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National School on Sustainable Polymers and First Symposium on Advances in Sustainable Polymers



Prof. Gautam Biswas, Director, IIT Guwahati, lighting the inaugural lamp as Prof. V. S. Moholkar, Head, Chemical Engineering, looks on

IIT Guwahati organised the National School on Sustainable Polymers and First Symposium on Advances in Sustainable Polymers during 6-11 January 2014.

The School was attended by nearly 100 participants and featured lectures by eminent scientists and academicians on various topics related to sustainable polymers. The lectures were well complemented by several hands-on laboratory sessions on sustainable polymer synthesis, characterisation, polymer processing, and degradation. Another highlight of the school was a workshop on Materials Studio software



Participants of the symposium

for modelling and simulation of polymers. The response of the participants to the various events of the school was very enthusiastic.

The School was followed by the First Symposium on Advances in Sustainable Polymers (ASP-14), an event aimed at providing a platform for researchers to share recent state-of-the-art advances in the area of sustainable polymers. The symposium was inaugurated and addressed by Prof. Gautam Biswas, Director, IIT Guwahati. It was followed by plenary talk by Prof. Ashish Lele, Chief Scientist, NCL Pune, a renowned figure in the field of polymers in general and sustainable



Prof. Gautam Biswas, Prof. Ashish Lele (2L), Prof. A. K. Ghoshal (1R), Dean, Academic Affairs, Prof. V. S. Moholkar and Dr. Vimal Katiyar (1L) releasing the Proceedings

polymers in particular. The Symposium also hosted several invited talks by eminent researchers as well as numerous oral and poster presentations covering a wide range of topics such as biodegradable polymers, green nanocomposites, hydrogels, bio-based adhesives, tissue engineering, etc. The event drew participants from several IITs, NITs, CSIR laboratories, industries in India and from abroad.

Dr. Vimal Katiyar, Associate Professor, Chemical Engineering Department, was the convener of both events with Prof. Alok Kr. Ghoshal, Dr. Prakash Kotecha, Assistant Professor and Dr. Amit Kumar, Assistant Professor, as co-conveners.

Belle Analysis Workshop 2014



IIT Guwahati organised the 3rd Belle Analysis Workshop (BAW 2014) during 24 February - 4 March 2014. The workshop – equivalent to a winter school – was meant for students working on the Belle experiment and its approved upgrade (Belle II) at KEK, Japan. About 30 participants participated in this workshop, which provided them an ideal pedestal for a close interaction with the experts from India as well as abroad.

Dr. Bipul Bhuyan, Associate Professor, Department of Physics, IIT Guwahati, was the co-convenor of the workshop.

Discussion Meeting on EWSB and Flavours in the Light of LHC

IIT Guwahati organised a discussion meeting on EWSB and Flavours in the light of LHC during 20-22 February 2014.

Recently Large Hadron Collider (LHC) discovered a new particle, which could be the much awaited Higgs boson revealing the first hints of Electroweak Symmetry breaking (EWSB). Acknowledging the importance, the Nobel prize for Physics for the year 2013 is awarded to the originators of this idea. Apart from direct searches at collider, significant progress has been made in the B, D and K meson decays for an indirect search of new physics. The discussion meeting was organised in this light to review the ideas of EWSB and flavor physics in the light of LHC data and discuss future prospects.

The talks were aimed at covering broad areas in Standard and beyond the Standard Model of particle physics, reviewing the experimental and theoretical status. Well known experts in this field addressed on these topics.

This meeting was jointly organised by Department of Physics, IIT Guwahati and Regional Centre for Accelerator based Particle Physics (RECAPP), Harish Chandra Research Institute (HRI), Allahabad.

Dr. P. Poullose, Associate Professor, Department of Physics, was the Convener, and Dr. Arunansu Sil, Assistant Professor, Dr. Soumitra Nandi, Assistant Professor, Department of Physics, IIT Guwahati, and Prof. B. Mukhopadhyaya, HRI, Allahabad were the Co-Conveners.

Workshop on Seismic Safety Agenda in North-East India

A workshop on Seismic Safety Agenda in North-Eastern Region of India was conducted at IIT Guwahati on 22 March 2014. The workshop was jointly organised by IIT Guwahati and National Information Centre of Earthquake Engineering (NICEE), IIT Kanpur. The workshop was attended by 29 participants representing various



engineering and technological institutes, Govt. agencies, and professional bodies. The event was inaugurated by Prof. A. K. Sarma, HoD, Department of Civil Engineering, IIT Guwahati.

Several issues related to seismic risk in North-Eastern region of India were discussed in the day long workshop. Though the awareness about the seismic hazard is high in the region, innovative strategies are required to reduce the growing seismic risk due to existing vulnerable structures and further increase in their inventory. The agenda for addressing the seismic risk mitigation issues in the region was drawn up.

The workshop was coordinated by Dr. Hemant B. Kaushik, Associate Professor, Department of Civil Engineering, IIT Guwahati.

National Seminar on Translation and Assamese Literature: History and Theory

A national seminar cum workshop on Translation and Assamese Literature: History and Theory was held at IIT Guwahati during 7-8 March 2014. It was organised by the Department of Humanities and Social Sciences, IIT Guwahati, in collaboration with Jamia Millia Islamia, New Delhi and Sahitya Academy. The keynote address was given by Prof. Ranjit Kr. Dev Goswami, retired Professor of English of Gauhati University and a renowned scholar who highlighted on the literal and figural aspects of Indian translation. Participants from Tezpur University, Jawaharlal Nehru University, Jamia Millia Islamia, University of Delhi, EFLU, Shillong and Cotton College, Guwahati participated in the seminar cum workshop.

