

THE IITG MONITOR



Indian Institute of Technology Guwahati

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Techniche 2014

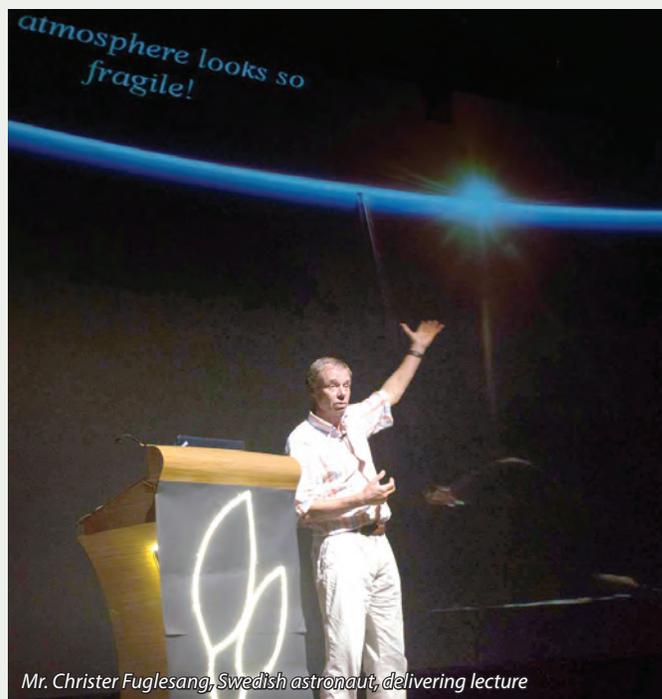
Techniche—the annual techno-management festival of IIT Guwahati was organised during 4–7 September 2014.

Started in 1999, Techniche was conceptualised with an aim to motivate the youth to think out of the box, expand their horizons and reach the zenith of success in all techno-management spheres. It has stayed true to its vision since; and from its humble beginnings, Techniche now revels in being one of the premier techno-management festivals of the nation. With a reach of thousands of colleges and

school students from across the country, Techniche plays a phenomenal role in bringing out the true potential of the young generation.



Prof. Gautam Biswas, Director, IIT Guwahati while inaugurating Techniche



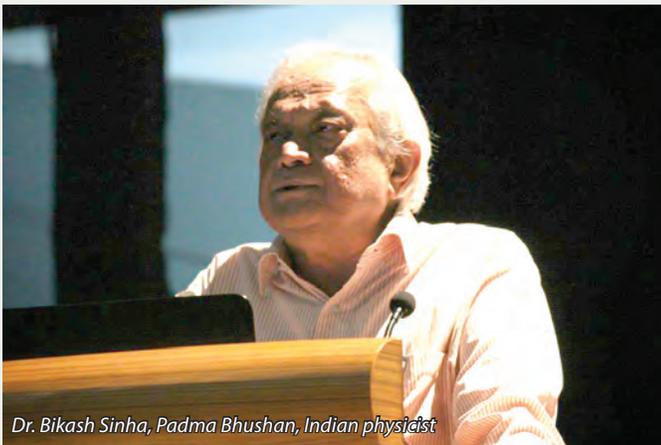
Mr. Christer Fuglesang, Swedish astronaut, delivering lecture

In the past, Techniche has brought great and accomplished personalities from all over the world, all branches of study and all walks of life under the same roof to provide an unparalleled learning experience to all its participants and attendees. Techniche has been an extra-ordinary platform to showcase the latest inventions, exhibitions and technological advances from all over the globe and organises a plethora of events and competitions all designed to make the participants step outside their comfort zones and challenge the institution of conventional thinking.



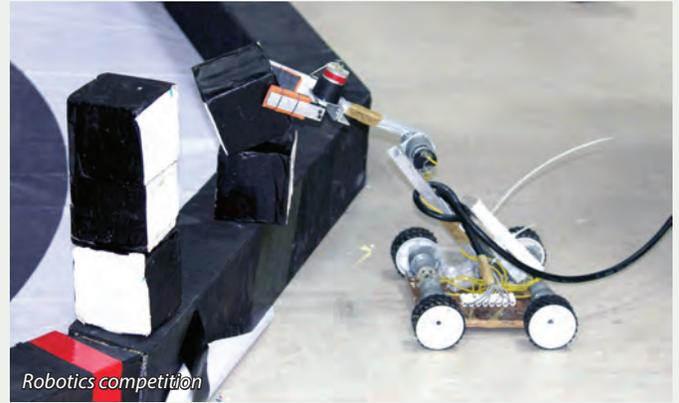
A session of Model United Nations

Techniche is famous for its Lecture Series, where eminent scientists, business wizards, artists, 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



Dr. Bikash Sinha, Padma Bhushan, Indian physicist

knowledge participated in the event and shared their knowledge and experience with the participants. Among them were Dr. Kota Harinarayana, Father of India's Light Combat Aircraft (LCA) Tejas Programme; Dr. Tessy Thomas, Project Director for Agni-IV missile in Defence Research and Development Organisation; Dr. Bikash Sinha, Padma



Robotics competition

Bhushan, Indian physicist, active in the fields of nuclear physics and high energy physics; Dr. Peter Atkins, FRSC, English chemist and former Professor of Chemistry at the University of Oxford and a prolific writer of popular chemistry books; and Mr. Christer Fuglesang, Swedish astronaut.

