

President's Note

Dear Colleagues,

It gives me immense pleasure to share with you some important developments in the final edition of the Silver Jubilee Celebration year.

The celebrations were launched with an outstanding Sarod performance by Maestro Ustad Amjad Ali Khan and his sons Ayan and Amaan on 12th Nov 2013. Prof. CNR Rao delivered a motivating Inauguration lecture on 18th Nov 2013. This was followed by a special Faculty meet and In-House symposium that had enthusiastically participation from students and faculty members.

Globally renowned scientists like Prof. Ross Griffiths of the Australian National University, Prof. VijayRaghavan, Secretary, Department of Biotechnology, Government of India and several others have shared their thoughts with us during occasions such as Silver Jubilee lectures, Special Lectures and Endowment lectures.

I'm glad to share with you that Prof CNR Rao and Mrs. Indumati Rao have donated generously to instate an annual Silver-Jubilee Professorship for the best performing and active faculty member of the Centre, from 5th Jan 2015.

Our publication matrix of 25 years shows a significant total of over 4500 papers with citations received around a lakh with an average citations per year of more than 4000. We also have been granted 22 Foreign and 6 Indian Patents with one license and one trade mark.

This year our faculty members have reported several key discoveries which include discovery on breaking bacteria's resistance to antibiotics; discovery of new drug discovery tool using spectroscopy and simulation; Versatile semiconducting material; separation of industrially important compounds from crude oil; and discovery of anti-cancer potential of a common anti-hypertensive drug.

I'm sure our combined efforts will take the Centre to the next level.

President



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Felicitation of Prof. CNR Rao by Hon'ble Chief Minister Siddaramaiah, at the Banquet Hall of the Vidhana Soudha on June 18, 2014 on being conferred the highest civilian honour, Bharat Ratna.



FROM THE EDITOR'S DESK

The 2nd issue of Silver Jubilee Year edition of the newsletter highlights some of the activities of the JNCASR community over the past six months.

As in the past, several faculty members have been recognized for their contributions to scientific research in the country. Of special importance is the news of felicitation of Prof. C.N.R. Rao by Honorable Chief Minister of Karnataka Mr. Siddaramaiah on June 18, 2014 at Vidhana Soudha, Bengaluru for his receiving the country's Highest Civilian Award, the Bharat Ratna. Prof. M.R.S. Rao was awarded the Distinguished Awards for the year 2014 by IISc Alumni Association. JNCASR Faculty members have also been awarded Visiting Fellowships or Professorship from Indian and International scientific bodies while others have been selected as Editorial board members of high impact peer reviewed journals. Ph D students have also received best poster awards at International Conferences.

The Centre has obtained seven patents (US-3, Japan-2, Europe-1 and China-1) in various disciplines during 2014.

This year under the JNCASR-CICS fellowship programme, fellowships were given to scholars from Nepal, Ghana, Nigeria, Uganda, Ethiopia and Sudan.

Silver Jubilee Year Celebration Lecture has been delivered by Padma Shri Prof.K.Vijay Raghavan, Secretary, Dept.of Biotechnology Govt of India on "Brain stem cell progeny create functional units for complex behaviour" on 25th September 2014.

Inauguration of the Commonwealth Science Conference by president of India Shri Pranab Mukherjee on 26th Nov 2014 at the J.N Tata Auditorium IISc Bangalore, which was organised by the The Royal Society in Association with the Govt of India and the Queen Elizabeth Diamond Jubilee Trust, U K and JNCASR.

Prof. Umesh Waghmare, Kanishka Biswas and their research team have discovered a "versatile semiconducting material" AgCuS. The news was reported in Nature India.

According to another news item reported in Nature India, Dr. Ujjal K. Gautam and his research group has demonstrated soccer-ball-shaped carbon molecules which can separate organic compounds

JNC in the News

A Method Of Synthesising Intermetallic Compounds And Applications Thereof developed by Dr. Sebastian Chirambatte Peter, Pradeep Prasannamurthy Shanbogh and Udumula Subbarao

International PCT Application No. PCT/IN2014/063418

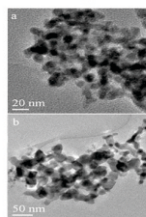


Fig. 1: Depicts the TEM characterization of Ni₅Sb (a) and Co₅Sb (b).

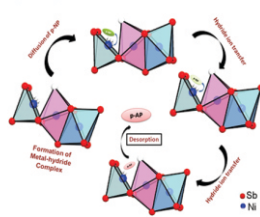


Fig. 2: Schematic representation of the mechanism for the reduction of p-nitrophenol in aqueous phase in the presence of Ni₅Sb and Co₅Sb catalysts.

