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#### Jawaharlal Nehru Centre for Advanced Scientific Research

Jakkur P.O., Bangalore-64

(A Deemed to be University)



#### President's Note

Dear Colleagues,

I am delighted to present some of the significant developments which took place at the Centre with the dawn of 2016.

To begin with, Prof. C.N.R. Rao was conferred with Honorary Doctor of Science from Institute of Liver and Biliary Sciences (ILBS), New Delhi and Honorary Doctor of Engineering from National Cheng Kung University, Tainan, Taiwan. It was a matter of great pride for the Centre that Prof. Umesh V. Waghmare received the Infosys Prize 2015 in the category of Engineering and Computer Science. Prof. K.R. Sreenivas received Prof. Satish Dhawan Award for Young Engineers for the year 2013 and Dr. T. Govindaraju received Sir C V Raman State Award for Young Scientists for the year 2014, instituted by Karnataka State Council for Science and Technology (KSCST), Bangalore. Congratulations to all the faculty members who received awards for their outstanding work (complete list on page 5). Students have also marked their presence in national and international conferences and received best poster awards. In addition, our students have received accolades like Sheikh Saqr Student Fellowships and Gandhian Young Technological (GYTI) Award 2016 under Technological–Edge category (BIRAC–GYTI).

I am pleased to inform you that Prof. C.N.R. Rao has donated a generous amount of Rs. 75,00,000 to Education Technology Unit and Mrs. Indumati Rao has been spearheading various activities of the Unit. Our sincere thanks for their continuous support and encouragement to the Centre.

We have initiated measures to establish greater interaction between academia and industry with an objective to license our discoveries. Industry Meet at JNCASR held in the month of March 2016 was one such event towards this direction. We plan to have more such events in the near future. The visit of Shell Global R&D team and Singapore Astar team has given us an opportunity to expand our international collaborations. Hon'ble Union Minister of Science and Technology and Earth Sciences, Dr. Harsh Vardhan inaugurated the Neuroscience Building at the Centre on February 09, 2016 and addressed the faculty members. Prof. K. VijayRaghavan, Secretary, DBT also visited the Centre and had discussion with the faculty.

We continue to excel in our core programmes for science popularisation by initiating newer activities such as Festival of Science and the event organised for school children to mark 100-years of the discovery of the chemical bond. These events were successful in inculcating the joy of learning science and provided an orientation towards research to school children. Our efforts under Fellowships and Extension Programmes have been significant in popularizing science and encouraging scientists from developing countries.

I look forward to the continuation of this trend with enhanced activities in research and training in the next quarter as well.



Fig.: Inauguration of Neuroscience building by Hon'ble Union Minister of Science & Technology & Earth Sciences, Dr. Harsh Vardhan, February 09, 2016.

Prof. V. Nagaraja President, JNCASR

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## Highlights of the Events

Honorary Fellowship of JNCASR to Prof Michael L. Klein



Prof. Michael L. Klein, FRS, Temple University, Philadelphia, USA, conferred with the Honorary Fellowship of JNCASR on December 03, 2015.

Visit of Minister of Science and Technology and Earth Sciences and Inauguration of Neuroscience building



Dr. Harsh Vardhan, Hon'ble Union Minister of Science and Technology and Earth Sciences visited the Centre for an interaction with Prof. C.N.R. Rao and faculty members. He also inaugurated the Neuroscience Unit building on February 09, 2016.

Infosys Prize to Prof Umesh V. Waghmare



Prof Umesh V. Waghmare received the prestigious Infosys Prize (Engineering & Computer Science) 2015. Hon'ble President of India, Shri Pranab Mukherjee presented the prize at a function held on February 13, 2016.

Indo-Japan Conference supported by Riken-JNCASR-IISc Joint Research Centre

An Indo-Japan Conference on "Emergent phenomena in transitionmetal compounds and related materials" held on March 28-30, 2016. The conference was partially supported by RIKEN-JNCASR-IISc Joint Research Centre. Some of the topics covered in the conference were electronic and magnetic property driven emergent phenomena, such as topological insulators, spin-Hall systems, multiferroic couplings, and their possible applications based on strongly correlated and related systems and investigated employing spectroscopy, electronic structure calculations, and other advance techniques.

