, "Tests on a metal hydride based thermal energy storage system", *International Journal of Hydrogen Energy*, 37, pp. 3818-3824, 2012

H. Sarangi, K. S. R. K. Murthy, 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

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*, 4 (1-2), 2012

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*, 10 (1), pp. 77-93, 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*, Vols. 110-116, pp. 1199-1206, 2012

P. S. Robi, S. Banerjee and A. Srinivasan, "Deformation mechanism maps for Al-Cu-Mg alloys microalloyed with tin", *Advanced Materials Research*, 410, pp. 283-286, 2012

S. Banerjee, P. S. Robi and A. Srinivasan, "Prediction of hot deformation behaviour of Al-5.9%Cu-0.5%Mg alloys with trace additions of Sn", *Journal of Material Science*, 47 (2), pp. 929-948, 2012

Physics

A. Nath, A. Das, L. Rangan and A. Khare, "Bacterial inhibition by Cu/Cu₂O nanocomposites prepared via laser ablation in liquids", *Science of Advanced Material*, 4, pp. 1-4, 2012

A. T. T. Mostako, A. Khare, C. V. S. Rao, P. M. Raole, S. Vala, S. Jakhar, T. K. Basu, M. Abhangi and R. J. Makwana, "Effect of hydrogen ion beam irradiation onto the FIR reflectivity of pulsed laser deposited mirror like Tungsten films", *Journal of Nuclear Materials*, 423, pp. 53-60. 2012

A. Nath and A. 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*, 29 (3), pp. 351-356, 2012

G. Shukla and A. Khare, "Effect of pre-heating on hydrothermal growth and optical properties of ZnO nanorods", *International Journal of Nano Science*, 10 (4-5), pp. 845-849, 2012

P. Gogoi, H. S. Jha, P. Agarwal, "Effect of silane flow rate on microstructure of silicon films deposited by HWCVD", *Journal of Non-Crystalline Solids* (DOI: 10.1016/j.jnoncrsol.2011.12.095)

Nanotechnology

A. Jaiswal, S. S. Ghosh and A. Chattopadhyay, "One step synthesis of C-dots by microwave mediated caramelisation of poly(ethyleneglycol)", *Chemical Communications*, 48, pp. 407-409, 2012

A. Jaiswal, A. Chattopadhyay and S. S. Ghosh, "Functional Chitosan Nanocarriers for Potential Applications in Gene Therapy", *Materials Letters*, 68 (1), pp. 261-264, 2012

Book

Mechanical Engineering

U.S. Dixit, D. K. Sarma, J. P. Davim, *Environmentally Friendly Machining*, Springer, New York, 2012 (ISBN: 9781461423072)

Electronics and Electrical Engineering

R. S. Kshetrimayum, *Electromagnetic Field Theory*, Cengage Learning India, 2012

Book Chapter

Biotechnology

D. Das and A. Goyal, "Lactic acid bacteria in food industry", *Microorganisms in Sustainable Agriculture and Biotechnology*, pp. 757-772, eds. T. Satyanarayana, B. N. Johri and A. Prakash, Springer, 2012

Electronics and Electrical Engineering

S. Chouhan, "Energy optimisation techniques for wireless sensor networks", *Green Mobile Devices and Networks: Energy Optimisation and Scavenging Techniques*, CRC Press, 2012

Mechanical Engineering

M. Chandrasekaran, M. Muralidhar, C. Murali Krishna, U. S. Dixit, "Online machining optimisation with continuous learning", *Computational Methods for Optimising Manufacturing Technology: Models and Techniques*, ed. J. P. Davim, IGI Global, Hershey, 2012

Physics

A. Nath and A. Khare, "Laser induced breakdown in liquid and solid-liquid interface", *Laser Ablation in Liquid: Principles and Applications in Preparation of Nanomaterials*, ed. G. Yang, pp. 947-1011, Pan Stanford Publishing, 2012 (ISBN: 9789814310956).

