



Issue - 40  
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Jawaharlal Nehru Centre for Advanced Scientific Research

Jakkur P.O., Bangalore-64

(A Deemed University)

# JNCASR

# NEWS

Dear Colleagues,

We are extremely happy that Prof. Roddam Narasimha has been awarded the Padma Vibhushan, one of the most prestigious civilian awards of the country. It is also a matter of great honour for the Centre that our faculty colleagues have been receiving recognition from several organisations in various domains of research. Moreover, it is also heartening to see that our students have also been achieving accolades for some of their research findings.

We are also extremely proud that Prof. C.N.R. Rao's H-Index has crossed 100, a unique distinction for an Indian scientist.

The Centre has received a US patent contributed by Prof. Eswaramoorthy Muthusamy and Dr. Saikrishna Katla for a recent invention, thereby we continue to register our innovations at national and international levels.

The Centre has constantly moved towards newer areas of research and in this direction, a Neuroscience Programme is expected to become operational shortly.

As we are heading towards the 25th Year of establishment of the Centre, let us hope that our combined efforts will take us to the next higher level of research accomplishments.

M.R.S. Rao



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## From The Editor's Desk

This edition of the newsletter highlights some of the activities of the JNCASR scientific community. We are happy to bring to your notice that over the past months several of our colleagues have been recognized for their contributions to scientific research in the country. Of special importance is the news of Prof Roddam Narasimha being awarded the country's prestigious 'Padma Vibhushan'. The Chinese Academy of Sciences has conferred its Professorship felicitated Prof. C.N.R. Rao with 2013 Award for International Cooperation. You will find that several of our faculty colleagues have been awarded visiting Fellowships or Professorships from Indian and International scientific bodies while others have been selected as Editorial board members of high impact peer-reviewed journals.

Some results emerging from the collaborative studies of our students and faculty have appeared in journals of high international repute. A major infrastructural expansion

has occurred at ICMS with the procurement of the Superconducting Quantum Interference Device (SQUID) along with the establishment of the RIKEN-JNCASR-IISc collaboration.

This year also various extension programmes of the centre received large number of applications among which the most meritorious applicants were chosen. Students who have completed the programme from previous years were awarded Diploma Certificates.

We also bring to your attention that National Science Day was celebrated at the CNR Rao Hall of Science with the enthusiastic participation of school students and teachers who were invited to a series of lectures on various topics by faculty of the Centre. The 'Program in Chemistry for students' organised by ETU on December 5 2013 had chemists of international repute Prof EW Meijer, Prof MI Klein and Prof CNR Rao interacting with college students and teachers.

## Academic Activities

The advertisement for the Mid-year Research admissions 2012-13 was announced on our website. Seven students joined the Centre following which the total student strength has reached 273. The advertisement for admission to the Integrated Ph.D., Ph.D. and M.S. programmes 2013-14 session was released in all the prominent national and regional newspapers and announced on our web site. The screening processes have begun and interviews and written tests will be held between May 15 and June 15, 2013 for all the degree programmes of the Centre.

Apart from the regular Ph.D. and M.S. degree programmes, the Centre conducts the following short-term academic programmes:

### (a) Postgraduate Diploma in Science Education (PGDSE)

Three students who joined the August 2012-13 session will be completing their course requirements by July 2013.

### (b) Postgraduate Diploma in Materials Science (PGDMSc)

The Centre, on behalf of ICMS (International Centre for Materials Science) has admitted one student during the mid year session of 2011-12, another student for 2012-13.

## FELLOWSHIPS AND EXTENSION PROGRAMMES

### (a) Visiting Fellowship Programme

Since 2006, 69 fellowships were offered of which and 52 have availed and completed the programme successfully. Eight candidates have been selected to the Visiting Fellowships Programme 2012-13 under the Physical Sciences category and two under the Biological Sciences category.

### (b) Summer Research Fellowship Programme (SRFP)

The advertisement for SRFP 2013 was released in eight major newspapers and announced on JNCASR website. 1707 applications were received. 73 students were selected and are being offered SRFP fellowships this year. JNC faculty will act as guides to 49 SRFP students; and 10 fellows have been accepted by faculty from NCBS and IISc. 14 other summer fellows have been allotted faculty supervisors at various institutions outside Bangalore.