Promising proteins: Scientists develop new drug discovery tool using spectroscopy and simulation

In the ongoing quest to design new beneficial molecules or identify potential

drugs catalogued in pharmaceutically databases, a critical requirement is determining how a ligand (typically a modulator, or signal-triggering molecule) binds to a therapeutic protein. Currently, most drug design protocols the most potent ligand is chosen – but at the cost of diminished target protein specificity. On the other hand, such small-molecule ligands having what is known as a high TC50 value, meaning that a larger amount of the drug is needed to be effective – and they may therefore be rejected. Recently, however, scientists at Jawaharlal Nehru Centre for Advanced Scientific Research, India combined surface-enhanced Raman spectroscopy (SERS) and molecular dynamics (MD) simulation to identify the precise location on a target protein where modulators bind.

Source: Stuart Mason Dambrot, Promising proteins: Scientists develop new drug discovery tool using spectroscopy and simulation. Medical Xpress: medical research news, July 22, 2014

Bangalore scientists break bacteria's resistance to antibiotics

While the international research community has pondered over many options to overcome this, a team of Bangalore-based scientists has developed a novel way to attack these bacteria, which gives the organisms little chance of developing resistance.

"The alarming growth of antibiotic resistant superbugs (bacteria) has become a major global health hazard. Our research, the findings of which is awaiting an international patent, breaks the bacteria in a non-traditional way, affecting their ability to adapt or develop resistance," said Dr Jayanta Haldar, who along with his team of three from the Jawaharlal Nehru Centre for Advanced Scientific Research has developed the antibiotic. The other three scientists are Venkateswarlu Yarlagadda, Padma Akkapeddi and Goutham B Manjunath.

Excerpt from Times of India, July 10,2014.



ACADEMIC ACTIVITIES

Two-in-one pill: anti-cancer potential of a common anti-hypertensive drug

The JNCASR scientists (Prof. Tapas K. Kundu, MBGU and Prof. Chandrabhas Narayana, CPMU) were trying to unearth the anti-cancer potential of a common anti-hypertensive drug. In the process, they ended up focusing attention on the hitherto unexplored application potential of Raman spectroscopy.

The work, published online in the journal Proceedings of National Academy of Sciences, convincingly proved that an advanced technique derived from conventional Raman spectroscopy — called surface-enhanced Raman spectroscopy (SERS) — has the potential to be used for drug discovery.

Excerpt from news article published in The Telegraph, June 30, 2014.

'Rugby ball' peep into glass

Using microscopic particles shaped like rugby balls, Indian physicists have provided deep insights into the formation of glass which has remained a mystery in materials science despite its antiquity, ubiquity and utility.

The researchers at the Jawaharlal Nehru Centre for Advanced Scientific Research and the Indian Institute of Science, Bangalore, have through experimental observations of these tiny rugby balls studied the transition that turns liquid material into glass.

Excerpt from Telegraph, October 13, 2014

Versatile semiconducting material

Recent research from Kanishka Biswas and Umesh Waghmare's group shows that the semiconducting noble metal sulphide, AgCuS, exhibits a temperature dependent

reversible p-n-p type conduction switching, along with a colossal change in the thermopower at superionic phase transition near room temperature. Temperature dependent p-n-p type conduction switching makes AgCuS an ideal material for diode or transistor devices that operate reversibly on temperature or voltage changes near room temperature, which makes this material attractive for future advanced electronics.

This work has been published in: S. N. Guin, J. Pan, A. Bhowmik, D. Sanyal, U. V. Waghmare, and K. Biswas, J. Am. Chem. Soc. 136, 12712–12720 (2014).

News based on this work has appeared in Nature India on Sept 26, 2014

<http://www.natureasia.com/en/nindia/article/10.1038/nindia.2014.129>

Soccer-ball-shaped carbon molecules separate organic compounds

Recent research from Ujjal Gautam's group demonstrated the possibility of high-efficiency separation of a large number of industrially important compounds from crude oil by using fullerene, C60. C60 is considered a wonder molecule, since rarely other molecules can have so many diverse potential applications such as in electronics & spintronics, solar cell, non-linear optics, drug delivery & cancer treatment, sunscreen cosmetics, lubricants etc. Separation of chemicals is a completely new paradigm. Since no other material can carry out so many separations without further chemical modifications, C60 is an attractive alternative to the contemporary techniques such as those based on MOF and Zeolite.

This work has been published in: Moumita Rana, R. Bharathanatha Reddy, Bibhuti Bhusan Rath, and Ujjal K. Gautam, Angew. Chem. Int. Ed., 2014 Oct 16. DOI: 10.1002/anie.201408981.

