The IITG Monitor

The Quarterly Newsletter





Hindi Divas Samaroh 2015

Over the years, the Hindi Divas Samaroh is looked forward to with great enthusiasm by the IIT Guwahati community. Like every year, Hindi Divas Samaroh 2015 was organized at the Institute. Various competitions like Hindi Poetry Recitation Competition, Hindi Essay Writing Competition for staff and Institute students, and Kavi Sammelan for IITG students were organized to mark the occasion. Hindi Divas Samaroh 2015 Programme was celebrated with active participation of students and employees of the Institute. The Honorable Director of the Institute, Prof. Gautam Biswas graced the occasion as the Chief Guest. The Registrar IIT Guwahati was also present on the occasion. Faculty members like Prof. S. Khijwania and Visiting Prof. Aynur Unal were present at the programme along with students and staff of the Institute.

The Hindi Divas Programme began with lighting of the auspicious lamp by The Director, who was accompanied by the Registrar.

The Director and the Registrar addressed the gathering. A report about work related to Official Language Implementation done in the year, was presented by the Senior Hindi Officer. Prizes which mainly included Hindi books were awarded by the Chief Guest, to the winners of the various competitions held for Hindi Divas Samaroh 2015. This was followed by a brief Cultural Programme in which campus children, employees and students of IIT Guwahati participated. A skit was presented by some students of the Institute, in which the significance of the Hindi Language was depicted well.

In this issue:

- α Hindi Diwas 2015
- $\boldsymbol{\alpha}$ Conference etc abroad
- $\boldsymbol{\alpha}$ Patent applications
- α New joining
- α Institute lecture
- α Award and Honours
- α AEMB 2015
- **α ICANN 2015**
- α CHEMCON 2015
- α New Research Projects
- α Invited lectures





IITG Monitor ¶ Indian Institute of Technology Guwahati.

Conference/ Seminar Abroad

Computer Science

Dr. John Jose, Assistant Professor, Dept. of CSE, attended the 23rd IFIP/ IEEE International Conference on Very Large Integration (VLSI-So) held at Daejeon Convention Center, Daejeon, South Korea from 05.10.15 to 07.10.15.

Dr. Sushanta Karmakar, Assistant Professor, Dept. of CSE, attended the 29th International Symposium on distributed Computing held at Hosei University, Japan from 05.10.15 to 09.10.15.

BSBE

Dr. Manish Kumar, Assistant Professor, Dept. of BSBE, attended the 9th International Leptospirosis Society Scientific Meeting (ILS 2015) held at Semarang, Indonesia from 07.10.15 to 10.10.15.

Mechanical

Dr. P. Muthukumar, Professor, Dept. of ME, attended the 6th World Hydrogen Technologies Convention (WHTC2015) held at Sydney, Australia from 11.10.15 to 14.10.15.

EEE

Dr. Sonali Chouhan, Assistant Professor, Dept. of EEE, attended the 21st Asia-Pacific Conference on

Communications held at Kyoto University, Kyoto, Japan from 14.10.15 to 16.10.15.

Civil

Dr. G. Indu Siva Ranjani, Assistant Professor, Dept. of CE, attended the 5th Structural Engineers World Congress 2015 (SEWC 2015) held at Singapore from 19.10.15 to 22.10.15.

Humanities

Dr. Arupjyoti Saikia, Professor, Dept. of HSS, attended the Integrated History and future of people on Earth (IHOPE) annual meeting held at Uppsala University, Sweden, from 23.10.15 to 25.10.15.

Physics

Dr. Subhradip Ghosh, Associate Professor, Dept. of Physics, attended the Electronic Structure theory for accelerated design of structural materials held at National University of science and Technology, Moscow, Russia, from 26.10.15 to 30.10.15.

Chemistry

Dr. Parameswar K. Iyer, Professor, Dept. of Chemistry, attended the invited talk at India-Japan Expert Group Meeting on Biomolecular Electronics and Organic Nanotechnology for Environment Preservation (IJEGMBE) at University of Hoyogo, Japan from 23.12.15 to 25.12.15.

Patent

Inventor: Biswajit Pathak, Rahul Kesarwani, Alika Khare and B. R. Boruah, **Title**: System, apparatus and method for monitoring of surface profile and thickness measurement in thin films (Application No. 4088/DEL/2015).

Inventor: Bhubaneswar Mandal and Ashim Paul, **Title**: Beta Sheet Breaker Peptides for Anti-Alzheimer's Drug Design (Application No. E-2/1727/2015/KOL).