Mechanised Weaving of Muga Fabric

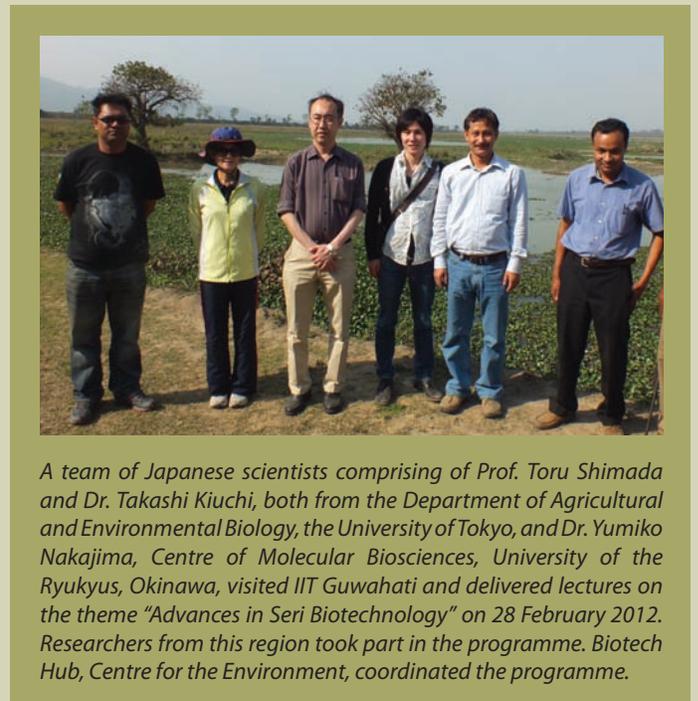


His Excellency, Shri Janaki Ballav Patnaik, Governor of Assam (C); Sri B. P. Muktieh, CMD, NEDFi (2R); Dr. A. K. Goswami, ASTEC (1R); Prof. Gautam Barua (2L); and Prof. S. K. Kakoty (1L) at the inaugural ceremony

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, on 23 March 2012 at the Industrial Estate, Amingaon, Guwahati.

The Rural Technology Action Group-NE (RuTAG-NE) — a mission initiated and sponsored by the Principal Scientific Adviser to the Govt. of India — has been functioning at IIT Guwahati since 2006.

Prof. S. K. Kakoty, Mechanical Engineering, is the coordinator of RuTAG-NE.



A team of Japanese scientists comprising of Prof. Toru Shimada and Dr. Takashi Kiuchi, both from the Department of Agricultural and Environmental Biology, the University of Tokyo, and Dr. Yumiko Nakajima, Centre of Molecular Biosciences, University of the Ryukyus, Okinawa, visited IIT Guwahati and delivered lectures on the theme "Advances in Seri Biotechnology" on 28 February 2012. Researchers from this region took part in the programme. Biotech Hub, Centre for the Environment, coordinated the programme.

Seminar/Workshop/Short Term Course Organised

A QIP short term course on **Integrated Solid Waste Management** was organised during 9-13 January 2012 at Department of Civil Engineering. Dr. Ajay Kalamdhad, Assistant Professor, Civil Engineering was the coordinator of the course.

One day workshop on **River Basin Management and Fluvial Disaster** was held on 16 January 2012 in the Department of Civil Engineering. The workshop was coordinated by Dr. S. Dutta, Associate Professor, and Dr. Bimlesh Kumar, Assistant Professor, Civil Engineering.

A QIP short term course on **Large River Management: Hydraulics, Hydrology and Ecology** was held in the Department of Civil Engineering during 17-21 January 2012. Dr. S. Dutta, Associate Professor, and Dr. Bimlesh Kumar, Assistant Professor, Civil Engineering, were the coordinators.

A QIP short term course on **What is common among Cloud Computing, Nanotechnology, and Green Computing?** was organised during 19-21 January 2012 by the Department of Computer Science and Engineering. The course covered three broad topics namely, cloud computing, nanotechnology and green computing with an effort to draw correlation among these interdisciplinary subjects. Forty faculty members from various engineering colleges across the country participated in the workshop. Prof. Krishnamachar Sreenivasan, Dr. Santosh Biswas, Assistant Professor, and Dr. Arijit Sur, Assistant Professor, Computer Science and Engineering were the course coordinators.