### (c) Project Oriented Chemical Education (POCE)

Nineteen students of POCE batches of 2010-12 and 2011-13 have worked under different faculty members on various research projects. Nine students who successfully completed POCE-2010-12 program were awarded Diploma in Chemistry.

Out of nine students who had completed POCE programme, one student - Promit Ray has joined JNCASR for the M.S.-Ph. D. programme, two students are doing M.S. in U.S.A./Germany, whereas six other are pursuing their studies at academic institutions in India.

Mr. Promit Ray was also awarded the “Best POCE 2010-12 student award” donated by CNR Rao Education Foundation. Ms. Amritha Rangarajan, student of the POCE batch of 2008-10 has joined JNCASR for M.S. (Engg.) programme.

Advertisement for the year 2013-15 programme was released in January in 10 leading Indian newspapers. 10 candidates have been selected and joined on 13 May 2013.

#### (d) Project Oriented Biological Education (POBE)

POBE batches of 2011 and 2012 will return for their training under EOBU and MBGU faculty of the Centre during May 2013 along with the new batch of students for this year.

Eight POBE students of 2010 batch received their Diploma certificates in Biology. Many of them are pursuing their M.S. at institutions in India and abroad. One student from the POBE batch of 2010 has joined JNCASR under the M.S.-Ph.D. programme offered by the Evolutionary and Organismal Biology Unit.

With the release of advertisement for the programme for 2013-15, 10 candidates have been selected and the programme began on 13 May 2013.

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

This Fellowship programme is jointly instituted by the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) Bangalore and the Centre for International Cooperation in Science (CICS), Chennai to encourage mobility of scientists from developing countries. CICS is a Unit of the Indian National Science Academy (NISA), supported by the Department of Science & Technology, New Delhi. This programme aims to promote co-operation among developing regions.

Two Fellows selected for the year 2009-10 have been given certificates on successful completion of their 3 month training programme in India. Four Fellows has been given certificates for the year 2010-11. One Fellow has been awarded certificate for the year 2011-12.

The JNCASR-CICS Fellowship Committee met during December 2012 for the selection of Fellowships for the year 2012-13. The Fellowships were awarded to eight candidates from Nigeria, Yemen, Bangladesh and Armenia.

#### NATIONAL SCIENCE DAY

The Centre celebrated National Science Day on February 28, 2013. On this day, a series of lectures were organised at Prof CNR Rao Hall of Science for students and teachers from different schools from Bangalore. There was enthusiastic participation of around 200 students from four schools with teachers and students actively engaging with the scientists after every lecture.

#### SCIENCE OUTREACH ACTIVITIES

CNR Rao Hall of Science-ETU-SOP had conducted four two-day workshops on “Experiments using College Chemistry Kit” for the P. U. Sc. Students (of Govt. College, Brahmavar, Govt. P. U. College Udupi, S. V. P. U. Sc. College, Vidyanagar, Swami Vivekananda Rural P. U. College Aaneikal, Swami Vivekananda Youth Movement, Mysore, Maharani Govt. College, Mysore). On completion of the workshop, one Chemistry Kit was donated to each college for future use.

The 'Program in Biology for students' was conducted on November 30, 2012 by ETU and the CNR Rao Hall of Science. All speakers were from NIMHANS, Bangalore. On December 4, 2012 a special lecture program was conducted by ETU and the CNR Rao Hall of Science for the students participating in the Regional Children Science Congress organized by Jawahar Navodaya Vidyalaya. This half-day lecture program had a lecture each in Physics, Chemistry & Biology by faculty of the Centre. On December 5, 2012 a 'Program in Chemistry for students' was organized in which lectures were delivered by Prof. E.W. Meijer, Prof. M.L. Klein and Prof. C.N.R. Rao. Around 225 students and teachers attended the program.

#### INTERNATIONAL CENTRE FOR MATERIALS SCIENCE (ICMS)

ICMS has expanded its infrastructure by installing sophisticated equipments like Superconducting Quantum Interference Device (SQUID), Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES), UV Spectrometer, Photoluminescence Spectrometer (PL), etc.