#### **Industry Meet**

The first ever JNCASR-Industry meeting (March 08, 2016) was held to reach out and engage with potential industry partners. One of the objectives of the meeting was to explore avenues for licensing technologies developed by the faculty, foster collaborations and invite investment for startups companies incubated by JNCASR. About forty participants from the industry attended the meeting and provided valuable feedback.

During the meet, the President, and Dean R&D addressed the delegates and highlighted the initiatives launched at the Centre. The faculty showcased recently developed technologies and highlighted their research findings. After the presentation, the delegates had detailed discussions with concerned scientists/faculty and were given a guided tour to the laboratories and facilities available on the campus.

The event provided an opportunity for the industry to become familiar with the expertise available at the Centre to leverage the knowledge generated and to strengthen the bridge between Academia and Industry.





## ACADEMIC, EXTENSION & SCIENCE OUTREACH

## Academic Activities

#### Degree Programmes

During the mid-year admissions of January 2015–16, 8 students joined under different degree programmes. The current student strength in the Centre is 305.

The advertisement regarding admissions to the M.S. (Engg./Research) and Ph.D. programmes for the August session of 2016–17 was announced on our website.

# Fellowships & Extension Programmes

#### Student Buddy Programme

A new programme was launched with the aim to expose class XI/XII students to one day in the life of a research scholar, through individual interactions. Under this programme, so far 76 students from Jawahar Navodaya Vidyalaya and Kendriya Vidyalaya have been benefitted. Detailed feedback was collected from participating students, buddies, and teachers. The response was very positive and enthusiastic. JNC faculty and students wholeheartedly participated and the programme was immensely appreciated by the school students and their teachers.

#### Visiting Fellowship Programme

For the 2015–16 session, 13 scientists from research institutions across the country were selected. They are placed in MBGU, CPMU or TSU.

## Summer Research Fellowship Programme (SRFP)

The advertisement for SRFP 2016 was announced on the JNCASR website and emailed to around 150 college principals in the country. 1681 applications were received and screening has been completed. 76 scholarships are being offered for the year 2016. Students have began to participate in the same with the beginning of their summer vacations.

#### Project Oriented Biology Education (POBE) and Project Oriented Chemistry Education (POCE)

Advertisement for POCE and POBE – 2016 was released in 7 newspapers and announced on our website. In addition, a copy of the form and information sheet was sent to over 200 college principals of small towns to expand the reach of POCE and encourage students to apply for the programme. The last date to receive the applications was 22 February 2016. The committees have screened the applications and the list of selected students will be shortly announced on the website.

Nine students of POCE-2013-15, who had completed the programme

successfully, are doing M.Sc. in different institutions in the country.

#### JNCASR-CICS (Centre for International Cooperation in Science) Fellowship Programme

Six scientists from the following countries were shortlisted under the JNCASR-CICS Fellowship Programme 2015–16: Nigeria, Uzbekistan, Ethiopia, Sri Lanka, Zambia, and Cameroon are expected to join assigned laboratories during the next one year.

# Science Outreach and Education Technology

The CNR Rao Hall of Science and Education Technology Unit organized several science outreach programmes. These outreach events include the programmes in Chemistry and Physics for students held in the month of November and December 2015 attended by more than 500 students and teachers.

The print-ready copy of the book titled Lives and Times of Great Pioneers in Chemistry (Lavoisier to Sanger) was prepared and was published by World Scientific Publishing. The Book was authored by Prof. C.N.R. Rao and Mrs. Indumati Rao. A print-ready copy of the book titled New forms of Carbon (Nanocarbons) authored by Prof.



# SCIENCE OUTREACH & INTELLECTUAL PROPERTY

C.N.R. Rao was completed which is published by the National Book Trust, New Delhi.