New Joinings



Dr. Pavan Kumar Kancharla Assistant Professor Department of Chemistry



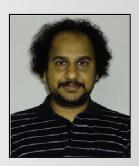
Dr. Debapriya Basu Assistant Professor Department of HSS



Dr. Debasish Borah Assistant Professor Department of Physics



Dr. Amarjyoti Mahanta Assistant Professor Department of HSS



Dr. Tapan Mishra Assistant Professor Department of Physics



Dr. Kanhaiya Pandey Assistant Professor Department of HSS





Prof. Marc Madou, Chancellor's Professor, Mechanical & Aerospace Engineering and Biomedical Engineering, University of California, Irvine, delivering "Invited Lecture" on "CENTRIFUGAL (COMPACT DISC) MICROFLUIDICS FOR EXTREME POINT OF CARE"

Awards and Honours

Viswa Bharti Barua, Centre for the Environment, got selected for SWIS-ISWA (International Solid Waste Association) scholarship 2016. Her Essay on "Dump sites in India" got selected for 2 weeks ISWA winter school at university of Texas during January 2016. She is the only one form India among 15 selected students from all over the world.

Ashim Paul, Dept. of Chemistry, won the Talent Search Contest on Innovative Research Ideas Leading to Entrepreneurial Venture in Biotechnology and Allied Areas on 21st Nov – 2015.

Kula Saikia, Dept. of HSS, has been awarded the Sahitya Akademi Award, 2015 (in Assamese Literature) for his short-story collection *Akashar Chhabi Aru Anyanya Galpa*. The award — comprising a plaque and a cheque of ₹ 1 lakh — will be presented to the writers at a function on February 16 next year.

Namami Goswami, Centre for Nanotechnology, has been awarded The Google Anita Borg Memorial Scholarship (Asia-Pacific), 2015-16 and she also attended the Scholars' Retreat from September 8-11, 2015 at the Google Shanghai Office.

Shuchi Singh, Centre for Energy, won the best poster award for "Intensification of ethanol production from Parthenium hysterophorus by sonication: A mechanistic investigation at 7th ISEES International Workshop on Sustainable Energy, Environment & Safety with Railway Centric Theme, December 21-23, 2015, Research Designs & Standards Organization, Ministry of Railways, RITES, Ministry of Railways, Lucknow, India.

Chitta Ranjan Barik got selected for the UGSAS-GU 6-month Sandwich Program 2015, from October 1st 2015 to 31st March 2016: The United Graduate School of Agricultural Science, Gifu University (UGSAS-GU), Japan.

Shiv Shankar Kumar, Dept. of CE, received the BEST PAPER AWARD on the work "Dynamic response of river bed sands using cyclic triaxial tests" jointly authored by Shiv Shankar Kumar, Arindam Dey and A. Murali Krishna at the Indian Geotechnical Conference (IGC), Pune, India held on 15.10.2016.

Kamal Paul, Dept. of Physics, won the BEST POSTER AWARD at the International conference on Nanosceince, Nanotechnology and Advanced Materials (NANOS 2015), Dec 14-17, 2015, Visakhapatnam, India for his poster entitled "Enhanced Visible Light Photocatalytic Activity of Ag₂O Decorated TiO₂ Nanaorods Heterostructure".

Rwivoo Baruah, Dept. of BSBE, won the Best Poster Award for "Characterization of glucan from *Weissella cibaria* RBA12 as a potential food additive and hydrocolloid" in the Food and Agricultural Biotechnology category in the International conference on New Horizons in Biotechnology (NHBT-2015) held at CSIR-National Institute for Inter-disciplinary Science and Technology, Thiruvananthapuram during November 22-25, 2015.

Priyanka Nath, Dept. of BSBE, won the Best poster award for "Identification of promising functional residues capable of introducing endo-xylanase activity into an exo-acting arabinofuranosidase (*Ct*43Araf) with enhanced activity: An in silico approach" presented at 56th International Annual Conference of Association of Microbiologists of India (AMI), held at Jawaharlal Nehru University, New Delhi during December 7-10, 2015.

Ketan Ganar, Dept. of BSBE, was awarded consolation prize for poster presentation in VIROCON, XXIV National Conference of Indian Virological Society held in NEIGRIHMS, Shillong Meghalaya from 8th-10th October, 2015.