ICMS has conducted 5 seminars since November 2012. The latest seminar was delivered by Prof. Veerabhadran Ramanathan, Distinguished Professor of Climate Sciences, Scripps Institution of Oceanography, University of California at San Diego, UNESCO Professor of Climate and Policy, TERI University, New Delhi, on Climate Change, “From Science to Policy and Actions in the Field”, February 13, 2013.

Nine scientists have visited ICMS under its short-term visitors' programme. Two have visited under the Sheikh Saqr Laboratory (SSL) project. One student graduated under the two semesters (one year) Post Graduate Diploma in Materials Science programme. One student is currently enrolled.

ICMS has recently become part of a Riken-JNCASR-IISc collaboration.

## Intellectual Property Rights

The Centre has obtained one US Patent (No. 8404280) for the invention 'A Template Free, Polymer Free Metal Nanosponge and a Process Thereof' developed by Prof. Eswaramoorthy Muthusamy and Dr. Saikrishna Katla.

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

(1) Prof. G.U.R. Kulkarni, K.D.M. Rao, R. Gupta, B. Radha, S. Kiruthika

(2) Dr. R. Viswanatha, A. Saha, Prof. K.S. Narayan, K.V. Chellappan

(3) Dr. J. Haldar, C. Ghosh, G.B. Manjunath, P. Akkapeddi

International Patent Applications under PCT have been filed for the inventions viz. (1) 'An organic solar cell and methods' thereof developed by Prof. K.S. Narayan and A.J. Das, and (2) 'Cationic Antibacterial Composition' developed by Dr. J. Haldar, Y. Venkateswarlu, A. Padma

US Patent Applications have been filed for the inventions viz.'

(1) Solvent-free Oxidation of Toluene By Nanoparticles of Cd and Zn Peroxides under favourable operating conditions' developed by Prof. C.N.R. Rao, Dr. U.K. Gautam, S.R. Lingampalli, and

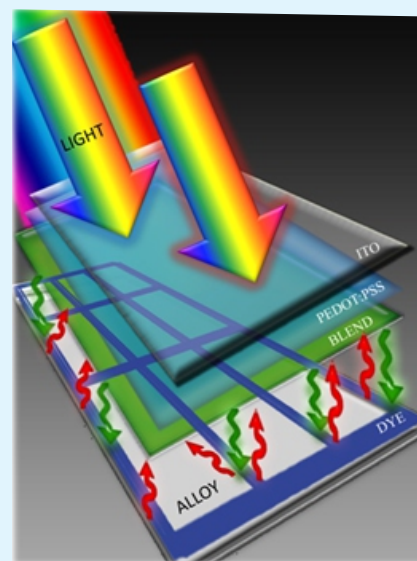
(2) Vector, vector combinations, methods and kit thereof developed by Prof. Ranga U. A European Patent Application has also been filed for this invention.

Thumbnail image of graphical abstract: A light harvesting device geometry is implemented for polymer solar cells that retain efficiency when the device area is scaled up.

Invention: An organic solar cell and methods thereof

Inventors: Prof. Kavassery Sureswaran Narayan and Anshuman Jyothi Das

International Patent Application No. PCT/IB2012/056338



### PROMOTIONS

#### Professors

Prof. A. Sundaresan  
Prof. Meheboob Alam

#### Associate Professor

Prof. N.S. Vidhyadhiraja

### NEW APPOINTMENT

#### Faculty Fellow

Dr. James Premdoss Clement Chelliah  
(for the Neuroscience Programme)

#### Adjunct Professor

Dr. Raju V. Ramanujan,  
Nanyang Technological University - ICMS

### SHORT-TERM APPOINTMENTS

#### Visiting Scientists

Prof. Laurence D Mueller  
Dr. Kamaljit Singh  
Dr. Vijayakumar K Chikkadi  
Prof. J.M. Lindsay  
Prof. Euijeon Woo  
Dr. Priya Sharma  
Dr. Giacomo Fiorin  
Dr. Kishore Kumar  
Dr. Mohd. Ikram  
Dr. Jagaran Acharya  
Dr. Yaogan Mensah

#### Visiting Scholars

Mr. Deepak P  
Ms. Purabi Deshpande  
Mr. Rajiv Kumar Chouhan  
Mr. Ushie Onumeshi Afi  
Ms. Newayemedhin Aberra  
Mrs. Shruti Nambiar  
Mr. K. Sakthipandi  
Mr. Nurapati Pantha