A 'Festival of Science' was organized on January 21–23, 2016 jointly with Parikrama, (an NGO associated with educational activities of street and slum children), where 200 children from about 40 schools participated. The theme of the festival was 'Energy'. Prof. C.N.R. Rao inaugurated the festival and addressed the gathering. Prof. S.M. Shivaprasad and Prof. Umesh V. Waghmare also delivered lectures.

A Workshop for teachers, lecturers and research scholars celebrating 100 years of Chemical Bond was organized jointly with New Chemistry Unit on January 29, 2016. Prof.

C.N.R. Rao delivered the inaugural address on 100-years of Chemical Bond: an introduction and followed by a presentation on 'A brief history of Chemistry'.

National Science Day Program was organized on February 25, 2016. The program had short talks by Prof. S.M. Shivaprasad, Prof. Chandrabhas Narayana, Prof. K.S. Narayan and Prof. K.R. Sreenivas. The chemistry experiments were performed by students and faculty members of New Chemistry Unit. Around150 students and teachers participated in the program.

A 'Special Lecture Program' was organized and conducted for 'School Chandan' students of Classes IX and X during March 22–24, 2016. These

school students came for the three-day program from Laxmeshwar, Gadag. The program had two lectures each in Physics, Chemistry and Biology followed by chemistry laboratory work at the SOP-POCE Lab. A visit to the planetarium was scheduled for the participants.

#### **Intellectual Property**

#### Patents Granted

The Centre has obtained ten patents (USA-5, Europe-2, Japan-1, Germany-1, China-1):

- 1. US Patent (No. 9037251), Chinese Patent (No. ZL201080067806.2) and Germany Patent (No. 2585015) issued for 'Artificial Retina Device' by Prof. K.S. Narayan et al.
- 2. US Patent (No. 9230708 B2) issued for 'Self assembly of naphthalene diimide derivatives and process thereof' by Dr. T. Govindaraju et al.
- 3. Japanese Patent (No. 5752852) issued for 'Manufacturing strain sensitive sensors and/or strain resistant conduits from a metal and carbon matrix' by Prof. G.U. Kulkarni et al.

Received Notice of Allowance to grant Patent for the following:

 From USPTO for 'Bulk heterojunction/electrolyte polymers as novel biocompatible photoactive multi color-sensing







technology' by Prof. K.S. Narayan et al.

- From USPTO & EPO for 'A nanosphere-histone acethyltransferase activator composition and process thereof' by Prof. T.K. Kundu et al.
- 3. From EPO for 'Inhibition of histone acetyltransferases by CTK7A and methods thereof' by Prof. T. K. Kundu et al.
- From USPTO for 'Polynucleotide sequences of candida dubliniensis and probes for detection' by Dr. Kaustuv Sanyal et al.

#### Patent Applications Filed

Four Indian Provisional Patent Applications have been filed for the inventions of:

- Dr. Ravi Manjithaya et al.,
- Prof. Eswaramoorthy Muthusamy et al.,
- Dr. Kaustuv Sanyal
- Dr. Govindaraju Thimmaiah et al.

Two International patent applications filed under PCT for 'Glycopeptides and uses thereof' and 'Glycopeptides conjugates and uses thereof' by Dr. J. Haldar et al.

Five National Phase Applications (USA-1, Europe-1, Canada-1, Australia-1, South Korea-1) have been filed for 'Vancomycin-sugar conjugates and uses thereof' by Dr. J. Haldar et al.