New Research Projects

BIOTECHNOLOGY

Title: Silk2Heal; **Sponsor:** DBT; **Duration:** 3 years; **Principal Investigator:** Biman B. Mandal

Title: Development of novel tissue engineered silk biomaterial based wound dressing patch for diabetic foot ulcers; **Sponsor:** DBT; **Duration:** 3 years; **Principal Investigator:** Biman B. Mandal

NANOTECHNOLOGY

Title: Centre for excellence in research and development of nanoelectronic theranostic devices; **Sponsor:** DeitY; **Duration:** 5 years; **Principal Investigator:** A. Chattopadhyay, P. Roy Paily, D. Bandyopadhyay



The Ambassador of the European Union, Dr. Joao Cravinho (3 R) visited IIT Guwahati on 25 February 2014 and had a detailed discussion with the officials of the Institute on various schemes on research collaboration and students exchange programmes with EU institutions. He also joined an open discussion forum with the students of the institute. He is seen here with Prof. Gautam Biswas (2R), Director, IIT Guwahati, Prof. Sukumar Nandi (2L), Deputy Director, Prof. A. Srinivasan (1 L), Dean, Faculty Affairs, and Prof. Sanjay K. Bose (3 L), Dean, Alumni Affairs and External Relations.

January–March 2014

Lecture Series Organised

Association of Civil Engineers (ACE), IIT Guwahati organised three lecture series as follows —

1. Lecture Series on 'AutoCAD and ArchiCAD' during 24-27 February 2014
2. Lecture Series on 'Technical Writing and Presentation' during 12-13 February 2014
3. Lecture Series on 'Introduction to Civil Engineering'



Dr. Kaustubh Dasgupta, Assistant Professor, Civil Engineering, delivering lectures on technical writing and presentation

RuTAG-NE Workshop

Rural technology action Group–North East (RuTAG-NE) organised a workshop to deliberate upon identification of challenging, need based problems concerning rural economy and addressing the same through science and technology interventions within the framework of RuTAG-NE by involving new NGOs on 25 February 2014 at NIT Meghalaya. 20 NGO members from different parts of Meghalaya participated in the workshop. Prof. Dilip K. Saikia, Director, NIT Meghalaya, inaugurated the workshop. Prof. Anil K. Goswami, Consultant, and Mr. B. R. Bhattacharjya, Associate Project Engineer, RuTAG-NE, conducted the workshop.



Prof. Dilip K. Saikia (C) and Prof. Anil K. Goswami on the dais

Visitors/Invited Lectures/Seminars

CIVIL ENGINEERING

Prof. Sivakumar Babu, President ASCE India Section and Professor, IISc Bangalore, 'Use of soil nailing technique for infrastructure improvement', 20 January 2014.

Prof. B. Bhattacharjee, Department of Civil Engineering, IIT Delhi, 'Some research issues for concrete in tropics', 12 March 2014.

Prof. Richard Scott, City University, London and Visiting Professor, IIT Roorkee, 'Testing and modeling of Vasai Creek Bridge, Mumbai', 13 March 2014.

Prof. Durgesh C. Rai, Department of Civil Engineering, IIT Kanpur, 'Masonry research at IIT Kanpur', 21 March 2014.

MATHEMATICS

Prof. Barendra Purkait, former Director, Geological Survey of India, 'Velocity, bed roughness and grain size distribution of suspended sediments an experimental study' 16 January 2014.

Prof. T. E. S. Raghavan, University of Illinois at Chicago, USA, 'A legal dispute resolved by cooperative game theory' and 'Existence of correlated equilibria in non-cooperative n-person games via zero sum two person completely mixed matrix games', 14 and 17 February 2014.

Prof. T. Subba Rao, emeritus professor of statistics in the School of Mathematics, University of Manchester, 'Spectral and frequency domain methods for the analysis of spatio-temporal random processes—An application to Spatio-Temporal Kriging', 6 March 2014.

Prof. G. D. Veerappa Gowda, TIFR Centre for Applicable Mathematics, Bangalore, 'Godunov-type finite volume approximation for formation of sandpile on a finite table', 10 March 2014.

Prof. Kamal Lodaya, Department of Theoretical Computer Science, Institute of Mathematical Sciences, Chennai, 'Programs, processes, phones', 14 March 2014.

Prof. Sandeep Juneja, TIFR, Mumbai, 'Rare event simulation of heavy tailed random walks—A new approach', 25 March 2014.

Dr. N. Ramanujam, UGC Emeritus Professor, Mathematics, Bharathidasan University, Tiruchirappalli, 'Delay differential equations and numerical methods', 27 March 2014.

MECHANICAL ENGINEERING

Dr. Kirti Chandra Sahu, Department of Chemical Engineering, IIT Hyderabad, 'Instability in viscosity-stratified flows', 12 March 2014

CENTRE FOR ENERGY

A delegation comprising of 12 members led by Prof. R. Phakeng, Vice Principal, Research and Innovation, and Prof. Gugu Moche, Executive Dean, College of Science, Engineering and Technology, University of South Africa (UNISA), visited IIT Guwahati on 25 January 2014 and had discussions with the members of the Centre for Energy for possible research collaboration.

STC on Geotechnical Engineering Practices and Developments

A Quality Improvement Programme-Short Term Course (QIP-STC) on 'Geotechnical Engineering Practices and Developments (GEPD)' was organised by the Department of Civil Engineering during 6-10 January 2014. Prof. Gautam Biswas, Director, IIT Guwahati, graced the occasion as the Chief Guest.

A total of 33 participants from AICTE approved academic institutes from various parts of the country and Govt.



organisations took part in the course. Lectures related to the course were delivered by the faculties of Civil Engineering Departments of IIT Guwahati, IIT Madras and IIT Bombay. A special session on pedagogy was delivered by Dr. Nachiketa Tripathi of the Department of Humanities and Social Sciences, IIT Guwahati.

The participants were given hands on ideas of recent developments and practices in geotechnical engineering and associated fields through lectures, demonstrations on testing procedures and softwares, and through video documentaries.

The course was coordinated by Dr. A. Murali Krishna, Associate Professor, and Dr. Arindam Dey, Assistant Professor from the Department of Civil Engineering.

Workshop on MEMS and VLSI Digital Design Flow

Student Branch of Institute of Electrical and Electronics Engineers of IIT Guwahati organised a two-day national workshop on Micro-Electro-Mechanical Systems (MEMS) and Very-Large-Scale Integration (VLSI) Digital Design Flow on 8-9 February 2014. The workshop provided various tutorials and hands-on experience along with the knowledge of different optimisations required in the field of MEMS and VLSI digital design using globally used computer aided tools such as CoventorWare, Synopsis and Cadence.