#### Research Associates

Dr. Manjira Ghosh Kumar  
Dr. Mamata Mishra  
Dr. Sadhan Chandra Das  
Dr. Somnath Mandal (DBT)  
Dr. Sujata Kumari  
Dr. Shahnaz Rahaman Lone  
Dr. Kaustubh Vaze  
Dr. Aarthi Sekaran  
Dr. Shailendra Kumar Singh (NBHM)  
Dr. Pratheesh V Nair  
Dr. Bipul Rakshit (DST)  
Dr. K.Vasu (DST)  
Dr. Dipsikha Bhattacharya (DST)

#### Research Associates (Provisional)

Mr. Laxmi Narayan Mishra  
Mr. Abhishek Sinha  
Ms. Mitali Bhattacharjee  
Mr. Shaji Varghese  
Mr. Suman Majumder  
Mr. Abhinav Kumar

## AWARDS & RECOGNITIONS

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

- 2012 Award for International Cooperation by The Chinese Academy of Sciences.
- Academy Professor, Academy of Scientific & Innovative Research 2013.

### Prof. Roddam Narasimha

- Padma Vibhushan (Govt. of India)
- Year-of-Science Professorship, DST, Govt. of India
- Semi-annual lecture series titled 'The Roddam Narasimha Distinguished Seminar Series', instituted at IIT Gandhinagar out of an endowment made by Prof. A. V. Anilkumar, Vanderbilt University, USA. The first lecture in the series was given on 16 April 2013.
- Hon. Distinguished Professor, ISRO
- Academy Professor of AcSIR (Academy of Scientific and Innovative Research)

### Prof. K. VijayRaghavan

- Appointed as Secretary to Department of Biotechnology, Govt. of India.

### Prof. Shobhana Narasimhan

- Indo-Australia Senior Scientist Visiting Fellowship for the year 2012-2013 by INSA.

### Prof. Vijay Kumar Sharma

- Elected as Fellow of the Indian National Science Academy, New Delhi, 2013.

### Prof. S.M. Shivaprasad

- Dr. Raja Ramanna Science and Technology Award for Science and Education (2011) from Karnataka State Council for Science & Technology.

### Prof. Tapas K Maji

- Selected for the NASI-Scopus Young Scientist Award for the year 2012 in Chemistry

### Prof. Meheboob Alam

- C. N. R. Rao Oration Lecture Award (2013)
- Visiting Professorship Award (2013), by Yukawa Institute for Theoretical Physics, Kyoto University, Japan

### Dr. Jayanta Haldar

- Editorial Board Member of the Journal 'Microbial Pathogenesis', Elsevier

### Dr. Ranjan Datta

- Editorial board member of 'Journal of Solid State Physics', Hindawi Publishing Corporation

### Dr. Kanishka Biswas

- Editorial Board Member of the Journal 'Materials Science in Semiconductor Processing', Elsevier.

## AWARDS RECEIVED BY STUDENTS

- Ms. Sharmila Narendra Shirodkar, (Ph.D. student, Materials Theory Group, TSU) receives "The Malhotra Weikfield Foundation - Bangalore Nano Young Scientist Award".
- Mr. M. Shivaprasad (Ph.D. student, Bioorganic Chemistry Lab, NCU) awarded "Best Poster" prize at Chennai Chemistry Conference (CCC 2013).
- ACS Chemical Biology recognizes Mr. Dhanasekaran Karthigeyan (Ph.D. student, Transcription & Disease lab, MBGU) for "best poster" presented in the "International Symposium on Challenges in Chemical Biology-2013".
- Mr. Yarlagadda Venkateswarlu (PhD student, Bioorganic and Medicinal Chemistry Laboratory, NCU) was awarded best poster award in the International Conference on "Current Trends in Drug Discovery Research-2013" (CTDDR-2013).
- M. B. Avinash's (Ph.D. student, Bioorganic Chemistry Laboratory, NCU) work on "Self-cleaning functional molecular material" has been appreciated with "Gandhian Young Technological Innovation Award" under "SRISTI Technological Edge/Strategic Innovation" category at Indian Institute of Management -Ahmedabad (IIM-A).
- Mr. Rana Saha (ICMS) has been awarded RAK-CAM Sheikh Saqr Junior Fellowship.