Another regular feature of Techniche—Industrial Conclave which provides an ideal platform for young entrepreneurs and budding corporates to broaden their horizons and understand the internal dynamics of the ever growing business industry was also organised. Leaders from the industry like Vinita Bali, Former CEO and MD, Britannia Industries Ltd.; Marten Pieters, MD and CEO, Vodafone India; Arun Iyer, National Creative Director, Lowe Lintas India; Geetu Verma, Executive Director - Foods, Hindustan Unilever Ltd.; Sumit Chowdhury, President, Reliance Jio Infocom Ltd. took part in the conclave.

Techniche also presented a great opportunity to showcase students' talent on different technical issues. Robotics competition was one such module which witnessed large participation from all over the nation.

Some of the other events of Techniche-2014 were Guwahati half marathon, and Technothon – the international school olympiad, workshops, blood donation camps, exhibitions by the Indian National Army, Indian Railways, DRDO, etc. and cultural nights where popular artistes performed.



Indian Ocean performing at cultural evening



Jonita Gandhi sings for a huge audience at cultural evening

Workshop on Molecular Modelling and Simulation of Sustainable Polymers and Nanocomposites

The National Workshop on Molecular Modelling and Simulation of Sustainable Polymers and Nanocomposites (MSSP-14) was organised during 4-8 August 2014 at IIT Guwahati. The aim of the workshop was to impart knowledge and provide hands-on training on molecular modelling and simulation of polymers to research scholars and young researchers who intend to practice research in the field of molecular simulation of polymeric materials. The workshop featured expert lectures by faculty and scientists from academia and industry, and hands-on sessions on molecular modelling and simulation of polymers and polymer nanocomposites.



Participants of the workshop

The first day of the workshop was focussed on the fundamentals of various molecular simulation techniques with special emphasis on application to polymeric materials. The various lectures introduced the participants to the basics of Monte Carlo and molecular dynamics simulation techniques, and their application to generation of polymer molecular models and prediction of polymer properties. Atomistic as well as coarse-grained techniques were covered, spanning multiple length and time scales.

In the next four days of the workshop, the participants received extensive hands-on training on various aspects of molecular simulation of polymers using Materials Studio software package. All hands-on sessions were well-complemented by corresponding lecture sessions. The participants learned how to build realistic molecular models of polymers, blends and nanocomposites, and determine thermal and mechanical properties (e.g. glass transition temperature, tensile strength etc.) of polymeric materials using molecular simulation techniques.

The workshop was organised by the Centre of Excellence for Sustainable Polymers (CoE-SusPol), Department of Chemical Engineering, IIT Guwahati. Dr. Vimal Katiyar, Associate Professor and Dr. Amit Kumar, Assistant Professor, both from Department of Chemical Engineering, were the conveners of the workshop.

Patents

CHEMISTRY

Title: Beta sheet breaker peptides

Application No.: 997/KOL/2014

Inventor: Dr. Bhubaneswar Mandal and Mr. Ashim Paul

MECHANICAL ENGINEERING

Title: Injection mouldable polymeric composite based passive polycentric knee joint

Application No.: 2761/DEL/2014

Inventor: Dr. S. Kanagaraj and Mr. S. Arun

Workshop on Next Generation Sequencing and Data Analysis



A workshop on 'Next Generation Sequencing and Data Analysis' was organised during 14-17 July 2014 by IIT Guwahati Biotech Hub, Centre for the Environment. Forty five participants from different educational/research institutes around the region attended the workshop. The main focus of the workshop was on imparting hands-on training of next generation sequencing tools and bioinformatics data analysis. The workshop was coordinated by Dr. Utpal Bora, Associate Professor, Department of Biotechnology.

Workshop on Graphical System Design Approach

The Department of Electronics and Electrical Engineering, IIT Guwahati organised a two day workshop on Graphical System Design Approach for Research in Power Systems, Power Electronics and Signal Processing during 27-28 September 2014. The aim of the workshop was to discuss recent activities in the subject and deliberate on LabVIEW (short for Laboratory Virtual Instrument Engineering Workbench)—a system-design platform and development environment for a visual programming language from National Instruments—and its implementation in various areas of engineering.

Faculty members and research scholars of the department attended the workshop. The workshop was organised in association with National Instruments (NI), Bangalore. Dr. Ramesh Kumar Sonkar, Assistant Professor, Electronics and Electrical Engineering, was the coordinator.

Dialogue on Strengthening Community Engagement in Higher Education

A one and a half day Education Dialogue on strengthening community engagement in higher education was held at IIT Guwahati during 17-18 September 2014. The dialogue was organised with multiple aims including assessing current levels and quality of community engagement in Assam and other North Eastern states, analysing best practices and meanings of social responsibility as practiced in the North East, and to identify strategies to scale up community engagement as per the 12th Five Year Plan. The workshop was intended to research the interface between higher education and the community. The purpose of the dialogue was to share information about existing engagements, analyse capacity and institutional challenges that need to be addressed and to build and scale up partnerships between the universities and the community.