Prakash Saudagar, Dept. of BSBE, won the best poster award at International Conference on Infectious Diseases and Nanomedicine-2015 (ICIDN-2015), Kathmandu for the following work:- Prakash Saudagar, and Vikash Kumar Dubey. "Betulin attached to functionalized carbon nanotubes showed better efficacy against Leishmania parasite". 2nd International Conference on Infectious Diseases and Nanomedicine -2015 (ICIDN-2015), Kathmandu, Nepal, December 15 -18, 2015.

Mallesh Santhosh, Dept. of BSBE, received 2nd best student paper award in contributory research category in the *South Asian workshop on Optics and Photonics* (SAWOP 15) organized by UNESCO New Delhi held during 17-18 November, 2015 at IITG, Assam, India.

Sharmila Narayanan, Dept. of BSBE, won the "Best Poster award" in the 4th International Conference on Advanced Nanomaterial and Nanotechnology (ICANN-2015).

Sujan Kalita and Dr. Bhubaneswar Mandal, Dept. of Chemistry, were the finalist of the Samsung Innovation Award 2015 held on Oct 27, 2015 at IIT Guwahati. Title of the entry: "A suggested solution of auto cleaning system for washing machine's drum, keeping the system's efficiency intact".

Camelia Das and Dr. A. Perumal, Dept. of Physics, "Magnetic Properties of single and multilayered CoFeB thin films", received one of the best poster awards in the international conference on Magnetic Materials and Applications, Vellore, December 02 – 04, 2015.

Dr. Bhubaneswar Mandal, Dept. of Chemistry, won the Industrial Green Chemistry World Award (IGCW - 2015) conferred by the Industrial Green Chemistry Foundation on 4th Nov, 2015.

Dr. Vimal Katiyar, Dept. of Chemical Engg., received Distinguished Speaker Award of Indian Institute of Chemical Engineers CHEMCON NEERI, 29th December, 2015.

Dr. Arindam Dey, Dept. of CE, received the IGS SOILTECH BIENNIAL BEST PAPER AWARD for the work on 'Shallow Foundations' for the period 2014-2016. The award has been conferred by Indian Geotechnical Society at Indian Geotechnical Conference (IGC), Pune, India held on 15.10.2016.

Prof. Pranab Goswami, Centre for Energy, has been awarded full sponsorship by Elsevier, UK to participate *Editor's conference* held at Beijing, China during 22-25th October 2015.



Prof. Gautam Biswas presenting Prof. A. K. Mallik with a memento after his Institute Lecture entitled "SOME MAGICAL MATHEMATICS OF RAMANUJAN".

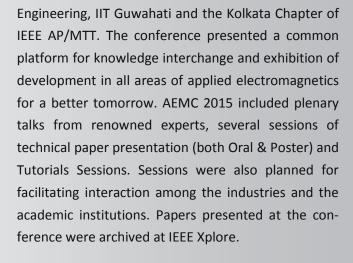
Prof A. K. Mallik was the first occupant of S. Sampath Institute Chair (Professorship) established in 2006. He was a commonwealth scholar at Institute of Sound and Vibration Research at Southampton, England and an Alexander von Humboldt. Fellow at TH Aachen and TU Darmstadt, Germany. He is a recipient of the Distinguished Teacher Award of IIT Kanpur, Indian National Science Academy Teacher Award and Distinguished Alumnus Award of BESUS.

IEEE APPLIED ELECTROMAGNETICS CONFERENCE (AEMC-2015)

The 5th biennial IEEE Applied Electromagnetics
Conference (AEMC-2015) was held at Indian Institute of Technology Guwahati from December 18-21, 2015. This conference was organized by the Department of Electronic and Electrical Engineering, IIT Guwahati and the Kolkata Chapter of IEEE AP/MTT. The 5th biennial IEEE Applied Electromagnetics Conference (AEMC-2015) was held at Indian Institute of Technology Guwahati from December 18-21, 2015. This conference was organized by the Department of Electronic and Electrical











INTERNATIONAL CONFERENCE ON ADVANCED NANOMATERIALS AND NANOTECHNOLOGY (ICANN-2015)