Student and faculty members of IIT Guwahati and from institutes like NIT Silchar, Tezpur University, NIT Meghalaya, Assam Engineering College, Gauhati University, West Bengal Technical University, Don Bosco Institutions, NITS Mirza took part in the workshop.

Republic Day Celebrated



The 65th Republic Day of India was celebrated on 26 January 2014 in the Institute campus. Prof. Gautam Biswas, the Director of the Institute, hoisted the tricolour and addressed the gathering. This was followed by colourful cultural programmes presented by the students of the Institute, IIT Guwahati Akshara School and children of the campus. Employees and students of the Institute and residents of the campus were present throughout

the scintillating function.



PhDs Completed During January–March 2014

Department/Centre	No. of Students
Biotechnology	3
Chemical Engineering	3
Chemistry	3
Civil Engineering	1
Computer Science and Engineering	1
Design	1
Humanities and Social Sciences	2
Mathematics	2

Mechanical Engineering	2
Physics	1
Centre for Energy	1
Centre for the Environment	1
Total	21

Memorandum of Understanding



IIT Guwahati signed an MoU with Tongmyong University, Korea for international joint degree programme, internship and students exchange on 10 January 2014.

Publications (Research Journal/Book/Book Chapter)

BIOTECHNOLOGY

S. Prasad, K. Srikanth, A. M. Limaye and S. Sivaprakasam, 'Homo-fermentative production of D-lactic acid by Lactobacillus sp. employing casein whey permeate as a raw feed-stock', *Biotechnology Letters*, 2014 (DOI: 10.1007/s10529-014-1482-9)

K. Ganar, M. Das, S. Sinha and S. Kumar, 'Newcastle disease virus: Current status and our understanding', *Virus Research*, 184C, 71-81, 2014

V. K. Ravi, T. Swain, N. Chandra and R. Swaminathan, 'On the characterisation of intermediates in the isodesmic aggregation pathway of hen lysozyme at alkaline pH', *PLoS ONE*, 9 (1), e87256, 2014 (DOI: 10.1371/journal.pone.0087256)

V. K. Ravi, M. Goel, H. C. Kotamarthi, S. R. K. Ainavrapu and R. Swaminathan, 'Preventing disulfide bond formation weakens non-covalent forces among lysozyme aggregates', *PLoS One*, 9 (2), e87012, 2014 (DOI: 10.1371/journal.pone.0087012)

S. Prakash and V. K. Dubey, 'Molecular mechanisms of in vitro betulin induced apoptosis of leishmania donovani', *American Journal of Tropical Medicine and Hygiene*, 90 (2), 354-60, 2014

M. Chakraborty, M. Goel, S. R. Chinnadayaala, U. R. Dahiya, S. S. Ghosh and P. Goswami, 'Molecular characterisation and expression of a novel alcohol oxidase gene from *Aspergillus terreus* MTCC6324', *PLOS ONE*, 2014 (DOI: 10.1371/journal.pone.0095368)

CHEMICAL ENGINEERING

A. K. Dasmahapatra and V. M. Sanka, 'Conformational transition of H-shaped branched polymers', *The Journal of Chemical Physics*, 140 (9), 094904, 2014

A. Dasari, A. B. Desamala, U. K. Ghosh, A. K. Dasmahapatra and T. K. Mandal, 'Correlations for prediction of pressure gradient of liquid-liquid flow through a circular horizontal pipe', *Journal of Fluids Engineering*, 136(7), 071302, 2014 (DOI: 10.1115/1.4026582)

C. Kundu and A. K. Dasmahapatra, 'Crystallization of double crystalline symmetric diblock copolymers', *Polymer*, 55, 958, 2014

R. Parmar, S. K. Majumder, 'Hydrodynamics of micro bubble suspension flow in pipes', *Industrial Engineering and Chemistry Research*, 53 (9), 3689-3701, 2014

S. Khuntia, S. K. Majumder and P. Ghosh, 'Oxidation of As(III) to As(V) using ozone microbubbles', *Chemosphere*, 97, 120-124, 2014

A. K. Giri and S. K. Majumder, 'Pressure drop and its reduction of gas-non-newtonian liquid flow in downflow trickle bed reactor (DTBR)', *Chemical Engineering Research and Design*, 92 (1), 34-42, 2014

P. Deka, K. R. Naidu, T. K. Mandal, and S. K. Majumder, 'Flow pattern shifting and drag reduction in oil-water flow in pipe', *International Journal of Research in Engineering and Technology*, 22, 245-252, 2014

P. P. Goswami, H. A. Choudhury, S. Chakma, V. S. Moholkar, 'Sonochemical synthesis and characterisation of manganese ferrite nanoparticles', *Industrial and Engineering Chemistry Research*, 52 (50), 17848-17855, 2013

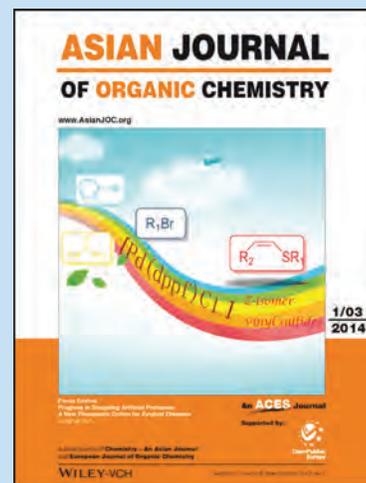
R. S. Malani, S. Khanna, S. Chakma, V. S. Moholkar, 'Mechanistic insight into sono-enzymatic degradation of organic pollutants with kinetic and thermodynamic analysis', *Ultrasonics Sonochemistry*, 21, 1400-1406, 2014

V. Singh and C. Das, 'Comparison of spiral wound UF membrane performance between turbulent and laminar flow regimes', *Desalination*, 337, 43-51, 2014

R. Valapa, G. Pugazhenthii, V. Katiyar, 'Thermal degradation kinetics of sucrose palmitate reinforced poly(lactic acid) biocomposite', *International Journal of Biological Macromolecules*, 65, 275-283, 2014