Invited speakers like Prof. Apurba Jyoti Baruah, former Professor, NEHU and National Fellow, ICSSR; Prof. Dhrubajyoti Saikia, Vice Chancellor, Cotton College State University; Shri H. N. Das, former Chief Secretary, Govt. of Assam; Prof. Dilip Baruah, Former Professor of Economics and Principal Cotton College; Prof. Girin Phukon, ICSSR National Fellow and Director, Institute of Tai Studies and Research; Dr. Mahfuza Rahman, Cotton College; Prof. Arupjyoti Choudhary, Dean Academic, Krishna Kanta Handiqui State Open University; Prof. Rakesh Gupta, JNU; Dr. Binayak Dutta, NEHU, and other



participants from Tezpur University, Gauhati University, TISS Guwahati, including students of IIT Guwahati actively participated in the deliberations and discussions on various issues raised throughout the workshop.

The event was organised by IIT Guwahati in collaboration with British council, ICSSR, and UNESCO Chair in Community Based Research and Social Responsibility in Higher Education. Dr Pahi Saikia, Assistant Professor, Department of Humanities and Social Sciences was the convener of the workshop.

Workshop on GPU Programming and Applications (GPA-2014)

A workshop on GPU (Graphics Processing Unit) Programming and Applications (GPA) 2014 was organised by High Performance Computing (HPC) group of IIT Guwahati during 12-14 September 2014 jointly with IIT Bombay and CDAC.

The purpose of this workshop is to train manpower in the area of HPC in the north-eastern region of India. This will help north-eastern states of India to develop know-how in the area of climate modelling, flood prediction, seismic analysis, etc. which are vital for better lives of the people in this region. HPC group's mission at IIT Guwahati is to carry out multidisciplinary research in reconfigurable, parallel



and distributed computing as a basis for a long-term partnership and collaboration amongst industry, academia, and government; focus on research in advanced computer architectures, algorithms, networks and systems, both theoretical and applied; to carry out state-of-the-art research and development with collaborators with maximised synergy and pooled, leveraged resources. The workshop also aimed at equipping students with the parallel programming fundamentals to meet current industry and academics needs to address computationally intensive problems in the area



of big data analytics. Through this workshop, participants learnt about the techniques/tools available based on NVIDIA's CUDA environment which provided them hands-on experience in parallel programming to develop faster and better codes in parallel computing environment using GPUs.

This workshop was inaugurated by Prof. H. P. Kincha and Prof. S. C. Sahasrabudhe along with Prof. Sukumar Nandi. This workshop was attended by more than hundred researchers, students, industry partners from all over the country. Experts in the field like Mr. Tomas Shejbal and Mr. Michal Mandlik, University of Pardubice, Czech Republic; Dr. Shubhra Ghosh Dastidar, Bose Institute, Kolkata; Dr. Pushan Majumdar, IACS Kolkata; Dr. V. C. V. Rao, CDAC; Dr. Deepak Sharma, Prof. Jiten C. Kalita, Dr. Gaurav Trivedi, Dr. Vibin Ramakrishnan, Dr. Aryabartta Sahu, IIT Guwahati gave talks and took part in discussions.

Dr. Rohit Sinha, Dr. Kalpesh Kapoor, Dr. Praveen Kumar and Dr. Aryabartta Sahu of Electronics and Electrical Engineering were conveners of the workshop.

Visit by Alumnus

Dr. Arun Athmanathan, an alumnus of the Institute, and currently a postdoctoral fellow at the National Corn-to-Ethanol Research Center, Missouri, USA, visited the campus during 21-22 September 2014 and gave a lecture on 'An Analysis of the Impact of Biomass Storage Parameters upon Feedstock Bioprocessing Quality'. Dr. Arun Athmanathan graduated from IIT Guwahati with BTech in Biotechnology in 2006 (first batch to graduate in Biotechnology). He completed PhD from Purdue University after successfully completing his MS from the same university in yeast fermentation, with his dissertation subsequently published in *Biological Engineering Transactions*, Vol. 3, Issue 2.



Dr. Arun Athmanathan (C) with Prof. S. C. Mishra (R), Dean, Alumni Affairs and External Relations, and Prof. R. Swaminathan (L), Department of Biotechnology

Workshop on Rural Technology at NIT Arunachal Pradesh



Prof. Chandan Tilak Bhunia, Director, NIT Arunachal Pradesh, delivering speech in the presence of Prof. S. K. Kakoty (2L) and Prof. Anil Goswami (L)

A one day workshop on identification of technical problems and issues on technologies concerning rural economy was held at NIT Arunachal Pradesh on 27 August 2014 under the joint initiative of NIT Arunachal Pradesh and the Rural Technology Action Group-North East (RuTAG-NE), IIT Guwahati. The workshop was organised to discuss on strengthening of rural economy of the region through increased science and technology (S&T) inputs. Teachers, scientists and students from institutes like IIT Guwahati, NIT Arunachal Pradesh, NEIST, Itanagar Branch

took part in the workshop.

The workshop was inaugurated by Prof. Chandan Tilak Bhunia, Director, NIT Arunachal Pradesh. He also delivered an introductory speech. Prof. Anil Goswami, Special Consultant, RuTAG-NE, welcomed the participants and deliberated on the topic of the workshop. Prof. S. K. Kakoty, Coordinator, RuTAG-NE, gave a broad overview of RuTAG mission and highlighted the new technologies developed by RuTAG-NE for the benefit of the rural people.