News based on this work has appeared in Nature India on Oct. 30, 2014

<http://www.natureasia.com/en/nindia/article/10.1038/nindia.2014.144>

Academic Activities

Research Admissions

During the August 2014 admissions, 43 students joined JNCASR under its Degree and Diploma programmes. The current student strength at JNCASR is 291. Currently, there are 176 students registered for Ph D, 12 for M S (Engg./Research) and 98 for Integrated Ph D degree programmes respectively. The Centre has also admitted two students under the Postgraduate Diploma Programme in Science Education and three students under the Postgraduate Diploma Programme in Materials Science.

Student Awards

For the year 2013 -14, Ms. Paramita Sarkar, 1st year Int. Ph.D student of the Integrated Ph.D programme in Chemical Science, was awarded the Babu Matru Prasad Scholarship. The award is given to the student who scores the highest CGPA in the Int. Ph.D programme in Chemical Science. Ms Sarkar received a scholarship of Rs 6000, a book grant of Rs 1500 and a certificate.

Mr Uttam Gupta, M.S. student of the Integrated Ph.D Programme in Materials Science, CPMU, was awarded the Bapu Narayanswamy award for the Best M.S. thesis of the Integrated Ph D Programme. Mr Gupta received a prize of Rs 3000 and a certificate.

To date, students of the Centre have received 55 MS degrees in Engineering, 4 M.S. degrees in Research, 87 M.S. degrees in Chemical and Materials Sciences and 179 Ph.D degrees. As of now approx. 325 alumni of our Centre are spread out across the world, working in top notch universities and laboratories of international repute.



SCIENCE OUTREACH & INTELLECTUAL PROPERTY

Fellowships & Extension Programmes

For the year 2014-15, 11 visiting fellowships and 74 summer research scholarships have been offered. 20 students selected for the POCE and POBE programme attended Centre's seminars, special lectures and courses taught by JNC and IISc faculty. Seven Fellows from countries like Nepal, Ghana, Nigeria, Uganda, Ethiopia and Sudan have been selected under the JNCASR-CICS fellowship programme for the year 2014-15.

Science Outreach Activities and Education Technology

Teacher-student programs/workshops were conducted under the auspices of the Science Outreach Program on June 30, 2014. The Science Teacher's Award Function cum lecture program was organized and conducted at the Madan Mohan Malaviya Amphitheatre

attended by more than 200 students and teachers. The CNR Rao Education Foundation sponsored Outstanding Science Teachers Prize for 2013 was awarded to Shri. Narayan Vitthalrao Babanagar and Dr. Shripal Rathi. One lecture in Chemistry and one in Biology was also delivered as part of the program.

'Program in Physics for students' was organised on July 17, 2014 attended by 200 students and Teachers. Lectures in Physics were delivered by Dr. Meher K. Prakash, Prof. Chandrabhas Narayana (JNCASR, Bangalore) and Prof. Anil Kumar (IISc., Bangalore)

On August 22, 2014, a Program in Biology for students was attended by 195 teachers and students of class XI & XII. There were three lectures followed by a question & answer session.

A program jointly organised by NCU and ETU in September 2014 hosted 200 students and teachers of XI and XII classes and involved in a tribute to Michael Faraday on his 223rd birthday in the form of the screening of a short film followed by a lecture by Mrs. Indumati Rao (ETU, JNCASR) and Shri. H.R. Madhusudan (Jawaharlal Nehru Planetarium, Bangalore). A chemistry quiz and visit to the Chemistry of

Materials Exposition and Prof. C.N.R. Rao Archives followed. A video on Innovative Chemistry Experiments conducted by NCU students and Faculty members was also screened. Two students of the PGDSE course were given training on multimedia.

Intellectual Property

The Centre has obtained seven patents (US-3, Japan-2 and China-1) for the following inventions:

1. US Patent (No. 8834917) issued on 16th September 2014 for 'Nanoparticles Composition and a Process Thereof' developed by Prof. Chandrabhas Narayana.
 2. Received 'Notice of Allowance' for the grant of patent for the US Application (No. 13/381,190) on 19th August 2014 for 'Optimal Wing Planforms For Reducing the Induced or Total Drag of the Wing of an Aircraft Driven by Wing-Mounted Tractor Propellers/Rotors' developed by Prof. Roddam Narasimha, Dr. Madhusudan Deshpande, Praveen Chandrashekarappa and Rakshith Belur Raghavan.
 3. Received 'Notice of Allowance' for the grant of patent for the US Application (No. 13/809,758) on 23rd May 2014 for 'Vector, Vector Combinations, Methods and Kit Thereof' developed by Prof. Ranga Udaykumar.
 4. Japanese Patent (No. 5576859) issued on 11th July 2014 for 'Tat DNA Sequences, Gene Constructs, Vaccine and Processes Thereof' developed by Prof. Ranga Udaykumar.
 5. Received intimation for grant of the patent for the Japanese Application (No. 2011-508052) on 1st October 2014 for 'A Template Free Metal, Polymer Free Metal Nanosponge and a Process Thereof' developed by Prof. Eswaramoorthy Muthusamy and Saikrishna Katla.
 6. Received intimation for grant of the patent for the Chinese Application (No. 201080045291.6) on 16th July 2014 for 'Inhibition of Histone Acetyltransferases by CTK7A and Methods Thereof' developed by Prof. Tapas Kumar Kundu, Mohammed Arif, Kempgowda Mantelingu and Gopinath Kodaganur Srinivasachar.
- One Indian Provisional Patent Application



Science teacher's Award Ceremony: Shri. Narayan Vitthalrao Babanagar and Dr. Shripal Rathi receiving the award for 2013 from Prof. K.S. Narayan (President In-Charge), June 30, 2014



APPOINTMENTS & AWARDS

has been filed for the invention of:

1. Prof. Giridhar Udapi Rao Kulkarni, Umesh Moger and Narendra Kurra

Three International Patent Applications under PCT have been filed for the following inventions:

1. 'A Process for Bromination of Arylene Dianhydrides and a Method of Synthesis of Diimides Thereof' developed by Prof. Govindaraju Thimmaiah and Venkata Suseela Yelisetty.
2. 'A Method of Synthesising Intermetallic Compounds and Applications Thereof' developed by Dr. Sebastian Chirambatte Peter, Pradeep Prasannamurthy Shanbogh and Udumula Subbarao.
3. 'Vancomycin-Sugar Conjugates and Uses Thereof' developed by Prof. Jayanta Haldar, Yarlagadda Venkateswarlu, Goutham Belagula Manjunath and Mohini Mohan Konai.

Three US Patent Applications have been filed for the following inventions:

1. 'Cationic Antibacterial Composition' developed by Prof. Jayanta Haldar, Yarlagadda Venkateswarlu and Akkapeddi Padma.
2. 'A System and A Method to Detect Hydrogen Leakage Using Nano-Crystallised Palladium Gratings' developed by Prof. Giridhar U Kulkarni, Ritu Gupta and Abhay A Sagade.
3. 'An Organic Solar Cell and Methods Thereof' developed by Prof. Kavassery Sureswaran Narayan and Anshuman Jyothi Das.

Two European Patent Applications have been filed for the following inventions:

1. 'Cationic Antibacterial Composition' developed by Prof. Jayanta Haldar, Yarlagadda Venkateswarlu and Akkapeddi Padma.
 2. 'An Organic Solar Cell and Methods Thereof' developed by Prof. Kavassery Sureswaran Narayan and Anshuman Jyothi Das.
- Australian, Canadian and Korean Patent Applications have been filed for the invention 'Cationic Antibacterial Composition' developed by Prof. Jayanta Haldar, Yarlagadda Venkateswarlu and Akkapeddi Padma.

Creation of New Unit

'Neurosciences Unit' has been created and is chaired by Prof. M.R.S. Rao and its faculty members are Dr. Sheeba Vasu and Dr. James P. Chelliah.

Promotions

Associate Professor

Dr. Govindaraju T
Dr. Santosh Ansumali
Dr. Subi Jacob George

New Appointments

Faculty Fellow

Dr. Kanishka Biswas
Dr. Meher K Prakash
Dr. Sebastian C Peter
Dr. Sheeba Vasu

Visiting Scientists

Ms. Gugu Florence Msane
Dr. Ibrahim Mohamed Nassar
Dr. Irshad Ahmad
Prof. J.M. Lindsay
Dr. Milohum Mikesokpo Dzagli
Mr. Nurapati Pantha
Dr. Ranber Singh
Prof. Ronojoy Adhikari
Prof. Sai Jaganmohan
Dr. Salman Sultan
Dr. Santu Baidya
Visiting Scholars
Ms. Arsila Ashraf
Ms. Aruna Nair
Mr. Cyril Oseresme Eli-Dromosele
Ms. Divya G
Mr. B. Havish
Mrs. Jency Julius
Mr. A. Nijamudheen
Mr. Nilabh Ghosh
Mr. Santanu Maity
Mr. Sateesh Venkatesh