4th International Conference on Advanced Nanomaterial and Nanotechnology (ICANN-2015) a major international conference was held in the North-Eastern region of India, in the area of Nano science and Nanotechnology was organized by Centre for Nanotechnology at the Indian Institute of Technology Guwahati (IITG) during Dec 8-11, 2015. ICANN-2015 conference was focused on Advanced Nanomaterial for Nano engineering and recent advances in nanotechnology, covering fields from theory and experiment to applications of nanostructured materials in technology. The scientific program included plenary sessions, invited talks, oral and poster presentations on the following topics such as Synthesis and self assembly of nanomaterials, Nanoscale characterization, Nanophotonics & Nanoelectronics, Nanocomposites, Nanomagnetism, Nanomaterials for Energy, Computational Nanotechnology, Commercialization of Nanotechnology, Nanotheranostics, Nanosensors and Actuators, Nanobiotechnology. All the eminent scientists, technologists and young researchers from several disciplines across the globe came together in a common platform to discuss their achievements and newer directions of research during the conference. ICANN2015 was highlighted by IUPAC as part of "International year of light" on their webpage. Royal Society of Chemistry (RSC) UK, sponsored poster awards for this conference.

As part of ICAN2015 the 2nd India-Sweden bilateral workshop/seminar on Advanced Materials with a focus in the area of health and energy was organized at IIT Guwahati. Speakers from Center for Nanotechnology, Indian Institute of Technology Guwahati and Linköping University, Sweden presented their research in the sessions.



CHEMCON 2015

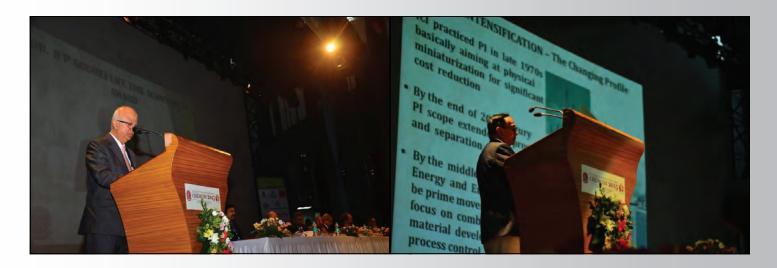
CHEMCON 2015, The 68th Annual Session of the Indian Institute of Chemicals Engineers was held

from December 27-30, 2015 jointly organized by Indian Institute of Chemical Engineers (IIChE) Guwahati Regional Centre (GRC) and the Department of Chemical Engineering, Indian Institute of Technology, with the event theme as 'Chemical Engineering: From Laboratory to Industry'. Chemcon is a major international even held for the first time in the North Eastern part of India, with the aim to bring eminent scientist, technologist, and young researchers from several disciplines across the globe together on a common platform to discuss critical research findings and thereby identify potential research directions in the field of Chemical Engineering. The four day mega event provided a unique platform for the amalgamation of fundamental/ applied concept in Chemical Engineering and other sciences.

The highlight of the four day mega event included Dr. H. L. Roy, Prof. N. R. Kamath and Shri C. K. Murthy memorial lectures.; fifteenth CHEMCON



distinguished speaker (CDS) presentations; International symposium on Enabling Process Innovation through Computation (EPIC); Indo-US joint symposium on Carbon Capture;, sequestration, Utilization and other Frontiers (CCSUF); thirty five parallel sessions that hosted more than 550 oral presentations; three poster sessions that hosted around 600 posters in diverse field of Chemical Engineering; panel discussion EPIC, CCSUF and CHEMCON 2015 panel discussion on *Roll of Young Chemical Engineers to Translate Laboratory Research to Industrial Practices* under the framework of Make in India initiative.



The IITG Monitor

New Research Projects

BIOTECHNOLOGY

Title: Investigation on Evaluation pressure for unique redox metabolism of Leishmania Parasite.

Funding Agency: BCIL.

Principal Investigator: Dr. V. K. Dubey.

Title: Optimization of Novel antileishmania scaffold 4-(4,4,8-Trimethyl-7-oxo-3-oxabicyclo[3.3.1] non-2-yl)-benzoic acid methyl ester, a oxabicyclo [3.3.1] non-

anones: Amechanistic study. **Funding Agency**: DBT.

Principal Investigator: Dr. V. K. Dubey.

Title: Structural and thermodynamics basis of translational fidelity in prokaryotic cells-A Structure based computational study.

Funding Agency: SERB.

Principal Investigator: Dr. Priyadarshi Satpati.

Title: Functional characterization and role of TSMF2, a NRAMP family member, in the life cycle of Neurosporacrassa.

Funding Agency: SERB.

Principal Investigator: Dr. Anand Tiwari.

Title: Mechanistic Insights into the Functional Land-

scape of Sensory and Regulatory RNAs.

Funding Agency: SERB.