# New Appointments / Promotion

#### New Appointments

#### Faculty Fellow

Dr. Diwakar S Venkatesan (EMU)

#### Chairman, CPMU

Prof. Chandrabhas Narayana

#### **Associate Faculty of CCMS**

Dr. Meher Prakash, TSU

#### **Visiting Scientists**

Prof. Garry Brown

Dr. Ritu Kataky

Dr. Kurshed A Shah

Dr. Rick C Remsing

Dr. Maben Rabi

Dr. Henu Sharma

#### **Visiting Students**

Mr. Jorge Ontaneda

Mr. Yuki Kitamura

Ms. Amreen Bano

Mr. Bel Haj Salah Selim

Ms. Beatrice Cogliati

Ms. Giulia Belladelli

Ms. Sinthika Selvaraj

Ms. Manjodh Kaur

#### Research Associate

Dr. Shilpee Sharma

Dr. K V Jagannath

Dr. Mayurbhai Sahani

Dr. Laxmi Shanker Rai

Dr. Satyanarayana Bonakala

Dr. Sandhya Rai

Dr. Udumula Subbarao

Dr. Soumalya Joardar

#### Research Associate (P)

Mr. Nikhil K L

Ms. Pallavi Bothra

#### Promotion

#### **Professor**

Prof. M. Eswaramoorthy

# Awards & Recognitions

#### Prof. C.N.R. Rao

Honorary Doctor of Science from Institute of Liver and Biliary Sciences (ILBS), New Delhi

Honorary Doctor of Engineering from National Cheng Kung University, Tainan, Taiwan.

Corresponding Member of Australian Academy of Sciences.

Kanbirkar Award 2016 of Shivaji Univeristy, Kolhapur.

Honoris Causa Doctorate of Science of D.Y. Patil University, Pune.

Honoris Causa Doctorate of Science of IIT Kanpur.

#### Prof. Roddam Narasimha

Guru Shreshta - 2015 from the Institution of Engineering and Technology, September 15, 2015. Distinguished Alumnus in the Global Alumni Meet of University of Mysore Alumni Association on February 06, 2016.

#### Prof. K.R. Sreenivas

Prof. Satish Dhawan Award for Young Engineers for the year 2013.

#### Dr. T. Govindaraju

Sir C V Raman State Award for Young Scientists for the years 2014 Member of Board of Scientific Advisors of Bioorganics & Applied Materials Private Limited.





### Prof. Chandrabhas Narayana and Prof. Srikanth Sastry

Sheikh Saqr RAK-CAM Senior Fellowships.

#### Dr. Rajesh Ganapathy and Dr. Ranjani Viswanatha

Sheikh Sagr Career Award Fellowships.

#### Mrs. Indumati Rao

Fellow of the National Academy of Sciences, Allahabad.

#### Prof. Tapas Kumar Kundu

Vice President of Society of Biological Chemists (India).

Visiting Professor in the Department of Biological Science, Indian Institute of Science Education and Research, Kolkata, 2015.

Received the G.P. Chatterjee Memorial Award for 2015–2016, awarded by the Indian Science Congress Association, Ministry of Science and Technology, Govt. of India. Presented at the 103rd Indian Science Congress, January 2016.

#### Dr. Santosh Ansumali

Outstanding Referee 2016 of the American Physical Society journals.

#### Dr. Sebastian C. Peter

Material Research Society of India Medal (2016).

Member of Indian National Young Academy of Science.

#### Dr. Kanishka Biswas

Emerging Investigator 2015 in inorganic chemistry by Inorganic Chemistry Frontiers, Royal Society of Chemistry (RSC).

National Academy Sciences (NASI) – Young Scientist Platinum Jubilee Award, 2015 in Chemical Sciences. Young Scientist Research Award, DAE-BRNs, India (2015).

## Awards received by the Students

#### Sheikh Sagr Student Fellowships

Ph.D. students (research supervisor: Prof. C.N.R. Rao): Mr. S.R. Lingampalli (NCU), Mr. K. Gopalakrishnan (CPMU), Ms. Sunita Dey (CPMU) and Mr. Uttam Gupta (CPMU).

Mr. Divakara S.S. Murthy Uppu, (Ph.D. student, research supervisor: Dr. Jayanta Haldar, NCU) – Gandhian Young Technological (GYTI) Award 2016 under Technological-Edge category (BIRAC-GYTI), December 13, 2015.