CHEMISTRY

S. Haldar, S. Mahato and C. K. Jana, 'Metal- and oxidant-free direct sp³ C-H arylation of pyrrolidine', *Asian Journal of Organic Chemistry*, 3, 44-47, 2014 (The work has been highlighted in *Chemistry Views*)



S. Mahato, S. Haldar and C. K. Jana, 'Diastereoselective α -C-H functionalisation of aliphatic N-heterocycles: An efficient route to ring-fused oxazines', *Chemical Communications*, 50, 332-334, 2014 (The work has been highlighted in *Synfacts*)

A. K. Sahoo, S. Banerjee, S. S. Ghosh and A. Chattopadhyay, 'Simultaneous RGB emitting au nanoclusters in chitosan nanoparticles for anticancer gene theranostics', *ACS Applied Materials and Interfaces*, 6 (1), 712-724, 2014

R. Begum and A. Chattopadhyay, 'Redox-tuned three-colour emission in double (Mn and Cu), doped zinc sulfide quantum dots', *The Journal of Physical Chemistry Letters*, 5 (1), 126-130, 2014

R. Begum, A. K. Sahoo, S. S. Ghosh and A. Chattopadhyay, 'Recovering hidden quanta of Cu²⁺-doped ZnS quantum dots in reductive environment', *Nanoscale*, 6 (2), 953-961, 2014

- A. Jaiswal, P. K. Gautam, S. S. Ghosh and A. Chattopadhyay, 'Carbon dots mediated room-temperature synthesis of gold nanoparticles in poly(ethylene glycol)', *Journal of Nanoparticle Research*, 16 (1), 1-14, 2014
- P. R. Bagdi, R. S. Basha, P. K. Baruah, A. T. Khan, 'Copper oxide nanoparticle mediated 'click chemistry' for the synthesis of mono-, bis- and tris-triazole derivatives from 10,10-dipropargyl-9-anthrone as a key building block', *RSC Advances*, 4 (21), 10652-10659, 2014
- A. A. Dar, S. Ali, A. Ghosh, A. T. Khan, A. K. Dwivedi and P. K. Iyer, 'Synthesis of unsymmetrical sulfides catalysed by n-tetrabutyl-ammonium tribromide: A selective fluorescence probe for mercury ion', *Sensors and Actuators B: Chemical*, 193, 509-514, 2014
- S. Bhattacharjee, D. K. Das and A. T. Khan, 'Ammonium chloride-catalysed three-component reaction for the synthesis of fused 4H-chromene derivatives in aqueous medium', *Synthesis*, 46 (1), 73-80, 2014
- A. A. Dar, S. Ali and A. T. Khan, 'Hydrated ferric sulfate catalysed synthesis of 3-[(alkyl/arylthio)(aryl) methyl]-1H-indole derivatives through one-pot reaction', *Tetrahedron Letters*, 55 (2), 486-489, 2014
- D. K. Das, S. Sarkar, A. T. Khan, P. Saravanan and S. Patra, 'Synthesis of fused tetrahydropyrido[2,3-c]coumarin derivatives as potential inhibitors for dopamine d3 receptors, catalysed by hydrated ferric sulfate', *RSC Advances*, 4 (7), 3581-3590, 2014
- N. Khatun, A. Gogoi, P. Basu, P. Das and B. K. Patel, 'CuO nanoparticle catalysed synthesis of 2H-indazoles under ligand free conditions', *RSC Advances*, 4 (8), 4080-4084, 2014
- N. Khatun, S. Guin, S. K. Rout and B. K. Patel, 'Divergent reactivities of o-haloanilides with CuO nanoparticles in water: A green synthesis of benzoxazoles and o-hydroxyanilides', *RSC Advances*, 4 (21), 10770-10778, 2014
- A. Banerjee, A. Bera, S. K. Santra, S. Guin and B. K. Patel, 'Palladium-catalysed regioselective arylation and acetoxylation of 3,5-diarylloxazole via ortho C-H functionalis', *RSC Advances*, 4 (17), 8558-8566, 2014
- G. Majji, S. K. Rout, S. Guin, A. Gogoi and B. K. Patel, 'Iodine-catalysed oxidative cyclisation of acylhydrazones to 2,5-substituted 1,3,4-oxadiazoles', *RSC Advances*, 4 (11), 5357-5362, 2014
- S. Samanta, S. Goswami, A. Ramesh and G. Das, 'A new fluorogenic probe for solution and intra-cellular sensing of trivalent cations in model human cells', *Sensors and Actuators B: Chemical*, 194, 120-126, 2014
- M. D. Adhikari, S. Mukherjee, J. Saikia, G. Das and A. Ramesh, 'Magnetic nanoparticles for selective capture and purification of an antimicrobial peptide secreted by food-grade lactic acid bacteria', *Journal of Materials Chemistry B*, 2 (10), 1432-1438, 2014
- A. Kumar, G. Das and B. Bose, 'Recombinant receptor-binding domain of diphtheria toxin increases the potency of curcumin by enhancing cellular uptake', *Molecular Pharmaceutics*, 11 (1), 208-217, 2014
- M. N. Hoque, A. Basu and G. Das, 'Pyridine-urea-based anion receptor: Formation of cyclic sulfate-water hexamer and dihydrogen phosphate-water trimer in hydrophobic environment', *Crystal Growth and Design*, 14 (1), 6-10, 2014
- J. Saikia, B. Saha and G. Das, 'Interpreting the adsorption of serum albumin and lactoglobulin onto ZnS nanoparticles: Effect of conformational rigidity of the proteins', *Journal of Colloid and Interface Science*, 416, 235-242, 2014
- A. A. Dar, S. Ali, A. Ghosh, A. T. Khan, A. K. Dwivedi and P. K. Iyer, 'Synthesis of unsymmetrical sulfides catalysed by n-tetrabutyl-ammonium tribromide: A selective fluorescence probe for mercury ion', *Sensors and Actuators B: Chemical*, 193, 509-514, 2014
- F. A. S. Chipem, S. K. Behera and G. Krishnamoorthy, 'Ratiometric fluorescence sensing ability of 2-(2'-hydroxyphenyl) benzimidazole and its nitrogen substituted analogues toward metal ions', *Sensors and Actuators B: Chemical*, 191, 727-733, 2014
- S. Paul and S. Paul, 'Trehalose induced modifications in the solvation pattern of N-methylacetamide', *Journal of Physical Chemistry B*, 118 (4), 1052-1063, 2014
- N. B. Palakurthy, D. Dev, S. Paikaray, S. Chaudhury and B. Mandal, 'Synthesis of O-benzyl hydroxamates employing the sulfonate esters of N-hydroxybenzotriazole', *RSC Advances*, 4 (16), 7952-7958, 2014
- S. Saha, K. C. Nadimpally, A. Paul, S. Kalita and B. Mandal, 'Phenolic ester mediated oligopeptide synthesis promoted by HOBt', *Protein and Peptide Letters*, 21 (2), 188-193, 2014
- S. S. Bag, S. Talukdar, R. Kundu, I. Saito and S. Jana, 'Dual door entry to exciplex emission in a chimeric DNA duplex containing non-nucleoside-nucleoside pair', *Chemical Communications*, 50, 829-832, 2014
- S. S. Bag, S. Jana, A. Yashmeen, K. Senthilkumar and R. Bag, 'Triazolyl-donor/acceptor chromophore decorated unnatural amino acids and peptides: FRET event in β -turn conformation', *Chemical Communications*, 50, 433-435, 2014
- S. Ghorai and C. Mukherjee, 'Effect of ligand substituent on the reactivity of Ni(ii) complexes towards oxygen', *Dalton Transactions*, 43 (2), 394-397, 2014
- D. Singha, N. Barman and K. Sahu, 'A facile synthesis of high optical quality silver nanoparticles by ascorbic acid reduction in reverse micelles at room temperature', *Journal of Colloid and Interface Science*, 413, 37-42, 2014
- N. Barman, D. Singha and K. Sahu, 'Faster photoinduced electron transfer in a diluted mixture than in a neat donor solvent: Effect of excited-state H-bonding', *Physical Chemistry Chemical Physics*, 6 (13), 6159-6166, 2014
- B. List, I. Čorić, O. O. Grygorenko, P. S. J. Kaib, I. Komarov, A. Lee, M. Leutzsch, S. C. Pan, A. V. Tymtsunik and M. van