Principal Investigator: Dr. B. Anand.

Title: Investigating the Interaction Partners of ASAP

Complex.

Funding Agency: IITG.

Principal Investigator: Dr. Kusum Kumari Singh.

CHEMICAL

Title: Development of portable water purification system for pathogen and other contaminants free drinking water.

Funding Agency: DRL, Tezpur.

Principal Investigator: Dr. M.K. Purkait.

Title: Treatment of contaminated drinking water using

a hybrid low-cost process. **Funding Agency**: DBT.

Principal Investigator: Dr. M.K. Purkait.

CHEMISTRY

Title: Application of nanofluidic Channels of Reconstructed Two-Dimensional nanometrials for Chiral Resolution.

Funding Agency: SERB.

Principal Investigator: Dr. Kalyan Raidongia.

Title: DST-INSPIRE Resaerch Grant .

Funding Agency: DST.

Principal Investigator: Dr. Krishna P. Bhabak.

Title: Chiral and Achiral Hydrofunctionalization of Olefins via iron and Cobalt Catalyzed X-H (X:C and O) Activation Reactions: Acess to High value Fuels,Organic Materials and Commodity Chemicals.

Funding Agency: SERB.

Principal Investigator: Dr. Akshai Kumar Alape-

Seetharam.

CIVIL

Title: High Resolution mapping using low cost airborne

photographic data acquisition methods.

Funding Agency: IITG.

Principal Investigator: Dr. Ajay Dashora.

Title: Formation Evaluation of Upper Assam Shelf Basin based on routine core Analysis for reassessment of pe-

troleum reserves. Funding Agency: IITG.

Principal Investigator: Dr. Archana M. Nair.

Title: Duricrust Mapping in Paris of Western Rajasthan

Using Advance Remote Sensing Techniques.

Funding Agency: IITG.

Principal Investigator: Dr. Rishikesh Bharti.

EEE

Title: Design of CMOS integrated circuits for an in-band

full-duplex radio. **Funding Agency**: SERB.

Principal Investigator: Dr. Nagarjuna Nallam.

HSS

Title: The India-China Research Corridor. Funding Agency: KTH Royal Institute Sweden. Principal Investigator: Dr. Arupjyoti Saikia.

MECHANICAL

Title: 3D finite element simulations of fatigue crack

growth in gas turbine disk.

Funding Agency: Gas Turbine Research Establishment. **Principal Investigator**: Dr. K.S.R. Krishna Murthy.

Title: Thermal insulation material in lieu of ceramic wool.

Funding Agency: NIRDESH.

Principal Investigator: Dr. S. Kanagaraj.

Title: Study of Deformation Behavior and Multiple Fracture Mechanisms of Metallic Alloys Under High Strain Title: Graphene for self-charging power source for wear-Rate Loading Conditions.

Funding Agency: IITG.

Principal Investigator: Dr. Prasenjit Khanikar.

Title: Studies om Premature Failure of Thordon Bearings.

Funding Agency: NIRDESH.

Principal Investigator: Dr. S. Senthilvelan.

Title: Combined influences of Electromagnetic effect and surface wettability on the contact line dynamics of immiscible fluids in a Microfluids.

Funding Agency: IITG.

Principal Investigator: Dr. Pranab Kumar Mondal.

PHYSICS

Title: Investigation of the relaxor-like dielectic behavior and the role extrinsic in Zn1NiO/NiO two phase composite.

Funding Agency: SERB.

Principal Investigator: Dr. Subhash Thota.

bale electronics. Funding Agency: IITG.

Principal Investigator: Dr. Uday Narayan Maiti.



KIC-TEQIP Short-Term Course On Solar Energy Conversion and Management



KIC-TEQIP Short-Term Course On Recent Trends in Fuel Cell Technology

VISIT OF THE FRENCH CONSUL GENERAL

Mr. Damien Syed visited Indian Institute of Technology Guwahati on October 11, 2015 and in his interaction with the Director, IIT Guwahati highlighted on the various initiatives taken by the French Government to attract students from India and also on the various research grants and scholarships that the French Government offers to deserving Indian students.



Mr. Damien Syed with Prof. Gautam Biswas, Director IIT Guwahati



Students from Jawahar Navodaya Vidyalaya visited IIT Guwahati on November 23 an educational exposure trip and they were taken to various facilities in IITG such as the Computer Lab, Design Lab, Mechnanical Engineering Lab, Library, etc.