Guest Lecture / Invited talk / Seminar / Workshop

MATHEMATICS

Dr. Dambaru D. Bhatta, University of Texas - Pan American, Edinburg, Texas, USA, 'Applications of Cubic B-splines', 1 July 2014

Dr. Suchishmita Das, IISER Kolkata, 'A brief discussion on semi parametric models', 5 September 2014

Prof. Aldric L. Brown, Department of Mathematics, University College London, 'Best Uniform Approximation to Continuous Functions from Finite Dimensional Spaces of Continuous Functions - from 1855 to 2013', 25 September 2014

MECHANICAL ENGINEERING

IUCr workshop on XRD systems and related applications organised jointly with PANaytical, India during 11-12 September 2014. Dr. S. Kanagaraj, Associate Professor, was the coordinator.

CENTRE FOR THE ENVIRONMENT

Prof. K. V. Sashidhara, CDRI, Lucknow, gave a lecture on

'Discovery of natural and nature like molecules as potential leads' on 25 June 2014 which was organised by IITG DBT Biotech Hub.



Dr. K. V. Sashidhara (3 L last row) with students and organisers

Dr. Anupam Pradhan, College of Public Health, Global Health University of South Florida, delivered a lecture on 'Chemo-genetic screen of piggyBac mutants: a powerful tool to understand malaria' on 23 July 2014 which was organised by IITG DBT Biotech Hub.

Publications (Research Journal/Book/Book Chapter)

Journal Papers

BIOTECHNOLOGY

J. M. R. Tingirikari, D. Kothari and A. Goyal, 'Superior prebiotic and physicochemical properties of novel dextran from *Weissella cibaria* JAG8 for potential food applications', *Food and Function*, 5, 2324-2330, 2014

D. Das, R. Baruah and A. Goyal, 'A food additive with prebiotic properties of a glucan from *Lactobacillus plantarum* DM5', *International Journal of Biological Macromolecules*, 69, 20-26, 2014

A. Ghosh, A. K. Verma, S. Gautam, M. N. Gupta and A. Goyal, 'Structure and functional investigation of ligand binding by a family 35 carbohydrate binding module (CtCBM35) of β -mannanase of family 26 Glycoside Hydrolase from *Clostridium thermocellum*', *Biochemistry (Moscow)*, 79 (7), 672-686, 2014

J. M. R. Tingirikari, D. Kothari, R. Shukla and A. Goyal, 'Characterisation and In vitro analysis of dextran from *Weissella cibaria* JAG8 as food additive', *International Journal Food Science and Nutrition*, 65, 686-691, 2014

D. Kothari, S. Patel and A. Goyal, 'Therapeutic spectrum of non-digestible oligosaccharides: Overview of current state and prospects', *Journal of Food Science*, 79, R1491-R1498, 2014

P. Saudagar, S. L. Mudavath, P. Saha, A. K. Saikia, S. Sundar and V. K. Dubey, 'In vivo assessment of antileishmanial property of 4-(4,4,8-Trimethyl-7-oxo-3-oxabicyclo[3.3.1]non-2-yl)-benzoic acid methyl ester, an oxabicyclo[3.3.1]nonanones', *Letters in Drug Design and Discovery*, 11, 937-939, 2014

P. Saudagar and V. K. Dubey, 'Carbon Nanotube Based Betulin Formulation shows better efficacy against Leishmania parasite', *Parasitology International*, 772-6, 2014

N. Vidhyadhar, S. Singh, A. N. Singh, V. K. Dubey, 'Procerain B, a cysteine protease from *Calotropis Procera*, requires N-terminus pro-region for activity: cDNA cloning and expression with pro-sequence', *Protein Expression and Purification*, 103C, 16-22, 2014

S. Rani, P. Gogoi and S. Kumar, 'Spectrum of Newcastle disease virus stability in gradients of temperature and pH', *Biologicals*, 42 (6), 351-354, 2014

A. Sett, S. Das and U. Bora, 'Functional Nucleic-Acid-Based Sensors for Environmental Monitoring', *Applied Biochemistry and Biotechnology*, 174, 1073-1091, 2014

CHEMICAL ENGINEERING

C. Kundu and A. K. Dasmahapatra, 'Effect of Block Asymmetry

on the Crystallisation of Double Crystalline Diblock Copolymers', *Journal of Chemical Physics*, 141 (4), 2014

S. Bose and C. Das, 'Role of binder and preparation pressure in tubular ceramic membrane processing: Design and optimisation study using response surface methodology (RSM)', *Industrial and Engineering Chemistry Research*, 53 (31), 12319-12329, 2014

S. Chakma and V. S. Moholkar, 'Investigation in mechanistic issues of sonocatalysis and sonophotocatalysis using pure and doped photocatalysts', *Ultrasonics Sonochemistry*, 22, 287-299, 2015

S. Chakma and V. S. Moholkar, 'Investigations in synergism of hybrid advanced oxidation processes with combinations of sonolysis + Fenton Process + UV for degradation of bisphenol-A', *Industrial and Engineering Chemistry Research*, 53 (16), 6855-6865, 2014

S. S. Gaur, P. Dhar, A. Kumar and V. Katiyar, 'Prospects of poly (vinyl alcohol)/Chitosan/poly (styrene sulfonic acid) and montmorillonite Cloisite®30B clay composite membrane for direct methanol fuel cells', *Journal of Renewable and Sustainable Energy*, 6, 053135, 2014 (DOI: 10.1063/1.4899192)

R. B. Valapa, G. Pugazhenthii and V. Katiyar, 'Fabrication and characterisation of sucrose palmitate reinforced poly(lactic acid) bionanocomposite films', *Journal of Applied Polymer Science*, (DOI: 10.1002/app.41320)

