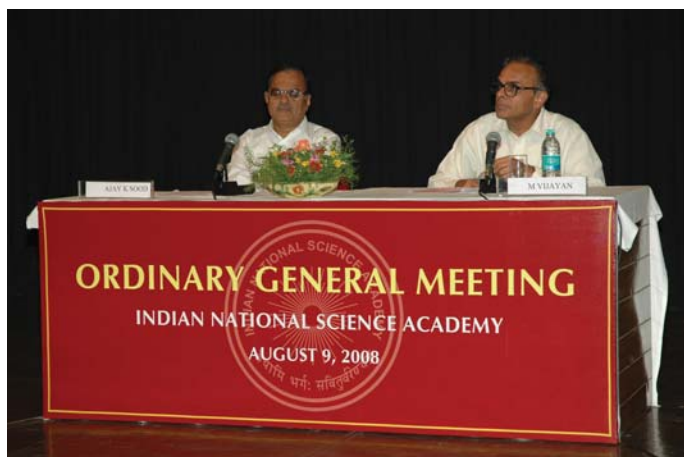




## INSA AWARDS

During the Ordinary General Meeting of the Academy on August 09, 2008, the names of various medals and awards including the young scientist Medal were announced. The names of these awardees are given below:



Professor M Vijayan, President, INSA and Professor AK Sood, Vice-President (Fellowship Affairs) on the Dias during Ordinary General Meeting

## INSA Award Lectures/Medals Awardees (2008)

### 1. The Homi Jehangir Bhabha Medal to Professor Arup K Raychaudhuri, FNA

For his contributions to low temperature physics involving setting up of scanning tunneling microscopy based measurements,  $1/f$  noise measurements and specific heat measurements. He has used these set-ups to make significant contributions towards understanding the physics of high temperature superconductors and manganites.

### 2. The Sunder Lal Hora Medal to Dr Rakesh Tuli, FNA

For his contributions to plant biotechnology. His work on cry genes for insect resistance is already being applied at the field level. His research on high expression and unducible promoters represents both good basic and applied science.

### 3. The Prasanta Chandra Mahalanobis Medal to Professor VS Borkar, FNA

For his contributions to areas such as ergodic control, control under partial observations, singular perturbations. He has also made significant contributions to stochastic recursive algorithms and stochastic games.

### 4. The Syed Husain Zaheer Medal to Professor JB Joshi, FNA

For his work in the area of multiphase reactors. He has succeeded admirably in developing design procedure for multiphase sparged and mechanically agitated reactors which form heart of the chemical process industry.

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**5. The Kalpathi Ramakrishna Ramanathan Medal to Professor BN Goswami, FNA,**

For his contributions in the area of atmospheric dynamics and climate studies and the discovery of Indian ocean dipole mode. This opened a new area of research in air-sea interactions.

**6. Professor Shyam Bahadur Saksena Memorial Medal to Professor AN Lahiri Majumder, FNA**

For his contributions in the area of inositol biosynthesis in plants and showing their role in stress tolerance.

**7. Professor KP Bhargava Memorial Medal to Dr BN Dhawan, FNA**

For his contributions in basic neuro-pharmacology which have been focused on neurotransmitters modulating CNS activity and characterization of their receptors. He has evolved novel and effective bio-evaluation strategies for natural products, developed novel drug entities. He has a major contribution to developing national capacities in drug research and in clinical pharmacology.

**8. Dr Yellapragada SubbaRow Memorial Lecture to Dr Syed E Hasnain, FNA**

For his contributions to basic research related to mycobacteria and for providing outstanding leadership to molecular analyses of pathogens.

**9. The Bires Chandra Guha Memorial Lecture to Dr Amitabha Chattopadhyay, FNA**

For his contributions to the development of methodologies for characterization of biophysical and other properties of cell membranes that have resulted in major advances in research and applications of membrane biology.

**10. Dr MR Das Memorial Lecture to Dr Shahid Jameel, FNA**

For his contributions to the molecular biology and epidemiology of important human pathogenic viruses.