Gemmeren, 'The catalytic asymmetric α -Benzylation of aldehydes', *Angewandte Chemie International Edition*, 53 (1), 282-285, 2014

R. Rakshit, S. Ghorai, S. Biswas and C. Mukherjee, 'Effect of ligand substituent coordination on the geometry and the electronic structure of Cu(II)-Diradical complexes', *Inorganic Chemistry*, 53, 3333-3337, 2014 (DOI: 10.1021/ic402612v)

K. C. Nadimpally, A. Paul and B. Mandal, 'Reversal of aggregation using β breaker dipeptide containing peptides: Application to A β (1-40) self assembly and its inhibition', *ACS Chemical Neuroscience*, 5 (5), 400-408, 2014

K. Thalluri, S. R. Manne, D. Dev and B. Mandal, 'Ethyl 2-cyano-2-(4-nitrophenylsulfonyloxymino)acetate (4-NBsOXY) mediated lossen rearrangement: Single pot racemisation free synthesis of hydroxamic acids and ureas from carboxylic acids', *The Journal of Organic Chemistry*, DOI: 10.1021/jo4026429, 2014

S. K. Rout, S. Guin, A. Gogoi, G. Majji and B. K. Patel, 'Terminal aryl alkenes and alkynes as arylcarboxy surrogates towards o-benzoylation of 2-phenylpyridine catalysed by copper', *Organic Letters*, 16, 1614, 2014

S. K. Santra, A. Banerjee and B. K. Patel, '2,3-Diarylquinoxaline directed mono ortho-arylation via cross dehydrogenative coupling using aromatic aldehydes or alkylbenzenes as aroyl surrogate', *Tetrahedron*, 70, 2422, 2014

CIVIL ENGINEERING

D. Barman and A. K. Sarma, 'Applicability of cartosat stereo dem for understanding flooding genesis – A case study from Pagladia river watershed in lower Assam, India', *International Journal of Earth Sciences and Engineering*, 6 (1), 2013

P. Sonowal, M. Khwairakpam and A. S. Kalamdhad, 'Stability analysis of dewatered sludge of pulp and paper mill during vermicomposting', *Waste and Biomass Valorization*, 5, 19-26, 2014

A. K. Nayak and A. S. Kalamdhad, 'Feasibility of composting combinations of sewage sludge, cattle manure and sawdust in a rotary drum reactor', *Environmental Engineering Research*, 19 (1), 1-11, 2014

V. S. Varma and A. S. Kalamdhad, 'Effects of leachate during vegetable waste composting using rotary drum composter', *Environmental Engineering Research*, 19 (1), 1-7, 2014

W. R. Singh, S. K. Pankaj, J. Singh and A. S. Kalamdhad, 'Evaluation of bioavailability of heavy metals and nutrients during agitated pile composting of green Phumdi', *Research Journal of Chemistry and Environment*, 18 (4), 37-48, 2014

H. Seshan, M. K. Goyal, W. FalkMichael and WuertzStefan, 'Support vector regression model of wastewater bioreactor performance using microbial community diversity indices: Effect of stress and bioaugmentation', *Water Research*, 53, 282-296, 2014

A. K. Singh, C. A. Madramootoo, M. K. Goyal and D. L. Smith, 'Corn yield simulation using the STICS model under varying

nitrogen management and climate change scenarios', *ASCE-Journal of Irrigation and Drainage Engineering*, 140 (4), 04013023-7, 2014

J. Taipodia, K. Prakash Babu, B. Kiran and A. Dey, 'Subsurface characterisation using MASW: Preliminary experimentation and analysis', *International Journal of Innovative Research in Science, Engineering and Technology*, 3 (Spl. Is. 4), 129-138, 2014