P. Dhar, S. P. K. Vangala, P. Tiwari, A. Kumar and V. Katiyar, 'Thermal Degradation Kinetics of Poly (3-hydroxybutyrate)/Cellulose Nanocrystals based Nanobiocomposite', *Journal of Thermodynamics and Catalysis*, 5, 134, 2014 (DOI: 10.4172/2157-7544.1000134)

CHEMISTRY

K. Thalluri, A. Paul, S. R. Manne, D. Dev, and B. Mandal, 'Microwave Assisted Chemoselective Organocatalytic Peptide Alcohol Synthesis from C-terminal Amide', *RSC Advances*, 2014 (DOI: 10.1039/C4RA09091H)

S. Mahato, A. Haque, S. Dwari and C. K. Jana, 'Divergent reaction: metal and oxidant free direct C-H aryloxylation and hydride free formal reductive N-benylation of N-heterocycles', *RSC Advances*, 4, 46214-46217, 2014

C. R. Das, S. C. Sahoo and M. Ray, 'Chiral Recognition and Partial Resolution of 1-Phenylethylamine through Noncovalent Interactions Using Binuclear Ni(II) Complex as Host', *Crystal Growth and Design*, 14 (8), 3958-3966, 2014 (The paper was in 15th position among the top 20 most read articles of the month of July 2014)

CIVIL ENGINEERING

M. K. Goyal, B. Bharti, J. Quilty, J. Adamowski and A. Pandey, 'Modelling of daily pan evaporation in sub tropical climates using ANN, LS-SVR, fuzzy logic, and ANFIS, expert systems with applications', *Elsevier*, 41 (11), 5267-5276, 2014

I. Royal and M. K. Goyal, 'Estimation of soil carbon stocks in Pabitora Sanctuary and Manas National Park in Assam', *Current Science*, 107 (1), 94-98, 2014

J. Richards, C. A. Madramootoo and M. K. Goyal, 'Determining irrigation requirements for vegetables and sugarcane in Jamaica', *Irrigation and Drainage*, 63 (3), 340-348, 2014

K. Dhamodharan and A. S. Kalamdhad, 'Pre-treatment and anaerobic digestion of food waste for high rate methane production – A Review', *Journal of Environmental Chemical Engineering*, 2, 1821-1830

D. Sarika, J. Singh, R. Prasad, I. Vishan, V. S. Varma and A. S. Kalamdhad, 'Study of physico-chemical and biochemical parameters during rotary drum composting of water hyacinth' *International Journal of Recycling of Organic Waste in Agriculture*, 3 (3), 1-10, 2014

DESIGN

T. Patel, and S. Karmakar, 'Book review: Introduction to Ergonomics, Third Edition', *International Journal of Industrial Ergonomics*, 2014 (DOI: 10.1016/j.ergon.2014.08.003)

ELECTRONICS AND ELECTRICAL ENGINEERING

M. K. Bhuyan, D. A. Kumar, K. F. MacDorman and Y. Iwahori, 'A novel set of features for continuous hand gesture recognition', *Journal on Multimodal User Interfaces*, 8 (4), 333-343, 2014

Bajrangbali, S. Majhi and S. Pandey, 'Identification of FOPDT and SOPDT process dynamics using closed loop test', *ISA Transactions*, 53 (4), 1223-1231, 2014

Bajrangbali and S. Majhi, 'Identification of underdamped process dynamics', *Open Access Journal of Systems Science and Control Engineering*, 2014 (DOI: 10.1080/21642583.2014.927809)

M. Kulkarni, L. Choudhary, B. Kumbhani and R. S. Kshetrimayum, 'Performance analysis comparison of transmit antenna selection with maximal ratio combining and orthogonal space time block codes in equicorrelated Rayleigh fading multiple input multiple output channels', *IET Communications*, 8 (10), 1850-1858, 2014

HUMANITIES AND SOCIAL SCIENCES

G. K. Sarma and S. Borbora, 'Loan Recovery Performance of Credit Officers in Microfinance Institutions: A Case of Assam', *International Journal of Science and Research*, 3 (9), 675-678, 2014

M. Das and A. Barua, 'Phenomenology, psychotherapy

and the quest for intersubjectivity', *Indo-Pacific Journal of Phenomenology*, 14 (2), 2014

A. Barua, 'An attempt at introducing Mahapurush Sankaradeva and the Bhakti Renaissance in Assam in light of the phenomenology of religious experience, A Tribute to Sankaradeva: an online journal (<http://www.atributetosankaradeva.org/articles.htm>)

MATHEMATICS

S. Das and S. N. Bora, 'Reflection of oblique ocean water waves by a vertical porous structure placed on a multi-step impermeable bottom', *Applied Ocean Research*, 47, 373-385, 2014

J. C. Kalita, 'Effect of boundary location on the steady flow past an impulsively started circular cylinder', *International Journal of Computing Science and Mathematics*, 5 (3), 252-279, 2014

MECHANICAL ENGINEERING

N. S. Priya, C. Somayaji and S. Kanagaraj, 'Characterisation and optimisation of $Ce_{0.6}Zr_{0.4-x}Mn_xO_2$ ($x < 0.4$)', *Journal of Nanoparticle Research*, 2014 (DOI: 10.1007/s11051-014-2661-2)