## LECTURES & MEETINGS

### COLLOQUIUM

The elastic and elastocapillary Landau-Levich problem, Dr. Harish Dixit, Post-doctoral scholar, The University of British Columbia, April 10, 2013.

### ENDOWMENT LECTURES

**A.V. Rama Rao Lectures in Chemistry:** Computational Chemistry: From Molecules to Functional Materials,

Speaker: Dr. Sourav Pal, NCL, Pune; Prize Lecture: Supersonic Experimental Techniques: Defining Hydrogen Bond and Reducing Ignition Delay, Speaker: Dr. E Arunan, IPC, IISc, April 29, 2013.

**M.K. Chandrasekaran Memorial Lecture:** Rhythms in time and space, Prof. Anders Johnsson, Department of Physics, Faculty of Natural Science and Technology, Norwegian University of Science and Technology, Trondheim, Norway, January 9, 2013.

## SPECIAL LECTURES

**IPR Lecture:** Patent Laws and Its Importance to Scientific Research, Prof. Srividhya Ragavan, Professor of Law, University of Oklahoma College of Law Norman, OU, USA, March 26, 2013.

**Sheikh Saqr Materials Lecture:** Heusler compounds: From semiconductors to spintronics, Prof. Claudia Felser, Director, Max Plank Institute Johannes Gutenberg University of Mainz, Mainz, December 3, 2012.

**Annual Materials Lecture:** Materials at Interfaces: Anatomy and Physiology of Soft Adhesion, Prof. Ashutosh Sharma, Department of Chemical Engineering, IIT, Kanpur, April 08, 2013.

## DISCUSSION MEETINGS

1. Fourth International Advisory Board meeting, ICMS, December 3, 2012.
2. International conference on Design of Biomaterials (BIND-12)", IISc, December 9-11, 2012
3. International conference on "Operator Algebras in Nonequilibrium Statistical Mechanics" at Bambolim Beach Resort, Bambolim, Goa, December 17-21, 2012
4. Indo-US Workshop on "Advanced and Nano-Structured Materials", JNCASR, January 21-22, 2013.
5. Annual Conference of the molecular Immunology Forum (MIF), JNCASR, January 17-19, 2013.
6. Visit of Royal Society of Chemistry to ICMS as a part of Road Show on February 6, 2013.
7. Funding and Related Opportunities from ERC, Prof. Donald Dingwell, Secretary General, European Research Council Meeting, March 12, 2013.
8. Bangalore Evolution Group Meeting, Dr. Kavita Jain, April 25, 2013.
9. Update on Cell Sorting Applications and BD Facsaria<sup>TM</sup> Users Meet, BD-JNCASR Centre for Advanced Learning in Flow Cytometry Forum, April 26, 2013.

## SYMPOSIA / WORKSHOPS

1. Indo-Taiwan Workshop on Nanodevices, November 26 - 27, 2012.
2. Winter School on "Chemistry and Physics of Materials" with University of Cambridge, UK, and RAK-CAM, December 3-8, 2012.
3. EOBUSymposium, January 9-10, 2013.
4. Workshop on SQUID magnetometry, Prof. A. Sundaresan, CPMU, JNCASR, Bangalore, January 23, 2013
5. JNCASR-RMIT Workshop, January 28-29-01-2013.
6. Indo-Australia Joint Workshop, January 28-29, 2013.