Ms. Shikha Rani

Mr. Sujoy Saha

Ms. Surabhi Jirapure

Ms. Swati Rao

Mr. Vichal

Research Associates

Dr. Aravind Goud G Patil (PI: Prof. Umesh Varshney, IISc)

Dr. Avinash M B (PI: Dr. T. Govindaraju, NCU)

Dr. Mohit Kumar (PI: Dr. Subi J. George, NCU)

Dr. Nandu Gopan (PI: Prof. Meheboob Alam, EMU)

Dr. Nitesh Kumar (PI: Prof. C.N.R. Rao, CSIR-COE)

Dr. S. Ramesh (PI: Dr. Sebastian C Peter, NCU)

Dr. Sandhya Shenoy U (PI: Prof. Umesh V. Waghmare, TSU)

Dr. Sandip Samaddar (PI: Dr. Jayanta Haldar, NCU)

Dr. Sharmila N Shirodkar (PI: Prof. Umesh V. Waghmare, TSU)

Dr. Urmimala Maitra (PI: Prof. C.N.R. Rao, CSIR-COE)

Dr. Vanajakshi Gudla (PI: Prof. Tapas Kumar Kundu, MBGU)

Dr. Venkateswarlu Cheerladinne (PI: Prof. S Chandrasekaran, IISc)

Research Associates (Provisional)

Mr. Chilakapati Madhu (PI: Dr. T. Govindaraju, NCU)

Ms. Devina Sharma (PI: Prof. Shobhana Narasimhan, TSU)

Ms. Rachna Tewari (PI: Dr. T.N.C. Vidya, EOBUE)

Awards & Recognitions

Prof. C.N.R. Rao

Felicitation by Hon'ble Chief Minister, Govt. of Karnataka at Vidhana Soudha, Bengaluru for Prof. C.N.R. Rao's receiving the Country's Highest Civilian Award Bharat Ratna.

Felicitation by Hon'ble Chief Minister, Govt



LECTURES & MEETINGS

of Karnataka at University, Mysore on 14.06.2014 for Prof. C.N.R. Rao receiving Bharat Ratna.

Delivered 17th JRD Memorial Lecture in New Delhi organized by ASSOCHAM

Prof. M.R.S. Rao

Distinguished Alumnus Awards for the year 2014 by IISc. Alumni Association

Goyal Prize in Life Sciences for 2012-2013.

Prof. Srikanth Sastry

Received TIFR Adjunct Professor for a period of three years w.e.f October 1, 2014

Dr. M. Eswaramoorthy & Dr. Subi J. George

Selected for the CRSI bronze medals for the year 2015

Dr. N.S. Vidhyadhiraja

Appointed as adjunct faculty at Department of Physics and Astronomy, Louisiana State University

Dr. Sebastian C. Peter

Emerging young investigator in Solid State Chemistry by American Chemical Society, 2014

Dr. Ujjal Gautam

The most influential scientific minds 2014 by Thomson Reuters

Dr. Sebastian C. Peter

Young and Outstanding Scientist in Solid State Chemistry by the American Chemical Society

Dr. Kanishka Biswas

Selected as Associate of Indian Academy of Sciences

Dr. Tapas K. Maji

Appointed as Editorial Board Member of Scientific Reports, a journal from Nature Publishing Group

Awards Received by Students

Mr. Chandradhish Ghosh (Ph.D. Student, NCU; Research supervisor: Dr. Jayanta Haldar) has been awarded the 2nd prize in Best Oral Presentation at the "Fourth International Symposium on Antimicrobial Peptides" held in Lorient, France during 4-6th June 2014.

Mr. K. Rajasekhar, (Ph D student, NCU;

Research Supervisor: Dr. T. Govindaraju) received "Best Poster Award" in recently held Indo-German Conference on "Bioinspired Chemistry (IGCBIC-2014)" held at Indian Institute of Science (IISc), Bangalore.

Polish Society for Microscopy (PTMi) Award in the PhD students' contest of XV International Conference on Electron Microscopy, EM' 2014, Krakow, Poland conferred to Mr. Dileep Krishnan (Int. Ph D student, ICMS; Research Supervisor: Dr. Ranjan Datta) for the contribution on 'probing nanoscale variation of optical properties of NiCo_2O_4 , NiFe_2O_4 , and CoFe_2O_4 by HREELS'.

Dr. Debabrata Maity (Bioorganic Chemistry Laboratory, New Chemistry Unit) has been selected for 1st Prize of "2014 Lilly Outstanding Thesis Awards".