P. S. R. Sreekanth and S. Kanagaraj, 'Influence of MWCNTs and gamma irradiation on thermal characteristics of medical grade UHMWPE', *Bulletin of Material Science*, 37 (2), 347-356, 2014

PHYSICS

S. Chakrabarti, T. Delsate, N. Gürlebeck and J. Steinhoff, 'I-Q Relation for Rapidly Rotating Neutron Stars', *Physical Review Letters*, 112, 201102, 2014

A. K. Sarma, 'Modulation instability in nonlinear complex parity-time (PT) symmetric periodic structures', *Journal of Optical Society of America B (JOSA-B)*, 31, 1861, 2014

S. Thota, K. Patyal, S. Nayak, Ch. Simon, J. Kumar and W. Prellier, 'The ac-magnetic susceptibility and dielectric response of complex spin-ordering process in Mn_3O_4 ', *Journal of Applied Physics*, 116, 103906, 2014

D. C. Joshi, S. Thota, S. Nayak, D. D. Harish, M. Peddigari, A. Kumar, D. Pamu and Md. Qureshi, 'The dielectric behavior of $Zn_{1-x}Ni_xO/NiO$ two-phase composites', *Journal of Physics D: Applied Physics*, 47, 435305 (8pp), 2014

CENTRE FOR ENERGY

S. Singh, S. T. P. Bharadwaja, P. K. Yadav, V. S. Moholkar and A. Goyal, 'Mechanistic investigation in ultrasound-assisted (alkaline) delignification of *Parthenium hysterophorus* biomass', *Industrial and Engineering Chemistry Research*, 53, 14241-14252, 2014

S. Singh, P. K. Dikshit, V. S. Moholkar and A. Goyal,

'Purification and characterisation of acidic cellulase from *Bacillus amyloliquefaciens* SS35 for hydrolysing *Parthenium hysterophorus* biomass', *Environmental Progress and Sustainable Energy*, 2014 (DOI: 10.1002/ep)

Book Chapters

BIOTECHNOLOGY

S. Das, B. B. Borthakur and U. Bora, 'Applications of silk biomaterials in tissue engineering and regenerative medicine', *Silk Biomaterials for Tissue Engineering and Regenerative Medicine*, Woodhead Publishing House, UK, 2014 (ISBN: 9780857096999)

CHEMICAL ENGINEERING

H. A. Choudhury, S. Chakma and V. S. Moholkar, 'Biomass gasification integrated Fischer-Tropsch synthesis: Perspectives, opportunities and challenges', *Recent Advances in Thermo-chemical Conversion of Biomass*, Eds.: A. Pandey, T. Bhaskar, M. Stöcker and R. Sukumaran, Elsevier (ISBN: 9780444632890)

V. S. Moholkar, H. A. Choudhury, S. Singh, S. Khanna, A. Ranjan, S. Chakma and J. Bhasarkar, 'Physical and chemical mechanisms of ultrasound in biofuel synthesis', *Production of Biofuels and Chemicals with Ultrasound*, Springer Book Series – Biofuels and Biorefineries, Eds: Prof. Zhen Fang, Prof. R. L. Smith, Jr. and Prof. X. Qi, Springer (ISBN: 9789401796231)

P. Dhar, U. Bhardwaj, A. Kumar and V. Katiyar, 'Cellulose nanocrystals: A potential nano-filler for food packaging applications', *Food Additives and Packaging*, Chapter 17, pp 197–239, American Chemical Society Symposium Series, Vol. 1162 (ISBN: 978084123024)

U. Bhardwaj, P. Dhar, A. Kumar and V. Katiyar, 'Polyhydroxy-alkanoates (PHA)-Cellulose based nanobiocomposites for food packaging applications', *Food Additives and Packaging*, Chapter 19, pp 275–314, American Chemical Society Symposium Series, Vol. 1162 (ISBN13: 978084123024)

CIVIL ENGINEERING

M. A. Reddy and A. Dey, 'Compensated raft foundation on a preloaded soil improved by vertical drains', *Ground Improvement and Geosynthetics*, Geotechnical Special Publication GSP 238, ASCE, 515-525, 2014 (ISBN: 9780784413371)

MECHANICAL ENGINEERING

S. Arun and S. Kanagaraj, 'Polymer–Nanotube nanocomposites for transfemoral sockets', *Polymer Nanotube Nanocomposites: Synthesis, Properties and Applications*, 2nd Edition, Ed. Vikas Mittal, Scrivener Publishing Inc, Wiley, 187-210, 2014, USA

Achievement/Awards/Felicitation

Dr. S. Sreedeeep, Associate Professor, Civil Engineering, has been awarded the Shamsher Prakash Research Award of IIT Roorkee for his outstanding work in the field of Geotechnical-Earthquake Engineering. The award consists of a cash prize of Rs. 1,00,000/- and a citation.

Dr. Utpal Bora, Associate Professor, Department of Biotechnology has been awarded the competitive 'Biotech Ignition Grant' constituted by BIRAC, DBT, Govt. of India for entrepreneurs and startup companies. The award money can be utilised to support and nurture high risk early starters and their concepts.

Dr. Manish Kumar Goyal, Assistant Professor, Dept of Civil Engineering, received INSIPRE (Innovation in Science Pursuit for Inspired Research) Faculty Award from DST, Gol.

Dr. Debarshi Das, Associate Professor, Department of Humanities and Social Sciences, has been selected for Fulbright-Nehru Academic and Professional Excellence Fellowship for 2014-15.