Mr. Piyush Chaturbedy (Research Associate, CPMU; supervisor: Prof. M. Eswaramoorthy) has received ACS Chemical Biology Best Poster Award in International Symposium on Chemical Biology and Drug Discovery at Kolkata during March 1–3, 2016.

**Ms. Ananya Mishra** (Ph.D. student, NCU; research supervisor: Dr. Subi George) was awarded best poster prize in the 18th CRSI National Symposium in Chemistry at Chandigarh during February 5–7, 2016.

# Lectures & Meetings

**Special Lecture:** Surface Nanobubbles and Nanodroplets, Prof. Detlef Lohse, Department of Applied Physics, University of Twente, The Netherlands, December 04, 2015.

**The fifth Annual Sheik Saqr Materials Lecture** delivered by Prof. Andrew I. Cooper, University of Liverpool, UK, December 5, 2015.

**The Eighth International Materials Lecture** delivered by Prof. Anthony K.
Cheetham, FRS, University of Cambridge,
December 10, 2015.

**Darwin Lecture** (5th in the Series): Why is there so much genetic variation?, Prof.

Nick Barton, Institute of Science and Technology Austria, January 25, 2016.

**6**<sup>th</sup>**Annual Chemistry Lecture:** Molecular Design of Cellular Transporters, Prof. Santanu Bhattacharya, Indian Association for the Cultivation of Science (IACS), Kolkata, February 12, 2016.

**Prof. M. K. Chandrashekaran Memorial Lecture:** M.K. Chandrasekharan: development of his legacy as time goes by, Prof. David Lloyd, Cardiff School of Biosciences, University of Cardiff, UK, February 05, 2016.

**ISRO Satish Dhawan Lecture** (Fifteenth in the series): Lessons from information technology industry and a research agenda, Mr. Kris Gopalakrishnan, Cofounder and former CEO, MD of Infosys, February 24, 2016.



In figure above: Mr. Kris Gopalakrishnan, speaker of ISRO Satish Dhawan Lecture, with Prof. C.N.R. Rao and Prof. V. Nagaraja, February 24, 2016 at Kannada Auditorium, JNCASR.

A.V. Rama Rao Foundation Lectures in Chemistry: Intramolecular Electronic Coupling at the mixed valent states: fact or fiction, Prof. G.K. Lahiri, Chemistry Department, Indian Institute of Technology Bombay, Powai, Mumbai; Prize lecture: Natural products synthesis: efficient methods and innovative strategies, Prof. C.V. Ramana, Division of Organic Chemistry, CSIR-National Chemical Laboratory, Pune, May 04, 2016.





#### Fluid Dynamics Colloquia

Investigation of some aspects of the structure of turbulent shear flows and flow stability, Dr. Sourabh Suhas Diwan, Flow Control Research Group, Department of Aeronautics, Imperial College London, UK. November 06. 2015.

Rapid growth of large aggregates by correlated coalescences in turbulent flow, Dr. Jeremie Bec, Laboratoire Lagrange Observatoire de la Cote d'Azur, France, January 11, 2016.

Nanomechanics of Soft Interfacial Materials, Dr. Prathima Nalam, Department of Civil and Environmental Engineering, University of Illinois, Urbana – Champaign, January 12, 2016.

Many-body hydrodynamic forces and torques between active colloids, Prof. Ronojoy Adhikari, Institute for mathematical sciences, Chennai, January 19, 2016.

Plastic Events in Soft Glasses, Prof. Roberto Benzi, University of Rome, Italy, January 21, 2016.

Axially homogeneous turbulent convection at high Rayleigh numbers: scaling laws for flux and spectra, Mr. Shashikant Pawar, Department of Mechanical Engineering, Indian Institute of Science (IISc), Bangalore, February 17, 2016.

Spherical Squirmers – models for swimming micro-organisms, Prof. T. J. Pedley, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK, February 18, 2016

## Workshop / Conference / Winter School

Winter School 2015, December 07-11, 2015.