Prof. Michael Hanke, KTH Royal University, Sweden, visited IIT Guwahati on November 3, 2015 for signing an MoU on behalf of his University. Prof. Hanke seen here with Prof. Punekar, Dean, AER

DELEGATION FROM GIFU UNIVERSITY, JAPAN

The delegates from Gifu University visited IITG on November 23, 2015 occasion to explore possibilities on research and academic collaboration with the institute. The visits resulted in a successful MoU with the institute which among other things included proposals for a Jt. PhD programmme.



Prof. Gautam Biswas, Director IITG, with Dr. Hisataka Moriwaki, President, Gifu University and other members of the delegation from Gifu University, Japan and other faculty and staff of IIT Guwahati.

Visitors/Invited Lectures/Seminars

BSBE

Dr. Sarala Balachandran, Chief Scientist, CSIR and Project
Director. 'Open Source Drug Discovery unit; Drug Discovery and Development in Tuberculosis with an Aim to Benefit the Masses'; November 4, 2015.

Dr. Shabir Najmudin, Faculty of Veterinary, Medicine, University of Lisbon, Portugal; 'A Multi-faceted approach to understanding the assembly and function of the CEL-LULOSOME: a Mega-Dalton, Multi-Enzyme Complex involved in the deconstruction of Complex Plant Cell Wall Carbohydrates'; November 6, 2015.

Prof. Jonathan C. Knowles, Head of Division of Biomaterials and Tissue Engineering, UCL Eastman Dental Institute, University College London; 'Phosphate Based Glasses and their Development as Biomaterials for Tissue Engineering'; November 13, 2015.

Prof. Chandrabhas Narayana, Chemistry and Physics of Materials Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; 'Raman Spectroscopy in Nano- Biotechnology'; November 18, 2015.

Dr. Patrick Shaw Stewart, Douglas Instruments Ltd. Berkshire, UK; 'Random microseeding and multivariate experimental designs for successful protein crystallization'; December 09, 2015.

CIVIL

Prof. Deepankar Choudhury, IIT Bombay; 'Seismic Aspects of Design of Combined Pile-Raft Foundations'; December 28, 2015.

HUMANITIES

Diana Archangeli, University of Hong Kong & University of Arizona; 'Ultrasound Technology in Language Research'; October 13, 2015.

MATHS

Dr. Mohd. Arshad, Aligarh Muslim University; 'Selection and related estimation problems involving gamma populations'; October 1, 2015.

Prof. Michael Hanke, KTH Royal Institute of Technology Stockholm, Sweden; Towards multiscale modelling in neuroscience: Experiences with coupling cellular and subcellular levels of neuronal organization'; October 29, 2015.

Prof. K. B. Sinha, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; '(1) Evolution in a Hilbert space and the self-adjointness problem and (2) Fundamental Theorem of Integral Calculus, its connection with topology and Physics'; November 2, 2015.

Dr. A. Raghuram, Indian Institute of Science Education and Research (IISER), Pune; 'From Calculus to Number Theory'; November 9, 2015.

Prof. Inder K. Rana, IIT Bombay; 'Integration from Antiquity to Lebesgue'; December 23, 2015.

PHYSICS

Dr. Moitri Maiti, Post-Doctoral fellow at the Bogoliubov Laboratory of Theoretical Physics, Joint Institute for Nuclear Research (JINR), Dubna, Russia; 'Superconducting junctions as detectors of Dirac and Majorana fermions'; October 15, 2015.

Dr. Ashim Chakravarty, Department of Physics -Engineering Physics/Applied Physics Michigan Technological University; 'Magneto-optic enhancement in nanoscale iron garnet films'; November 3, 2015.

Dr. Saurabh D. Rindani, Senior Professor, Physical Research Laboratory, Ahmedabad, Gujrat; 'Looking for new physics with the top quark'; December 22, 2015.

ENVIRONMENT

Dr. Bibhash Nath, Columbia University, USA, Lamont-Doherty Earth Observatory; 'Sediment logical controls on distribution and heterogeneity of arsenic aquifers'; November 16, 2015.

Dr. Lex van Geen, Columbia University, USA, Lamont-Doherty Earth Observatory; 'Processes regulating groundwater arsenic levels in Bangladesh that might be relevant to Assam'; November 16, 2015.

Dr. Bob Wasson, Lee Kuan Yew School of Public Policy, National University of Singapore; 'Catastrophic floods in the Himalaya: Causes, knowledge, requirements and solutions'; December 2, 2015.

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