7. Indo-Israel Conference, January 30-31, 2013.

8. Indo-Israel Meeting, February 4-5, 2013.

9. Indo-Canadian symposium on Nano-Science and Technology ICSNST-2013, Mysore, February 20-22, 2013.

10. FACS Aria Workshop, April 22-24, 2013.

## SEMINARS & LECTURES

1. Are mosquitoes in disease "hot-spots" more efficient vectors? Insights on spatial variation in disease resistance and tolerance in a natural vector-parasite system, Dr. Guha Dharmarajan, Ramanujan Fellow, IISER Kolkata, November 8, 2012.
2. The spatial and temporal dynamics of elephant social networks, Dr. Shermin de Silva, Colorado State University, November 17, 2012.
3. How do you publish in PRL? Why should you?, Dr. Samindranath Mitra, Editor, Physical Review Letters, American Physical Society (APS), November 8, 2012.
4. Guided Self-Assembly of Soft Matter Systems for Membrane Applications, Manesh Gopinadhan, Yale University, November 23, 2012.
5. Tissue Repair and Regeneration, Prof. David Leavesley, Faculty of Health, Queensland University of Technology, Australia, November 26, 2012.
6. Thio-and selenocarbonyls: from Fundamentals to Functional Molecules, Prof. Toshiaki Murai, Faculty of Engineering, Gifu University, Japan, November 26, 2012.
7. A Novel Regulatory Role of Protein S in Thrombosis and Hemophilia, Dr. Rinku Majumdar, Department of Biochemistry and Biophysics, University of North Carolina, Chapel Hill, USA, December 4, 2012.
8. New functions for BLM and RECQL4 helicases during neoplastic transformation., Dr. Sagar Sengupta, NII, New Delhi, December 6, 2012.
9. Amyloid beta peptide oligomers in Alzheimer's disease, Dr. Vijay Rangachari, University of Southern Mississippi, Hattiesburg, December 6, 2012.
10. Journeys with Macrobicyclic Cryptands, Prof. Parimal K. Bharadwaj, Department of Chemistry, IIT Kanpur, U.P., India, December 10, 2012.
11. Epigenomics of Cellular Differentiation: Discovering Fundamental Principles of Transcriptional Regulation, Dr. Vijay Tiwari, Institute of Molecular Biology gGmbH (IMB), Mainz, Germany, December 10, 2012.
12. Epigenetic Mechanisms of Mitochondrial Retrograde Signaling and Regulation of Telomere Function, Prof. Narayan G. Avadhani, Department of Animal Biology, University of Pennsylvania, December 12, 2012.
13. Efflux pumps in clinical drug resistance, Prof. Rajendra Prasad, School of Life Sciences, Jawaharlal Nehru