Dr. Sayan K. Chakrabarti, Assistant Professor, Department of Physics, received certificate of appreciation from National Programme on Technology Enhanced Learning (NPTEL) for his VIDEO course titled "Advanced Control Systems" that has been credited with the highest number of viewership and rated amongst the top five NPTEL courses from IIT Guwahati as per Google and Youtube Analytics data. Dr. Chakrabarti has also been elevated to the grade of Senior Member of Institute of Electrical and Electronics Engineers (IEEE) and been enrolled as Fellow of Institution of Electronics and Telecommunication Engineers (IETE).

Dr. Vimal Katiyar, Associate Professor, Department of Chemical Engineering, has been appointed for Part Time Teaching Assignment at Graduate School of Science and Technology at Kyoto Institute of Technology, Kyoto, Japan.

Mr. Kevin Pandya, and Mr. Subham Gupta, students of BTech programme, Computer Science and Engineering, have been chosen for the prestigious Aditya Birla Scholarship this year. It may be mentioned that only 15 students were awarded in engineering stream.

Dr. Sandip Chakraborty, an alumnus of IIT Guwahati has received the highly prestigious Indian National Academy of Engineering (INAE) Innovative Student Project Award 2014 (Doctoral Level) for his PhD thesis in Computer Science and Engineering. He received his PhD degree in the last Convocation. He worked under the guidance of Prof. Sukumar Nandi, Professor, Computer Science and Engineering.

Working with Time – Art, Design and Nature

A workshop entitled 'Working with Time – Art, Design and Nature' was organised by the Department of Design during 10-15 September 2014. It was conducted by Mr. Jagadish Kumar, Assistant Professor, Design. The goal of the workshop was to understand nature by directly



participating in it, as intimately as can be, and regard creations as transient, or ephemeral. It invited participating students to look closer at their surroundings and focus their perceptions through all five senses. Photographs of each piece of art, or design were taken



right after they were created and as they weathered. Through these, students learnt to see art and design in nature, and how life affects, and is affected by, particular ecological systems and cultural conditions.

During the workshop students worked mostly with whatever they could find in nature:

twigs, leaves, stones, sand, mud, and natural colors, reeds and thorns. From the found materials they tried to create a work of Art-Design, and then proceeded to document, record, and exhibit the work. Students used camera to manipulate color, light effects, and perspective in their work. The camera and photography was crucial for the role it played during documentation.

This workshop intended to take the work 'out' of its natural surroundings, and wait for the fleeting moments and randomness of nature to remove it. A sympathetic contact with the natural world is established as the work disappears. The students captured these movements in colour photographs to show the phenomenon.



Prof. Gautam Biswas, Director, IIT Guwahati, speaking at a function at All India Institute of Speech and Hearing, Mysore, on 9 August 2014.

A memorandum of understanding (MoU) has also been signed with All India Institute of Speech and Hearing, Mysore, on academic and research collaboration.

Admission of New Students in July 2014

The new academic session (2014-2015) commenced from July 2014. A total number of **1446** students were admitted in various programmes across all the Departments/Centres as given in the table below –

Name of Programme	BTech/BDes	MSc/MA	MTech/MDes	PhD	Dual Degree	Preparatory
Biotechnology	43	–	33	31	–	3
Chemical Engineering	69	–	52	25	–	
Chemical Science and Technology	40	–	–	–	–	
Chemistry	–	47	–	28	–	
Civil Engineering	79	–	92	20	–	
Computer Science and Engineering	80	–	56	18	4	
Design	41	–	26	10	–	
Electronics and Communication Engineering	71	–	–	–	–	
Electronics and Electrical Engineering	42	–	45	25	–	
Engineering Physics	41	–	–	–	–	
Humanities and Social Sciences	–	25	–	13	–	
Mathematics and Computing	46	44	–	4	–	
Mechanical Engineering	80	–	94	36	–	
Physics	–	47	–	24	–	
Energy	–	–	–	6	–	
Environment	–	–	–	3	–	
Nanotechnology	–	–	–	3	–	
Total	632	163	398	246	4	3

PhDs Completed (July–Sept 2014)

Department/Centre	No. of Students
Biotechnology	5
Chemical Engineering	2
Chemistry	2
Civil Engineering	2
Computer Science and Engineering	1
Electronics and Electrical Engineering	1
Humanities and Social Sciences	1
Mathematics	5
Mechanical Engineering	1
Physics	4
Total	24

Total Number of Students on Campus as on September 2014

Programme	Number of students
Preparatory	3
BTech/BDes	2543
MSc	262
MA	47
MTech/MDes	758
PhD	1397
Dual (MTech + PhD)	13
Total	5023

IIT Guwahati Signs MoU with Gifu University

IIT Guwahati signed a Memorandum of Understanding (MoU) with Gifu University, Japan on 21 September 2014 to built partnership for starting joint educational programme on Food Technology as well as Visionary Leadership in Manufacturing and Food Processing.