TWAS Regional Conference of Young Scientists on Frontier in Scientific Research, December 21 – 22, 2015.

Workshop for Teachers, Lecturers and Research Scholars on "100 Years of Chemical Bond", January 29, 2016.

#### **Seminars**

#### **CPMU Seminars**

Light- Matter Strong Coupling: A Molecular Perspective, Dr. Jino George, Laboratoire des Nanostructures ISIS, Universite de Strasbourg France, January 07, 2016.

Penta-graphene – New Carbon Allotropes Predicted by Ab-initio Simulations, Prof. Yoshiyuki Kawazoe, New Industry Creation Hatchery Center, Tohoku University, Japan, January 11, 2016.

Nanomagnetism:From materials to medicine and information, Prof. Kannan M. Krishnan, University of Washington, USA, January 11, 2016.

Probing the 3D (P-T-H) phase diagram of heavy fermion systems, Prof. Daniel Braithwaite, IMAPEC, Institute for Nanosciences and Cryogenics, France, January 13, 2016.

#### **MBGU Seminars**

The Viral determinants of HIV pathogenesis, Dr. Vinayaka R. Prasad, Department of Microbiology and Immunology, AECOM, Yeshiva University, USA, November 06, 2015.

Mathematical Immunology: an introduction, Dr. Carmen Molina-Paris, School of Mathematics, University of Leeds, UK, November 20, 2015.

How impaired nucleocytoplasmic glycosylation leads to an arm for a leg, Dr. Daniel Mariyappa, College of Life Sciences, University of Dundee, UK, December 22, 2015.

Mechanically activated Piezo1 ion channels: characterization of the pore domain, and their link to hereditary xerocytosis, Dr. Swetha Murthy, Patapoutian Lab, Department of Molecular & Cellular Neuroscience, The Scripps Research Institute, Howard

Hughes Medical Institute, USA, January 08, 2016.

General cell-cycle lessons from single-cell profiling of mouse embryonic stem cells, Dr. Kedar Natarajan, European Bioinformatics Institute, UK, March 10, 2016.

Understanding CFTR: From Macromolecular Complexes to Personalized Medicine, Dr. A. P. Naren, Cincinnati Children's Hospital Medical Center, Cincinnati, USA, March 15, 2016.

Dissecting the mechanisms of spindle positioning in animal cell, Dr. Sachin Kotak, Department of Microbiology and Cell Biology (MCB), Indian Institute of Science (IISc), Bangalore, March 31, 2016.

#### **NSU Seminars**

Topology and Transport in Periodically Driven Systems, Dr. Arijit Kundu, Haifa, Israel, November 17, 2015.

Gene network based drug discovery for neurological disorders, Dr. Prashant Kumar Srivastava, Division of Brain Sciences, Department of Medicine, Imperial College London, UK, December 04, 2015.

Synaptic tagging mechanism and the role of Synaptotagmin 3 on learning and memory, Dr. Ramachandran Binu, Trans Synaptic Signaling European Neuroscience Institute (ENI), Germany, December 18, 2015.

Mitochondrial (dys)function in neuromaintenance and neurodegeneration, Dr. Manish Jaiswal, Howard Hughes Medical Institute, Department of Molecular and Human Genetics, Baylor College of Medicine, USA, January 04, 2016.

Novel genetic approaches to explore neural stem cell homeostasis, Dr. Sonal Nagarkar-Jaiswal, Howard Hughes Medical Institute, Department of Molecular and Human Genetics, Baylor College of Medicine, USA, January 05, 2016.





Glial Cells as Architects of Neural Circuit Assembly and Function in the CNS, Dr. Sandeep Singh, Department of Cell Biology, Duke University Medical Center Durham, USA, February 18, 2016

Maturation and electrophysiological properties of human pluripotent stem cell-derived neurons and oligodendrocytes, Dr. David Wyllie, Centre for Integrative Physiology, University of Edinburgh, UK, March 11, 2016.