- University, New Delhi, December 13, 2012.
14. Reentrant Glass Transition(s?) in Colloidal Ellipsoids and Directional Grain Growth in Sheared Polycrystals, Dr. Rajesh Ganapathy, ICMS, JNCASR, Bangalore, December 18, 2012.
  15. Understanding Early Steps in DNA Mismatch Repair, Prof. Eric Alani, Cornell University, USA, December 24, 2012.
  16. Taste detection and behavior in Drosophila, Dr. Sunanda Marella, Stanford University, Stanford, USA, December 28, 2012.
  17. Does nanotechnology really help, for higher thermal-electrical conversion efficiency, in thermoelectric materials?, Prabhakar Bandaru, Departments of Mechanical and Aerospace Engineering, Electrical Engineering, and Physics, at UC, San Diego, January 03, 2013.
  18. Direct Synthesis of Carbon Based Nanostructures, Including Studies on the Physics and Chemistry of Fullerenes, Prof. Dr. H. C. Martin Jansen, Max-Planck-Institute for Solid State Research, January 07, 2013.
  19. Alternative Methods of Gene Delivery in Various Animal Models, Dr. Srinivas Rao, Chief, Laboratory Animal Medicine Vaccine Research Center, National Institute of Health, Bethesda, USA, January 8, 2013.
  20. Role of G9a in differentiation and cell cycle exit of skeletal muscle cells, Reshma Taneja, Associate Professor, Department of Physiology, University of Singapore, January 8, 2013.
  21. Seismic imaging of the power spectrum of turbulent convection in the solar interior, Dr. Shravan Hanasoge, Department of Geosciences, Princeton University, Princeton, USA, January 08, 2013.
  22. Onset of shear flow in confined soft amorphous materials, Dr. Pinaki Chaudhuri, University of Dueseldorf, Germany, January 09, 2013.
  23. Size-induced Shifts in the Thermodynamics of Nanophase Oxides and Implications for Materials Science, Geochemistry and Environmental Science, Prof. Alexandra Navrotsky, NEAT ORU, UC Davis, January 09, 2013.
  24. Ternary diamond-like semiconductors for high performance thermoelectrics, Prof. S.D. Mahanti, Department of Physics and Astronomy, Michigan State University, Michigan, USA, January 15, 2013.
  25. Impact of the Dynamic Cytoskeleton on Intracellular Sub-Diffusion: A Local Motion Analysis, Amitabha Nandi, University of Yale, January 17, 2013.
  26. Fluctuation and plasticity in foam-flow near jamming, Dr. Vijayakumar Chikkadi, Weizmann Institute of Science, Israel, January 18, 2013.
  27. How pure water can unmix?, Prof. Mikhail A. Anisimov, University of Maryland, USA, January 22, 2013.
  28. Mesoscale Solubilization in Aqueous Solutions of Hydrotropes, Dr. Deepa Subramanian, University of Maryland, USA, January 22, 2013.
  29. Chromosomal movement and biased microtubule growth accelerate mitotic spindle assembly, Prof. Raja Paul, Indian Association for the Cultivation of Science, Kolkata, January 30, 2013.
  30. Fluidics at Micro-Nanoscale: Soft Capillarity, Superoleophobicity, Bio-Electrohydrodynamics, Dr. Siddhartha Das, Banting Postdoctoral Fellow, Department of Mechanical Engineering, University of Alberta, Canada, January 30, 2013.
  31. Quantum Phase Transition of Light: Cavity Quantum Electrodynamics, Dr. Sujit Sarkar, Poorna Prajna Institute of Scientific Research, Bangalore, India, February 5, 2013.
  32. Proteomic insights into the relationship between cellular iron homeostasis, Fe-S cluster assembly and tumorigenesis, Dr. Ajay Vashisht, Department of Biological Chemistry, University of California, Los Angeles, USA, February 8, 2013.
  33. Organic-based Magnets: New Chemistry and New Materials for this Millennium, Prof. Joel S Miller, Department of Chemistry, University of Utah, USA, February 11, 2013.
  34. Correlation of charge extraction properties and short circuit current in various organic photovoltaic devices, Dr. Th. Birendra Singh, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Clayton South, Victoria, Australia, February 12, 2013.
  35. Climate Change From Science to Policy and Actions in the Field, Prof. Veerabhadran Ramanathan, Scripps Institution of Oceanography, University of California, San Diego, February 13, 2013.
  36. Cyclic conjugated chemical entities. From molecules to high-tech molecular devices, Prof. Kamaljit Singh, Department of Applied Chemical Sciences & Technology, Guru Nanak Dev University, Amritsar, February 14, 2013.
  37. Pathogenic SYNGAP1 haploinsufficiency impairs cognitive development by disrupting the maturation of dendritic spine synapses, Dr. James Chelliah, Scripps Research Institute, Florida, USA, February 19, 2013.
  38. Raman Spectroscopy and its applications in biology, Prof. Chandrabhas Narayana, CPMU, JNCASR, February 19, 2013.
  39. Convection induced by radiative cooling in a layer of participating gas, Dr. Prasanna Swaminathan, Department of Mechanical Engineering, IIT-Madras, February 20, 2013.
  40. The role of a self-sustaining amyloidogenic protein in persistence of memory, Dr. Amitabha Majumdar, Stowers Institute for Medical Research, USA, February 21, 2013.
  41. Protein Analogous Micelles: Versatile, Modular