S. S. Kumar, A. Murali Krishna, and A. Dey, 'Parameters influencing dynamic soil properties: A review treatise', *International Journal of Innovative Research in Science, Engineering and Technology*, 3 (Spl. Is. 4), 47-60, 2014

DESIGN

T. Patel and S. Karmakar, 'Anthropometric and strength data of Indian agricultural workers for farm equipment design: Book review', *International Journal of Industrial Ergonomics*, 44, 189-190, 2014

S. Karmakar, 'Book Review: Ergonomics in the Automotive Design Process', *Ergonomics in Design*, 22 (1), 33, 2014

S. Karmakar, J. Sanjog and T. Patel, 'Digital human modelling and simulation in product and workplace design: Indian scenario', *International Journal of Engineering Research and Applications*, Special Issue, 6-12, 2014

A. Chowdhury, S. Karmakar, S. Ghosh and D. Chakrabarti, 'Purchase intention of anthropomorphic chair is influenced by visual attractiveness and perceived pleasure', *International Review of Applied Engineering Research*, 4 (2), 133-140, 2014

M. Majhi and D. Chakrabarti, 'Computer graphics and understanding semiotics in design', *World Academy of Science, Engineering and Technology*, 7 (6), 2013

ELECTRONICS AND ELECTRICAL ENGINEERING

B. Kumbhani and R. S. Kshetrimayum, 'Outage probability analysis of spatial modulation systems with antenna selection', *Electronics Letters*, 50 (2), 125-126, 2014

M. Manohar, R. S. Kshetrimayum and A. K. Gogoi, 'Printed monopole antenna with tapered feed line, feed region and patch for super wideband applications', *IET Microwaves, Antennas and Propagation*, 8 (1), 39-45, 2014

HUMANITIES AND SOCIAL SCIENCES

S. Mallick, 'The realm of commodified technoscience', *Seminar*, 654, 32-42, 2014

MATHEMATICS

B. Gorain and P. S. Mandal, 'Approximation algorithms for sweep coverage in wireless sensor networks', *Journal of Parallel and Distributed Computing*, 2014 (DOI: 10.1016/j.jpdc.2014.02.009)

S. Saha and S. N. Bora, 'Flexural gravity waves trapped in a two-layer fluid of finite depth', *Applied Ocean Research*, 44, 1-12, 2014

M. Hassan and S. N. Bora, 'Rotational motion due to the

interaction of water waves with a pair of coaxial cylinders in water, of finite depth', *Journal of Advanced Research in Applied Mathematics*, 6 (1), 48-65, 2014

R. K. Srivastava, 'Coxeter system of lines and planes are sets of injectivity for the twisted spherical means', *Journal of Functional Analysis*, 267, 352-383, 2014

R. K. Srivastava, 'Real analytic expansion of spectral projections and extension of the Hecke-Bochner identity', *Israel Journal of Mathematics*, 200, 1-22, 2014

MECHANICAL ENGINEERING

S. Anbarasu, P. Muthukumar and S. C. Mishra, 'Thermal modelling of Mg₂Ni based solid state hydrogen storage reactor', *Heat Transfer Engineering*, 35 (14-15), 1354-1362, 2014

S. Anbarasu, P. Muthukumar and S. C. Mishra, 'Tests on LmNi_{4.91}Sn_{0.15} based solid state hydrogen storage device with embedded cooling tubes – Part A: Absorption process', *International Journal of Hydrogen Energy*, 39, 3342-3351, 2014

S. Anbarasu, P. Muthukumar and S. C. Mishra, 'Tests on LmNi_{4.91}Sn_{0.15} based solid state hydrogen storage device with embedded cooling tubes – Part B: Desorption process', *International Journal of Hydrogen Energy*, 39, 4966-4972, 2014

S. C. Mishra, A. Akhtar and A. Garg, 'Numerical analysis of Rayleigh-Benard convection with and without volumetric radiation', *Numerical Heat Transfer, Part A*, 65, 144-164, 2014

S. C. Mishra and H. Sahai, 'Analysis of non-Fourier conduction and volumetric radiation in a concentric spherical shell using the lattice Boltzmann method and the finite volume method', *International Journal of Heat and Mass Transfer*, 68, 51-66, 2014

S. C. Mishra, H. Poonia, R. Vernekar, and A. K. Das, 'Lattice Boltzmann method applied to the analysis of radiative transport problems with and without conduction in a 1-D planar medium', *Heat Transfer Engineering*, 35, 1267-1278, 2014

R. P. Chopade, S. C. Mishra, P. Mahanta and S. Maruyama, 'On configuration of load in radiant furnace for uniform thermal conditions', *Heat Transfer Engineering*, 35, 94-109, 2014

A. Bhowmik, R. Repaka, S. C. Mishra and K. Mitra, 'Analysis of radiative signals from normal and malignant human skins subjected to a short-pulse laser', *International Journal of Heat and Mass Transfer*, 68, 278-294, 2014

U. Barman, A. K. Sen and S. C. Mishra, 'Theoretical and numerical investigations of an electroosmotic flow micropump with interdigitated electrodes', *Microsystem Technologies*, 20, 157-168, 2014

N. S. Priya, C. M. Somayaji and S. Kanagaraj, 'Optimisation of Ce_{0.6}Zr_{0.4-x}Al_{1.3x}O₂ solid solution based on oxygen storage capacity', *Journal of Nanoparticle Research*, 16 (2), 1-10, 2014

P. Manivel, S. Kanagaraj, A. Balamurugan, N. Ponpandian, D. Mangalaraj and C. Viswanathan, 'Rheological behaviour and electrical, thermal properties of polypyrrole/graphene oxide

nanocomposites', *Journal of Applied Polymer Science*, 2014 (DOI: 10.1002/app.40642)

S. Arun, P. S. R. Sreekanth, S. Kanagaraj, 'Mechanical characterisation of PMMA/SWNTs bone cement using Nanoindenter', *Materials Technology: Advanced Biomaterials*, 29 (B1), B4-B9, 2014

P. Manivel, S. Kanagaraj, A. Balamurugan, N. Ponpandian, D. Mangalaraj, C. Viswanathan, 'Rheological behaviour and electrical properties of polypyrrole/thermally reduced graphene oxide nanocomposite', *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 441, 614-622, 2014