A capacity building programmes for the engineers of water resources and irrigation departments of Assam on **Mitigation of River Bank Erosion Problem** was organised during 23 January – 3 February and 13-23 March 2012. The programme was sponsored by Ministry for the Development of North-eastern Region (DoNER) and conducted jointly by Dept. of Civil Engineering, IIT Guwahati and Dept. of Civil Engineering of Assam Engineering College, Guwahati. Dr. R. K. Bhattacharjya, Prof. A. K. Sarma (IIT Guwahati) and Dr. Bipul Talukdar (Assam Engineering College) were the coordinators of the programme.

One day workshop on **Need of Watershed Based Planning for Hazard Mitigation** was held on 24 January 2012 in the Department of Civil Engineering. Prof. Arup Kumar Sarma coordinated the workshop.

A week long interactive session on **Graphic Design** was organised during 6-10 February 2012. It was held under Quality Improvement Programme. The objective of the course was to create awareness about graphic design, understand its role and importance in our education system. The course encompassed basic understanding of graphic design – its function and significance in communication, elements and principles of visual design, presentation techniques and applications of graphic design. The programme also provided a platform for academicians and professionals from various fields to interact and exchange their views and ideas on the

subject. There were nearly twenty five teachers from various AICTE approved colleges across the country registered for the programme. Dr. D. Udaya Kumar, Assistant Professor, Design, was the programme coordinator.

The **Information Security Education and Awareness (ISEA) Annual Workshop** was organised by the Department of Computer Science and Engineering during 17-21 February 2012. About twenty faculty members from various engineering colleges of the country took part in the workshop. Lectures and hands-on training were given on various aspects of information security. Prof. Sukumar Nandi, Computer Science and Engineering was the coordinator of the programme.

A three day workshop on **Engineering Optimisation using Excel and MATLAB** was jointly organised by Departments of Civil and Mechanical Engineering during 29 February – 2 March 2012. The workshop aimed at providing a forum for the teachers of various technical institutions of the country as well as for the technical researchers to upgrade their knowledge on recent advances in the field of optimisation techniques. The workshop put major focuses on the recent development in the field of optimisation techniques, such as genetic algorithms, differential evolution, particle swarm algorithms, etc. The



Participants of workshop on engineering optimisation using Excel and MATLAB

workshop was attended by 45 participants coming from different parts of the country. The programme was sponsored by AICTE under the quality improvement programmes of Ministry of Human Resources Development. Dr. Rajib Kumar Bhattacharjya, Associate Professor, Civil Engineering and Dr. Karuna Kalita, Assistant Professor, Mechanical Engineering were the coordinators of the workshop.

A short term course on **Research Methods and Computer Applications in Humanities and Social Sciences** for the researchers in humanities and social sciences was organised during 12-23 March 2012 with financial support from Indian Council for Social Science Research, New Delhi. Dr. M. K. Dutta, Associate Professor, and Dr. S. Mallick, Assistant Professor, Humanities and Social Sciences were the coordinators.

International Symposium on Advances in Chemical Sciences

The international symposium on Advances in Chemical Sciences was held on 30 January 2012 at IIT Guwahati. The conference was jointly organised by Department of Chemistry,



Participants of the symposium

IIT Guwahati and Royal Society of Chemistry, UK. The symposium brought together eminent international scientists from UK and scientists from the North East region of India on a common platform for discussing the latest developments in chemical sciences. The symposium also provided an opportunity for the undergraduate and post-graduate students of the region to interact with internationally accomplished scientists and to listen to some of the latest developments in the field.

The symposium was represented by around 250 participants. Prof. S. K. Bose, Dean, Alumni Affairs and External Relations, IIT Guwahati was the chief guest and Dr. David Parker, Chief executive officer, Royal Society of Chemistry, UK was the guest of honour in the inaugural function. Invited talks were delivered by Dr. Anna Peacock, University of Birmingham; Dr. Bob Crawford, Unilever; Dr. S. Mandal, GE Healthcare; Dr. Jacob Ogweno Midiwo, University of Nairobi, etc. In addition, 35 papers were presented through poster presentations.

Prof. Arun Chattopadhyay, Chemistry, was the Chairman, and Dr. Aditya N. Panda and Dr. Debapratim Das, Assistant Professors, Chemistry, were conveners of the symposium.