Dr. Mohit Kumar (Ph D Student, NCU; Research supervisor: Dr. Subi J. George) awarded Best Poster prizes in the 8th Asian Photochemistry Conference held during November 10-13, 2014.

Mr. Uttam Gupta (Ph D student, CPMU; Research supervisor: Prof. C. N. R. Rao) awarded Best Poster prizes in the 8th Asian Photochemistry Conference held during November 10-13, 2014.

Award received by Supporting Staff

Mr. Sachin Belvadi received Yuva Prashasthi 2014.

Best Maintained Garden

JNCASR has bagged the 1st prize for the Best Maintained Garden for the year 2014 instituted by the Mysore Horticultural Society, Lalbagh, Bangalore.

Endowment Lectures

Prof. V Ramalingaswamy Memorial Lecture: How transcription factors recognize their binding sites?, Prof. Siddhartha Roy, Director, CSIR-Indian Institute of Chemical Biology Director-in-charge, National Institute of Pharmaceutical Education and Research Cluster Director-Biology, Council of Scientific

and Industrial Research, July 11, 2014.

C.N.R. Rao Oration Award Lecture 2014:

Peptidomimetics and their Application in Biomimetics and Biomedicine, Dr. T Govindaraju, New Chemistry Unit, JNCASR August 07, 2014.

4th Annual Materials Lecture: Intricacies of structure, and the connection to property - examples of some functional inorganic materials, Prof. Ram Seshadri, Materials Department and Department of Chemistry and Biochemistry Materials Research Laboratory, University of California, Santa Barbara, USA, October 10, 2014.

DAE-Raja Ramanna Lectures in Physics:

Beyond the standard model through the Higgs portal, Prof. Rohini Godbole, Centre for High Energy Physics, IISc, Bangalore. Prize Lecture: Quantum gravity: a view from general relativity, Prof. Madhavan Varadarajan, RRI, Bangalore, October 21, 2014.

4th Annual Chemistry Lecture: Hybrid Light-Matter States Potential for Molecular and Material Science, Prof. Thomas W. Ebbesen, ISIS & USIAS, University of Strasbourg And CNRS, Strasbourg, France, November 07, 2014.

Fluid Dynamics Colloquia

1. Granular slip events, electrical precursors, and role of particle shape in jamming transition, Dr. N. Nirmal Thyagu, Max Planck Institute for Dynamics and Self-Organization Goettingen, Germany, June 18, 2014.
2. The dynamics of finite-sized particles in turbulent airflow, Dr. Samriddhi Sankar Ray, International Center for Theoretical Sciences, Tata Institute of Fundamental Research, I.I.Sc, Bangalore, July 09, 2014.
3. Group theoretic basis for numerical computation in symmetric problems, Sai Jagan Mohan, Department of Mechanical Engineering, BITS Pilani, Rajasthan campus, July 16, 2014.
4. Shock wave Boundary layer interaction in supersonic flow over a forward-facing step, Prof. Raghuraman N. Govardhan,



SYMPOSIA & CONFERENCES

Department of Mechanical Engineering, IISc, August 27, 2014.

5. Re-entrant, driven and pinned colloidal glasses, Dr. Rajesh Ganapathy, JNCASR, September 10, 2014.

6. Interaction of evolving interfaces during solidification, Mr. Shyamprasad Karagadde, University of Manchester, UK, October 15, 2014.

Discussion Meetings

1. JNCASR-FCBS Workshop for Chemistry Students and Teachers, Prof. M.V. George, NIIIST, Trivandrum, October 31 - Nov. 2, 2014.

2. CFM 2014, Prof. R. Murugavel, August 16-19, 2014.

3. Advanced Materials: Current Trends and Future Prospects, 2014 at Manali, Himachal Pradesh, Prof. Ashok K Ganguli, May 28 - June 1, 2014.

4. BD Workshop in Flow Cytometry Data Analysis, Prof. Ranga Udaykumar, May 19-20, 2014.

5. Workshop on Advances in Materials Science, Yamuna Nair, Christ University, August 27 - 28, 2014.

6. 10th JNCASR Research Conference on Chemistry of Materials, Convener: Dr. Subi J George, October 11-13, 2014.

Symposia / Workshops / Conferences

1. TUE-CMS DFT Mini Workshop: Special Topics in DFT, Prof. Michael Weinert, University of Wisconsin, Milwaukee, May 12-14, 2014.

2. Hands on Workshop on Cell Sorting Applications, Flow Cell, MBGU, JNCASR and BD Biosciences, August 18-20, 2014.

3. Catalysis Conference, August 25-29, 2014.

4. MD@50, International Conference organized by Prof. Michael Klein, Temple University, Philadelphia and Prof. S. Balasubramanian, JNCASR, August 25-28, 2014.