(1) Prof. Hisataka Moriwaki, President, Gifu University, exchanging MoU document with Prof. Gautam Biswas, (2) Prof. Gautam Biswas giving a presentation before the delegates from Gifu University and IITG officials, (3) Prof. Gautam Biswas with the delegates from Gifu University and IITG officials

Teachers' Day Celebration

IIT Guwahati celebrated Teachers' Day on 5 September to commemorate the birthday of Dr. Sarvepalli Radhakrishnan—Indian philosopher of great repute and the second President of India—which was attended by faculty and staff members of the Institute. Shri H. N. Das, IAS (retd.), former Chief Secretary to the Govt. of Assam graced the occasion as the Chief Guest. Prof. Gautam Biswas, Director of the Institute was also present and briefed the audience with a powerpoint presentation on Teachers' Day laying stress on 'IITG – Innovate, Inspire and Transform at Guwahati'. Prof. Pinakeswar Mahanta, Dean, Faculty Affairs welcomed the gathering.



(1) Prof. Gautam Biswas delivering his speech, (2) Shri H. N. Das, IAS (retd.), former Chief Secretary to the Govt. of Assam, speaking to the gathering (3) Part of the members of the Institute attending the function

Hindi Divas Celebrated



IIT Guwahati observed Hindi Fortnight during 1-15 September 2014. Various competitions like Art Competition, Hindi Poetry Recitation Competition, Hindi Extempore Speech Competition, Hindi Essay Writing Competition for children and Hindi Essay Writing competition for students and staff were organised during the Hindi Fortnight.

Hindi Divas 2014 was celebrated with great enthusiasm with the campus children, students and staff participating in the Programme. Prof. Pinakeswar Mahanta, Dean of Faculty Affairs graced the occasion as the Chief Guest. Dr. B. N. Raychoudhury, Registrar, IIT Guwahati, and Mrs. Amaravati Biswas were also present on the occasion.

The Hindi Divas Programme began with lighting of the auspicious lamp by Prof. Mahanta, who was accompanied by the Registrar, Mrs. Biswas and Chairman of the Official Language Implementation Committee, Prof. Rajen Kr. Sinha. Prizes were awarded by the Chief Guest, Mrs. Biswas and the Registrar, to the winners of the various competitions held during the Hindi Fortnight. A Cultural Programme was also organised in which campus children, staff members, and students of IIT Guwahati participated.



IEEE Student Branch Workshop on Advanced MATLAB (AdMAT 14)

The Institute of Electrical and Electronics Engineers Student Branch, IIT Guwahati conducted a two-day workshop on Advanced MATLAB skills during 30-31 August 2014 at IIT Guwahati. 116 participants from different parts of the country took part in the workshop. Through various lecture sessions AdMAT 14 aimed at imparting skills in solving practical problems in the fields of Wireless Communications, Signal/Image Processing, Power Electronics and Control Systems using MATLAB code. The first session helped the “first-time-user” (FTU) to get familiar with MATLAB and proved to be a kind of revision of basic coding skills and commands for the “pro-user” (PU). Different fundamental programming ethics and commands commonly used in MATLAB codes were also taught.

The speakers were researchers and postgraduate scholars in the Department of Electronics and Electrical Engineering, IIT Guwahati. The participants were given the opportunity of hands-on experience with the speakers showing MATLAB coding in real time.



New Research Projects

BIOTECHNOLOGY

Title: Aptamer probes for detection of celiac disease epitopes of gluten in commercial varieties of Indian wheat, rye and barley; **Sponsor:** DBT; **Duration:** 3 years; **Principal Investigator:** Dr. Utpal Bora

Title: Exploration and characterisation of seri-bioresources of North East India for potential textile and non-textile applications; **Sponsor:** UXCEL, DBT; **Duration:** 3 years; **Principal Investigator:** Dr. Utpal Bora

Title: Identification of novel drug targets of Leishmania donovani: Studies on CAAX prenyl protease I and II of the pathogen; **Sponsor:** DBT; **Duration:** 3 years; **Principal Investigator:** Prof. Vikash Kumar Dubey

DESIGN

Title: Research on accessibility and user interfaces for smart devices; **Sponsor:** Samsung Research India Bangalore (SRIB); **Principal Investigator:** Keyur Sorathia

Title: Generation of invention reports on future of mobile communication; **Sponsor:** Nokia Global Patent Division; **Principal Investigator:** Keyur Sorathia

New Joinings



Raghvendra Gupta
Assistant Professor
Chemical Engineering



Nageswara Rao Peela
Assistant Professor
Chemical Engineering



Partha Sarathi Gooch Pattader
Assistant Professor
Chemical Engineering



Anki Reddy Katha
Assistant Professor
Chemical Engineering



Sri Harsha Kota
Assistant Professor
Civil Engineering



Visv Mohan Malhotra
Visiting Professor
Computer Science and Engineering



Sheetal M. Gokhale
Assistant Professor
Design



Jagadish Kumar V.
Assistant Professor
Design



Avishek Parui
Assistant Professor
Humanities and Social Sciences



Rakesh Kr. Gupta
Visiting Professor
Humanities and Social Sciences

Independence Day Celebrated



The 68th Independence Day of India was celebrated on 15 August 2014 in the Institute campus. The Director of the Institute, Prof. Gautam Biswas, hoisted the tricolour and addressed the gathering. This was followed by colourful cultural programmes presented by the students of the Institute, Akshara School and children of the campus. Employees and students of the Institute and residents of the campus were present throughout the function.



Dedication of the Institute Auditorium in the Name of Dr. Bhupen Hazarika

IIT Guwahati dedicated its auditorium in honour of Dr. Bhupen Hazarika, the great legend of Assam on his birth anniversary on 8 September 2014 . A cultural programme was also organised commemorating the bard of Brahmaputra.



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