Tales of feigned death and multilevel feedback, Dr. Joby Joseph, Center for Neural and Cognitive Sciences, University of Hyderabad, March 11, 2016.

If we can make computers play chess, why can't we make them see?, Dr. Arun Sripati, Centre for Neuroscience, Indian Institute of Science (IISc), Bangalore, April 29, 2016.

#### **TSU Seminars**

Dynamic Nuclear polarization and the paradox of Quantum thermalization, Prof. Alberto Rosso, University of Paris Sud, France, November 03, 2015.

Topology and Transport in Periodically Driven Systems, Dr. Arijit Kundu, Technion, Haifa, Israel, November 17, 2015.

Probing condensed phase dynamics using plasma-driven ultrashort pulses, Dr. Krupa Ramasesha, Combustion Research Facility, Sandia National Laboratories Livermore, USA, December 23, 2015.

Dots for Everyone, Prof. R. Shankar, Yale University, USA, January 06, 2016.

Hamiltonian Theory of Fractional Chern Bands, Prof. R. Shankar, Yale University, USA, January 07, 2016.

Penta-graphene - New Carbon Allotropes Predicted by Ab-initio Simulations, Prof. Yoshiyuki Kawazoe, New Industry Creation Hatchery Center, Tohoku University, Japan, January 11, 2016.

From quantum transport to non-

equilibrium dynamics: quantum simulations with ultra-cold atoms, Dr. Bodhaditya Santra, Fachbereich Physik, TU Kaiserslautern, Germany, January 12, 2016.

Mutations, Immune Checkpoint Therapy and Personalized Medicine, Dr. Gyan Bhanot, Rutgers University, USA, January 13, 2016.

Solids and fluids at interfaces: Novel simulation techniques, Prof. Jurgen Horbach, Institute for Theoretical Physics II- Soft Matter, University of Dusseldorf, Germany, January 19, 2016.

First–principles study of  $V_2O_5$  polymorphs as cathode materials for Mg (and multivalent) batteries, Mr. Sai Gautam Gopalakrishnan, Department of Materials Science and Engineering, Massachusetts Institute of Technology, February 19, 2016.

Shear-reversal simulation of dense supercooled melt: rheology, microstructure and puzzles, Dr. A.K. Bhattacharjee, Department of Physics, Indian Institute of Science (IISc), Bangalore, March 29, 2016.

#### Other Seminars

Predicting Self-assembly in NanoMaterials, Prof. Jordi Faraudo, Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC), Spain, February 10, 2016.

Coping with stress in academia, Prof. Nalini Dwarakanath, CCS, Indian Institute of Science (IISc), Bangalore, February 25, 2016.

Nature Inspired Computational Architectures, Dr. Saurabh K. Bose, University of Canterbury, New Zealand, April 13, 2016.

#### Discussion Meetings

Discussion Meeting on Emergent Phenomena in Soft and Active Matter: Variations on the Coffee Ring Effect: Shape Dependent Capillary Interactions, Prof. Arjun Yodh, University of Pennsylvania, USA, January 05, 2016.

Two day meeting on Organismal Biology held at JNCASR, during February 4-5, 2016 organised by Prof. Vijay Kumar Sharma, EOBU.

#### Hindi Workshop

Two workshops in Hindi were organized on December 18, 2015 and March 28, 2016 respectively. The workshops aimed to teach fundamentals of the language for oral and written communication.

#### Forthcoming Events

Prof. V. Ramalingaswami Memorial Lecture, July 19, 2016.

C.N.R. Rao Oration Award Lecture, August 16, 2016.

D.A.E. Raja Ramanna Lectures in Physics: Speaker: Prof. Gopa Kumar, Director, ICTS (TIFR), Bangalore; Speaker of Prize Lecture: Dr. S.M. Yusuf, Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, September 28, 2016.

# Annual Faculty Meeting

Annual Faculty Meeting is scheduled to be held on November 11, 2016, followed by In-house Symposium on November 12.