Workshop on Speaker Verification: Development and Applications

A Department of Information Technology (DIT) workshop on "Speaker Verification: Development and Applications" was organised during 13-17 February 2012. It was organised as a part of the recently completed project on "Development of person authentication system based on speaker verification in uncontrolled environment" funded by DIT. The objective of this workshop was to disseminate the knowledge and resources developed as part of this project to the other research groups in India, so that it may result in an accelerated development and deployment of speaker verification technology in Indian scenario. The participants of the workshop included engineers, scientists, faculty and research scholars across the country working in the speech processing area.

The workshop was inaugurated by Prof. Gautam Barua, Director, IIT Guwahati. He also released the IITG Multivariability Speaker

Recognition database collected as part of this project and now available for the research community across India and abroad.

The invited talks of the workshop were delivered by Prof. B. Yegnanarayana, IIT Hyderabad; Prof. Goutam Saha, IIT



Prof. Gautam Barua releasing IITG Multivariability Speaker Recognition Database; also seen are Prof. B. Yegnanarayana (R), Prof. R. Bhattacharjee (L), Head, Department of Electronics and Electrical Engineering

Kharagpur; Dr. Samudravijaya, TIFR Mumbai; Prof. R. M. Sharma, Panjabi University, Patiala; Dr. Hemant Patil, DAIICT Gandhinagar; Prof. S. Dandapat, Dr. S. R. M. Prasanna and Dr. R. Sinha, IIT Guwahati. The workshop was jointly organised by the Departments of Electronics and Electrical Engineering and Computer Science and Engineering.

Invited Talks

Civil Engineering

Dr. Subhamoy Bhattacharya, University of Bristol, UK, "Experience of a magnitude 9 earthquake (2011 Tohoku earthquake) and lessons learnt", 3 January 2012.

Prof. Hosoda Takashi, Dept. of Urban Management, Kyoto University, Japan, "Introduction of Research Activities in the Laboratory of River Basin Management and River Engineering, Dept. of Urban Management, Kyoto University", 15 March 2012.

Computer Science and Engineering

Dr. Arnab Basu, IIM Bangalore, "A Survey of Equipartition of Measures", 11 January 2012.

Dr. Unmesh D. Bordoloi, Linköping University, Sweden, "Timing analysis of the FlexRay protocol", 4 January 2012.

Mathematics

Dr. Michael Karow, Institute for Mathematics, Technical University, Berlin, "Pseudospectra for structured matrix perturbations", 1 March 2012.

Prof. Christian Mehl, Institute for Mathematics, Technical University, Berlin, "Definite versus indefinite linear algebra", 5 and 15 March 2012.

Centre for the Environment

Prof. R. Rajagopalan, former Professor at IIT Kanpur and IIT Madras, "The environmental crisis and your responsibility", 13 March 2012.

Mr. Dilip Patel, national coordinator of India, I Care! movement and Dr. A. S. Ravindra Rao, Initiatives of Change, at Asia Plateau, Maharashtra, "India, I Care!", 13 March 2012.

New Research Projects

Biotechnology

Title: Molecular and functional characterisation of dextran production in *Weisella* spp-Superior Dextran producers for ceal applications; **Sponsor:** Indo-Finland Joint Project, DBT, Gol; **Principal Investigator:** Arun Goyal

Title: Bioengineered silk vascular grafts for blood vessel engineering; **Sponsor:** DAE-BRNS; **Principal Investigator:** Biman B. Mandal

Civil Engineering

Title: Potential of aerobic digestion (composting) and anaerobic digestion of kitchen waste; **Sponsor:** Ministry of Drinking Water and Sanitation, Gol; **Principal Investigator:** Ajay Kalamdhad

Mechanical Engineering

Title: Development of thermal energy storage systems for solar thermal power plant; **Sponsor:** DST, Gol; **Principal Investigator:** P. Muthukumar

Physics

Title: Collaboration by Indian Physicists on Neutrino Projects at Fermi Lab, USA; **Sponsor:** DST, Gol (under Mega Facilities for Basic Research); **Principal Investigator:** Bipul Bhuyan

Title: Development of facilities for fabrication of amorphous silicon-crystalline silicon heterojunction solar cells; **Sponsor:** DST, Gol; **Principal Investigator:** Pratima Agarwal

Energy

Title: Design of 25 kWe pressurised circulating fluidised bed unit; **Sponsor:** Central Power Research Institute (CPRI), Bangalore; **Principal Investigator:** P. Mahanta

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

Dr. Amarendra Kumar Sarma, Assistant Professor, Physics, has been awarded the INDO-US research fellowship for the year 2012 for conducting advanced research in the area of physical sciences by INDO-US Science and Technology Forum (IUSSTF).