- Nanoparticles, Prof. Matthew Tirrell, The Institute for Molecular Engineering, The University of Chicago, February 21, 2013.
42. Exploring the function of integrins in keratinocytes: A tail of 2 kindlins, Dr. Srikala Raghavan, Institute for Stem Cell Biology and Regenerative Medicine (inStem), NCBS, Bangalore, February 22, 2013.
  43. Lamins and disease: Insights into stability of key proteins, Dr. Veena Parnaik, Centre for Cellular and Molecular Biology, Hyderabad, February 26, 2013
  44. Mapping Confined Water Molecules to Design New Blockers Against the M2 Proton Channel of the Influenza Virus, Dr. Giacomo Fiorin, Institute for Computational Molecular Sciences, Philadelphia, March 05, 2013.
  45. Surprising complexity of human RNA polymerase III transcription, Dr. Martin Teichmann, Universit e Bordeaux Segalen Institut European de Chimie et Biologie (IECB), March 08, 2013.
  46. Evolutionary Models of Late-Life Demography, Prof. Laurence D. Mueller, Dept. of Ecology and Evolution, University of California, Irvine, March 20, 2013.
  47. Epigenetics and microRNAs in Inflammation and Diabetic Vascular Disease, Dr. Rama Natarajan, Beckman Research Institute of City of Hope, CA, USA, March 26, 2013.
  48. Heterochromatin, epigenetics and age reprogramming, Dr. Prim Singh, Division of Tumor Biology, Research Center Borstel, Germany, March 28, 2013.
  49. SERS targets cancer: the future looks BRIGHT? Dr. Naveen Gandra, Department of Mechanical Engineering and Materials Science, Washington University, St. Louis, MO, USA, April 04, 2013.
  50. The size control mechanism of a dynamic organelle, Dr. Dibyendu Bhattacharyya, Advanced Center for Treatment Research & Education in Cancer (ACTREC), Tata Memorial Centre, Mumbai, April 05, 2013.
  51. Statistical mechanics of disordered systems, Prof. Erica Carlson, Physics Department, Purdue University, USA, April 05, 2013.
  52. Fluctuation of dihedral angles in biomacromolecules: thermodynamics of conformational changes and signature of allostery, Mr. Amit Das, S. N. Bose National Centre for Basic Sciences, Kolkata, April 09, 2013.
  53. The Cell Cycle and the Circadian Clock: Dynamics of two coupled cellular rhythms, Prof. Albert Goldbeter, Facult e des Sciences Universit e Libre de Bruxelles Campus de la Plaine, Brussels, Belgium, April 17, 2013.
  54. Micromechanics of emergent patterns in plastic flows, Dr. Anirban Sain, Physics Department, IIT-Bombay, Mumbai, April 19, 2013.
  55. Designing Magnetoelectric Multiferroics with ABO<sub>3</sub> Perovskite Oxides as Building Blocks, Dr. Saurabh

Ghosh, School of Applied & Engineering Physics, Cornell University, Ithaca, New York, USA, April 29, 2013.

56. A structural distortion induces ferroelectricity, weak ferromagnetism, and bulk magnetoelectricity in the hexagonal manganite structure, Dr. Hena Das, School of Applied and Engineering Physics, Cornell University, Ithaca, New York, April 30, 2013.
57. On a Tight Leash: Control of Antimicrobial Defences and Inflammasomes by GBP Family GTPases, Dr. Avinash R. Shenoy, Department of Microbial Pathogenesis, Yale University School of Medicine, New Haven, CT, USA, May 02, 2013.

## LECTURES DELIVERED AT ANNUAL FACULTY MEETING NOVEMBER 2012

1. "Design of Molecules for Telomerase Inhibition", Prof. Santanu Bhattacharya
2. "Organic Photovoltaics: Every Photon Counts...", Prof. K. S. Narayan
3. "Warm cues for the fruitfly clock – the role of a temperature sensitive ion channel in diurnal activity patterns", Dr. Sheeba Vasu
4. "Possible onset of Transient Universality in Fluid Turbulence", Dr. Santosh Ansumali
5. "The richest don't take it all", "Directional Grain Growth in Sheared Polycrystals: Evidence for a strain-temperature equivalence", Dr. Rajesh Ganapathy

## FORTHCOMING MEETINGS

**Prof. V. Ramalingaswami Memorial Lecture:** Dr. M.K. Bhan, Former Secretary, D.B.T, July 18, 2013.

**CNR Rao Oration Award Lecture:** Prof. Meheboob Alam, JNCASR, August 7, 2013.

**Chemistry Frontiers Symposium 2013** at Goa, August 28-30, 2013.

**DAE-Raja Ramanna Lectures in Physics:** Prof. G. Ravindra Kumar, TIFR, Mumbai; Prize lecture: Dr. Priya Mahadevan, SN Bose Kolkata. September 24, 2013.

**ISRO Satish Dhawan Lecture:** Shri Gopalakrishna Gandhi, IIAS Shimla (Former Governor of West Bengal & Presently Chairman, Indian Institute of Advanced Study) October 14, 2013.

## ANNUAL FACULTY MEETING

The Annual Faculty Meeting of the Centre is scheduled to be held on November 18, 2013 which will be followed by lectures by the faculty and honorary faculty members. An In-house Symposium is scheduled to be held on November 18 - 19, 2013 at Jakkur Campus.