5. Group Research Conference, Experiments on flat plate boundary layer: New insights,

Sourabh Diwan, Imperial College, London, October 30, 2014

6. Indo-Japan Conference on Graphene and related Materials, November 05-06, 2014.

Seminars

1. Perovskite solar cells: The new frontier, Prof. Vikram Dalal, Iowa State University USA, May 20, 2014.

2. Temperature and Pressure response of Dense Microgel Suspensions: Structure, Dynamics & Yielding, B. V. R. Tata, Indira Gandhi Centre for Atomic Research, May 21, 2014.

3. Phase Transitions in an Open-Boundary Aggregation-Fragmentation Model, Ms. Himani Sachdeva, TIFR Mumbai, May 27, 2014.

4. Gold Catalyzed Synthesis of 1-Arylnaphthalene Derivatives, Vanajakshi Gudla, University of Hyderabad, Hyderabad, May 28, 2014.

5. Physics of Hubbard-Holstein Model, Prof. G Venkatesh Pai, HRI, Allahabad, June 02, 2014.

6. Intramolecular Vibrational Energy Flow: Analogies, Insights, and Challenges, Dr. K Srihari, IIT Kanpur, June 17, 2014.

7. Central ideas in FEM with examples, Prof. Sai Jagan Mohan, BITS, Pilani, June 20, 2014.

8. Magnetodielectric and related effects in doped EuTiO_3 and SmMnO_3 , Prof. R. Mahendiran, Department of Physics, National University of Singapore, July, 02, 2014.

9. Fundamental and Applied Aspects of Nanostructured Magnetic Materials, Prof. S. M. Yusuf, Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, July 10,



Prof. Michael Klein, Temple University, Philadelphia delivering lecture at MD@50 Conference

2014.

10. Novel vaccine platforms in vaccinology, Dr. Srinivasa Rao, NIH, Bethesda, USA, July 11, 2014.

11. Biological Insights through Exploratory Data Analysis & Systems Biology, Dr. Asoke K Talukder, NIT, Warangal, July 17, 2014.

12. Computational Diagnostic Probes, Dr. N. Arul Murugan, Royal Institute of Technology Stockholm, Sweden, July 24, 2014.

13. Ultra-Porous Materials for Energy and Environmental Applications: from modeling to mass production of porous materials, Dr. Ravichandar Babarao, CSIRO Manufacturing Flagship, Clayton, Victoria, Australia, July 28, 2014.

14. Vibration of Mistuned Bladed Rotor, Prof. Alok Sinha, The Pennsylvania State University, USA, July 30, 2014.

15. Chiral supramolecular motors driven by tunneling current, Dr Puneet Misra, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan, August 14, 2014.

16. Modeling dynamics in proteins, Dr. Meher K Prakash, JNCASR, August 21, 2014.

17. Transcription in 3D: The Emerging Story of DNA Quadruplexe-Protein Complexes, Dr. Shantanu Chowdhury, CSIR-Institute of Genomics and Integrative Biology, New Delhi, August 28, 2014.

18. Single-molecule optics in a dynamic trap of plasmonic nanostructures, Dr. Pavan Kumar, IISER Pune, September 01, 2014.

19. Cooling and Brownian Motion in Viscoelastic Granular Gases, Prof. Sanjay Puri, Jawaharlal Nehru University, New Delhi, September 02, 2014.

20. Poiseuille flow of soft amorphous materials, Dr. Pinaki Chaudhuri, The Institute of Mathematical Sciences, Chennai, September 09, 2014.

21. The Structure-Function Studies of Regulated Intramembrane Proteolysis of SpoIVFB : An Homologue of Site 2 Protease in Bacillus Subtilis, Sabyasachi Halder, Michigan State University, Michigan, USA, September 12, 2014.

22. Some recent discoveries in ThCr_2Si_2 -type tetragonal pnictide compounds, Dr. Abhishek



Pandey, Iowa State University, Iowa, USA, September 26, 2014.

23. Self assembly of colloidal rafts, Dr. Prerna Sharma, IISc, Bangalore, September 26, 2014.

24. Metal Complexes: Potential Imaging Agents and Therapeutics, Dr. Ritika Uppal Mukherjee, GE Healthcare, Bangalore, September 29, 2014.

25. Life-altering decisions- To renew, commit, or change fate, Dr. Suchitra Devi Gopinath, Stanford University California, USA, October 09, 2014.

26. Blood cell development and leukemia: insights from Drosophila, Prof. Lucas Waltzer, Paul Sabatier University, France, October 14, 2014.