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.

Ms. Shilpa Sharma, research student, Centre for Nanotechnology received international travel grant from DST, Gol to present poster at the Miami 2012 Winter Symposium: Nanotechnology in Biomedicine held at JW Marriott Marquis Miami, USA during 26-29 February 2012.

Ms. Swati Khanna, research student, Centre for Energy, has received travel grant of DST as well as DBT, Gol for attending International Conference on Agricultural Biotechnology, Biological and Biosystems Engineering 2012 in Venice, Italy.

Awards and Honours

Dr. Biman B. Mandal, Assistant Professor, Biotechnology has received DAE Young Scientist Research Grant Award 2011 and SYIS Young Investigator Award in TERMIS AP, International Conference, Singapore.

Dr. Arindam Dey, Assistant Professor, 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. Ajay Kalamdhad, Assistant Professor, Department of Civil Engineering received "IEI Young Engineers Award 2011-2012" in Environmental Engineering from Institute of Engineers (India) at 27th National Convention of Environmental Engineers held at NITK Mangalore, Karnataka on 24 January 2012.

Dr. Saswata Shannigrahi, Assistant Professor, Computer Science and Engineering received Ramanujan fellowship from the Department of Science and Technology, Govt. of India.

PhDs Completed During January–March 2012

Department/Centre	No. of Students
Biotechnology	4
Chemical Engineering	1
Chemistry	1
Civil Engineering	3
Computer Science and Engineering	1
Electronics and Electrical Engineering	1
Humanities and Social Sciences	3
Mathematics	1
Physics	3
Centre for the Environment	3
Total	21

Alcheringa 2012



Graffiti wall of Alcheringa

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

February 3 culminated with Ish Theatre – famous theatre group from Israel – who presented their play, *Odysseus Chaoticus*, based on popular carabets of Odysseus, King of Ithaca. Imbided with subtle brilliance and theatrical wizardry Ish Theatre enthralled the audience with noval taste.



Anoushka Shankar

informal events. The performances of musicians and performing artistes of repute are the real crowd puller.

Meaning 'dreamtime', Alcheringa has grown into a big cultural event attracting participation from over 150 colleges and a footfall in excess of thirty thousand. In the past Alcheringa has featured some exhilarating performances from some of the biggest names in the entertainment industry, namely Sonu Niigaam, Shaan, Strings, KK, Euphoria, Parikrama, The Raghu Dixit Project, Shankar Ehsaan Loy, the Swiss folk metal band Eluveitie, etc.

Continuing its tradition of presenting artistes of international fame, Alcheringa 2012 aptly started with a concert by Anoushka Shankar, the famed Indian American sitar player and composer.

It also saw the soul-stirring performance of Soulmate – the very popular blues-rock band from Shillong.

On 4 February popular playback singer Javed Ali entertained the audience with his soothing voice churning Sufi compositions and other popular songs.



Soulmate singer Tipriti Kharbangar performing on stage

A famous theatre group Quaff Theatre presented 'The Real Inspector Hound' on 5 February.

The final performance of Alcheringa 2012 was of Orphaned Land – Israeli progressive metal band – the legendary pioneers of the Oriental metal world.

Apart from these, some of the notable programmes during the festival were Graffiti Worskhop by Wink, personality contest Mr. and Miss Alcheringa, photography workshop, etc.

THE IITG MONITOR, the quarterly Newsletter of Indian Institute of Technology Guwahati is published by the Public Relations Office, Indian Institute of Technology Guwahati, Guwahati-781 039. Materials for publication in the Newsletter should reach the Public Relations Office by 20th of every month (Email: pro@iitg.ernet.in, Phone: +91-361-2582010).