B. K. Debnath, U. K. Saha and N. Sahoo, 'An experimental way of assessing the application potential of emulsified palm biodiesel towards alternative to diesel', *ASME Journal of Engineering for Gas Turbines and Power*, 136, 021401, 2013

D. Sharma, K. Deb and N. N. Kishore, 'Customised evolutionary optimisation procedure for generating minimum weight compliant mechanisms', *Engineering Optimisation*, 46 (1), 39-60, 2014

A. K. Deepati, S. Tikader and P. Biswas, 'Experimental investigation of mechanical properties on friction stir welding of dissimilar aluminum alloys', *International Journal of Current Engineering and Technology*, Special Issue-2, 242-246, 2014

N. R. Mandal, S. Kumar and P. Biswas, 'Distortion measurement of ship blocks using photogrammetry', *Journal of Ship Production and Design*, 30 (2), 2014 (DOI: 10.5957/JSPD.29.4.13004)

PHYSICS

S. K. Gupta and A. K. Sarma, 'Solitary waves in parity-time (PT) symmetric Bragg-grating structure and the existence of optical rogue waves', *Europhysics Letters*, 105, 44001, 2014

P. Kumar, P. Kumar and A. K. Sarma, 'Simultaneous control of optical dipole force and coherence creation by Super-Gaussian femtosecond pulses in lambda-like atomic systems', *Physical Review A*, 89, 033422, 2014

S. K. Gupta and A. K. Sarma, 'Parity-time-symmetric closed form optical quadrimer waveguides', *Journal of Modern Optics*, 2014 (DOI: 10.1080/09500340.2013.879934)

A. Alberti, P. Gambino and S. Nandi, 'Perturbative corrections to power suppressed effects in semileptonic B decays', *Journal of High Energy Physics*, 147, 1-15, 2014

R. Ghosh, P. K. Giri, K. Imakita and M. Fujii, 'Origin of visible and near infrared photoluminescence from chemically etched Si nanowires decorated with arbitrary shaped Si nanocrystals', *Nanotechnology*, 25, 045703, 2014

R. K. Biroju and P. K. Giri, 'Controlled fabrication of graphene-ZnO nanorod, nanowire and nanoribbon hybrid nanostructures', *Journal of Nanoscience Letters*, 4, 34, 2014

R. K. Biroju, P. K. Giri, S. Dhara, K. Imakita and M. Fujii,

'Graphene assisted controlled growth of highly aligned ZnO nanorods and nanoribbons: Growth mechanism and photoluminescence properties', *ACS Applied Materials and Interfaces*, 6, 377, 2014

CENTRE FOR ENERGY

H. A. Choudhury, P. Srivastava and V. S. Moholkar, 'Single step ultrasonic synthesis of biodiesel from crude jatropha curcas oil', *AIChE Journal*, 2014 (Doi: 10.1002/aic.14371)

S. Chatterjee, D. Yadav, L. Barbora, P. Mahanta and P. Goswami, 'Silk-cocoon matrix immobilised lipase catalysed transesterification of sunflower oil for production of biodiesel', *Journal of Catalysts*, Article ID 868535, 2014

M. Das, L. Barbora, P. Das and P. Goswami, 'Biofuel cell for generating power from methanol substrate using alcohol oxidase bioanode and air-breathed laccase biocathode', *Biosensors and Bioelectronics*, 2014 (DOI: 10.1016/j.bios.2014.03.016)

CENTRE FOR NANOTECHNOLOGY

S. K. Sailapu and A. Chattopadhyay, 'Induction of electromotive force by an autonomously moving magnetic bot', *Angewandte Chemie International Edition*, 53 (6), 1521-1524, 2014

A. K. Singh, K. K. Dey, A. Chattopadhyay, T. K. Mandal, D. Bandyopadhyay, 'Multimodal chemo-magnetic control of self-propelling microbots', *Nanoscale*, 6 (3), 1398-1405, 2014

Book Chapter

CHEMICAL ENGINEERING

P. Dhar, U. Bhardwaj and V. Katiyar, 'Bio Based Nanocomposites: Prospects in Green Packaging Applications', *Polymers for Packaging Applications*, CRC Press, Taylor and Francis, 2013 (ISBN: 9781926895772)

V. Katiyar, S. S. Gaur, A. K. Pal and A. Kumar, 'Properties of

Plastics for Packaging Applications', *Polymers for Packaging Applications*, CRC Press, Taylor and Francis, 2013 (ISBN: 9781926895772)

V. Katiyar, N. Tripathi, R. Patwa and P. Kotecha, 'Environment Friendly Packaging Plastics', *Polymers for Packaging Applications*, CRC Press, Taylor and Francis, 2013 (ISBN: 9781926895772)

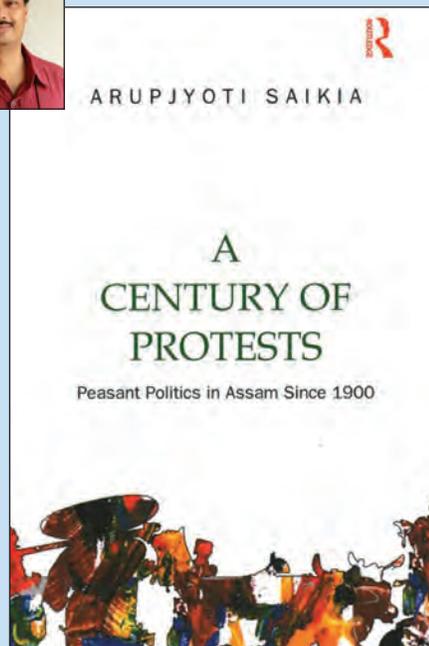


Image of the coverpage of Dr. Arupjyoti Saikia's (inset) book *A Century of Protests: Peasant Politics in Assam Since 1900*

Book

HUMANITIES AND SOCIAL SCIENCES

A. Saikia, *A Century of Protests: Peasant Politics in Assam Since 1900*, HB, pp. 500, Routledge, 2013 (ISBN: 9780415811941)

New Joinings



Soumen Kumar Maiti
Asst. Professor
Biotechnology



Lalit Mohan Pandey
Asst. Professor
Biotechnology



Basudev Chatterji
Visiting Professor
Humanities and Social
Sciences



Bhupen Deka
Asst. Professor
Mathematics

Awards and Honours

BIOTECHNOLOGY

Mr. Surojeet Das, MTech student, working with Dr. Biman B. Mandal, won Gandhian Young Technological Innovation Award (GYTI-2014) for his research on 'Injectable Silk Fibroin Hydrogel for Tissue Engineering and Drug Delivery'.