27. Geometric universality of two-dimensional aggregates, Dr. Tamoghna Das, OIST Graduate University, Okinawa, Japan, October 21, 2014.

28. Rethinking the central dogma: epigenetic genome control by non-coding RNAs and its implications for human diseases, Dr. Shiv Grewal, National Cancer Institute, Bethesda, October 31, 2014.

29. Long-term Potentiation Requires Unique Postsynaptic SNARE Fusion Machinery, Dr. Debanjan Goswami, Stanford University USA, November 03, 2014.

30. Derivatization of Aldehydes by NHC Catalyzed Redox Activation, Dr. Suman De Sarkar, Institute for Organic and Biomolecular Chemistry, Germany, November 10, 2014.

31. Self Assembly of Pore Forming Toxins and Kinetic Pathways in Lipid Bilayers K. Ganapathy Ayappa, Prof. K. Ganapathy Ayappa, Indian Institute of Science, Bangalore, November 11, 2014.

32. Impairment of cell division through ribosomal protein and growth through mitochondrial modulations in Plasmodium, Prof. Shobhona Sharma, TIFR, Mumbai, November 13, 2014.

33. Nanocrystal Electronics – One Solution to Photovoltaics, Prof. Paul Mulvaney, University of Melbourne, November 17, 2014.

34. Axonal transport and formation of Long Term Memory, Dr. Sathya Puthanveetti, Scripps Research Institute Florida, November 18, 2014.

35. Structural insights into the molecular mechanisms of accurate chromosome segregation, Dr. A. Jeyaprakash Arulanandam, University of Edinburgh, November 28, 2014.

JNCASR Special Lecture

1. Order, Disorder, Symmetry and Complexity, Prof. Daniel L. Stein, Dept of Physics and Mathematics, New York University, New York, November 12, 2014.

Short Course

1. Short-range spin glasses: results and applications, Prof. Daniel Stein, New York University, USA, November 11, 13, 18 and 20, 2014.

Guest Lectures

1. An overview of vaccines, the market and unmet needs, Dr. Gita Sharma, Director Research & Quality Control, Tapadia Diagnostics, Hyderabad, July 21, 2014.

2. Modeling HIV pathogenesis, prevention and novel therapies in humanized mice, Dr. Ramesh Akkina, Colorado State University, USA, July 28, 2014.

3. Cervical Cancer - No 1 Killer amongst Indian Women, Dr. Asha V. Kumar, Asha Nursing Home, Bangalore, August 21, 2014.

Other Programmes

Hindi Week

Hindi Week was celebrated from September 15-22, 2014. Series of events were organized on this occasion such as antakshari competition, Hindi workshop, "Marx in soho" - play, Hindi talk, Hindi quiz competition, etc.

Vigilance Programme

The Vigilance Awareness Week was observed in the Centre from October 27 - November 01, 2014.

Forthcoming Events

1. Workshop on Single Crystal X-ray diffraction, Dr. Alexander Gerisch, Crystallography, Bruker AXS GmbH, Germany, November 17- 19, 2014.

2. Seventh International Materials Lecture will be delivered by Prof. R.J.M. Nolte, Radboud University Nijmegen, Netherlands, December 01, 2014.

3. Winter School on "Frontiers of Material Science 2014" during December 01-05, 2014

4. Nanoscale Quantum Transport- Paradigms and Possibilities, Prof. Bhaskaran Muralidharan, Indian Institute of Technology Bombay, Mumbai, December 02, 2014.

5. The Ser/Thr kinase BUB1 and its kinase activity are required for signaling mediated by transforming growth factor, Dr. Shyam Nyati, University of Michigan, December 08, 2014.

6. International Conference on Chromosome Stability, December 14-18, 2014.

7. International Workshop and Conference on Operator Theory and Applications, Prof. K.B. Sinha, December 19-20, 2014.

8. National Symposium on Complex Fluids - CompFlu, Prof. Santosh Ansumali and Prof. Ganesh Subramanian, December 22 - 24, 2014.

9. Gene networks in chromatin/chromosome function, 5th Meeting of the Asian Forum of Chromosome and Chromatin Biology, JNCASR, January 15-18, 2015.

Silver Jubilee Year Celebration Lecture

Brain stem cell progeny create functional units for complex behaviour, Padma Shri Prof. K. VijayRaghavan, Secretary, Dept. of Biotechnology, Govt. of India, September 25, 2014.

Annual Faculty Meeting

The Annual Faculty Meeting and In-House Symposium is scheduled to be held on January 4-6, 2015 at Jakkur Campus.