CHEMICAL ENGINEERING

Dr. Anil Verma, Associate Professor, received Best Poster Award in International Conference on Environment Technology and Sustainable Developments: Challenges and Remedies (ET&SD 2014), Babasaheb Bhimrao Ambedkar University, Lucknow, 21-23 February 2014.

Mr. Y. Shyam Kumar Yadav, research student, received Best Oral Presentation Award (with cash prize) in Technical Annual Meeting (Reflux 2014), IIT Guwahati, 29-30 March 2014.

CHEMISTRY

Prof. Arun Chattopadhyay has become a Fellow of the Royal Society of Chemistry.



Prof. Arun Chattopadhyay



Prof. Bhisma K. Patel was awarded Bronze Medal by Chemical Research Society of India 2014.

Mr. Santosh Kumar Sahoo received Eli Lilly and Company Asia Outstanding Thesis Awards for Best Thesis.

Mr. Atul Kumar Dwivedy received Eli Lilly and Company Asia Outstanding Thesis Awards for Best Thesis.

Mr. Arghya Banerjee received Prof. Goverdhan Mehta best poster award in 16th CRSI National Symposium in Chemistry (NSC-16) held at IIT Bombay during 7-9 February 2014.

Mr. Ganesh Majji, won stage 2 first prize in Elsevier Reaxys Green Chemistry Online Quiz in celebration of Earth day.

Dr. Krishna Chaitanya Nadimpally received Gandhian Young Technological Innovation Awards / Appreciations 2014 (GYTI) for his project 'Concept Of β -Breaker Dipeptides and Its Application In Alzheimer's Amyloid Disruption'.

Mr. Santosh Kumar Behera and Dr. G. Krishnamoorthy received best poster award in the 3rd National Symposium on Functional Applications of Colorants (NSFAC-2013), Institute of Chemical Technology, Mumbai.

Mr. Narsimha Mamidi and Dr. D. Manna received best poster award in the 20th ISCB International Conference (ISCB-2014), University of Delhi, 1-4 March 2014.

DESIGN

Mr. Avinash Shende, Assistant Professor, won Good Design Award 2012-2013 (Chicago, USA), for designing wired CU! chair. The chair is in production by a German Company 'WILDE + SPIETH'. He also won Interior Innovation Award 2014 (given by German Design Council) and was a finalist in the FX Award 2013 London.



ELECTRONICS AND ELECTRICAL ENGINEERING

Dr. R. S. Kshetrimayum, Associate Professor, was elevated to IEEE Senior Member in March 2014.

MECHANICAL ENGINEERING

Dr. P. Muthukumar, Associate Professor, received Bhaskara Advanced Solar Energy Fellowship (BASE Fellowship) from Indo-US Science and Technology Forum, January 2014 for visiting University of South Florida, USA.

Dr. Pankaj Biswas, Assistant Professor, obtained ASME membership in MARCH 2014.

Prof. S. C. Mishra, is an adjunct faculty, Department of Mechanical Engineering, IIT Bhubaneswar.

PHYSICS

Dr. Amarendra Kumar Sarma, Associate Professor, received Dr. Biraj Mohan Das Memorial Science Award 2014.

Mr. Biswajit Pathak, project JRF and PhD student working with Dr. Bosanta R. Boruah, has won the best paper award under the category of Optical Instrumentation and Techniques in OPTICS14: International Conference on Light held at NIT Calicut during March 2014.

CENTRE FOR NANOTECHNOLOGY

The work titled 'Induction of Electromotive Force by an Autonomously Moving Magnetic Bot' by Mr. Sunil Kumar Sailapu and Prof. Arun Chattopadhyay was selected as the cover page for *Angewandte Chemie International Edition* for the week starting 3 February 2014 (Volume 53, Issue 6).

Mr. Ravi Kumar Biroju, research student, won the Best Poster Award at the 6th International Conference on Nano Science and Technology (ICONSAT), March 2014.

Mr. Sunil Kumar Sailapu, research student, won first position for the exhibition of his paper in Reflux 2.0 at IIT Guwahati during 29-30 March 2014.

Alcheringa 2014



Alcheringa, the annual cultural festival of IIT Guwahati, was held during 30 January – 2 February 2014. 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 puller.

Dixit Project, Shankar Ehsaan Loy, Javed Ali, Mohit Chauhan, Anoushka Shankar, the Swiss folk metal band Eluveitie, Orphaned Land – Israeli progressive metal band, etc.

Alcheringa 2014 was inaugurated on 30 January with the Mexican virtuoso violinists, songwriters and composers Villalobos Brothers. The four day scintillating event witnessed eagerly awaited Alcheringa regulars like Electric Heels—dance competition, Theatrix—drama competition, Crossfade—DJ competition, Rock-o-Phonix—rock song competition, Raga High—Indian song competition.

Rock band Undying Inc. performed in the Red Bull Tour Bus—a unique way of rock performance in the Blitzkrieg show of the Day 1 Alcheringa.

Well known Hindi playback singer Shilpa Rao performed before a large and appreciative crowd on the evening of 1 February 2014.



Shilpa Rao



Mock United Nations



Red Bull Tour Bus

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



Michael Angelo Batio



Villalobos Brothers

On the last evening of Alcheringa 2014 Michael Angelo Batio, American instrumental rock guitarist, enthralled the audience with his mindblowing guitar playing.

Apart from these, some of the notable programmes during the festival were street painting, personality contest Mr. and Miss Alcheringa, quiz, model United Nations, street circus, etc.

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