**11. Professor Sadhan Basu Memorial Lecture to Professor J Gopalakrishnan, FNA**

For his wide ranging contributions in the area of inorganic solid state synthesis and materials chemistry.

**12. Professor K Rangadhama Rao Memorial Lecture to Professor DD Sarma, FNA**

For his contributions in the field of X-ray spectroscopy elucidating the novel physics of strongly correlated systems.

**13. Professor Panchanan Maheshwari Memorial Lecture to Professor JP Khurana, FNA,**

For his work on the functional genomics of photomorphogenesis.

**14. Professor Harswarup Memorial Lecture to Professor T Subramoniam, FNA,**

For his contributions to the understanding of reproductive physiology of crustaceans that are dominant aquatic arthropods. His work on molecular characterization of vitellogenin receptor of the crab *Scylla serrata* has revealed its immunological identity with mammalian LCD receptor, suggesting co-evolution along the lines of ligand and receptor.

**INSA Medal for Young Scientists - 2008**

1. **Dr Khawaja Ashfaque Ahmed** (b.02.01.1973), PhD, Assistant Professor-cum-Jr-Scientist, Department of Animal Breeding and Genetics, Bihar Veterinary College, Patna.

For his contributions on innate immunity loci in poultry.

2. **Dr Udaya K Anandavardhanan** (b.25.05.1976), PhD, Assistant Professor, Department of Mathematics, Indian Institute of Technology, Mumbai.

For solving many interesting cases of conjectures of Jacquet, Flicker and Rallis.

3. **Dr Sangita Bose** (b.21.01.1977), PhD, Guest Scientist, Max Planck Institute for Solid State Research, Nanoscale Science Department, Germany.

For her studies of the size dependence of superconducting properties of nanostructured thin films, providing new insights on the competing influences of surface and quantum size effects.

4. **Dr Saibal Chatterjee** (b.29.04.1977), PhD, Post-Doctoral Fellow, Department of Epigenetics,

Friedrich Miescher Institute for Biomedical Research, Maulbeerstrasse, Switzerland.

For his contributions in the area of *tRNA* import in Kinetoplast/mitochondria of the protozoan parasite *Leishmania*.

5. **Dr Sagnik Dey** (b.09.10.1976), PhD, Post-Doctoral Research Associate, Department of Atmospheric Sciences, University of Illinois, Urbana, Illinois, USA.

For his work on determination of radiative forcing caused by aerosols.

6. **Dr Siddhartha Gadgil** (b.11.07.1974), PhD, Associate Professor, Department of Mathematics, Indian Institute of Science, Bangalore.

For his contribution in the active area of *Low dimensional topology* solving difficult problems.

7. **Sh Agneyo Ganguly** (b.01.11.1978), MTech, Senior Research Fellow, Molecular Parasitology Laboratory, Indian Instt of Chemical Biology, Kolkata.

For delineating the structure and function of *Leishmania donovani* topoisomerase I .

8. **Dr Ashish Garg** (b.13.09.1973), PhD, Assistant Professor, Department of Materials and Metallurgical Engineering, Indian Institute of Technology, Kanpur.

For developing fundamental understanding of ferroic by careful experiments and analysis.

9. **Dr Santosh Janardan Gharpure** (b.21.01.1974), PhD, Assistant Professor, Department of Chemistry, Indian Institute of Technology Madras, Chennai.

For developing new methods for the synthesis of biologically important cyclic ether derivatives.

10. **Dr Parag Ratnakar Gogate** (b.30.06.1975), PhD, Lecturer, Chemical Engineering Department, Institute of Chemical Technology, University of Mumbai, Mumbai.

For his fundamental work on the cavitation dynamics and its applications in intensification of chemical and physical processing which have already found applications in industry.

11. **Dr Parameswar Krishnan Iyer** (b.27.04.1973), PhD, Assistant Professor, Department of Chemistry, Indian Institute of Technology, Guwahati.

For his contributions in the area of polymer based light emitting materials which are useful for diode based device applications.

12. **Dr Telikepalli Kavitha** (b.08.05.1974), PhD, Assistant Professor, Computer Science and Automation Department, Indian Institute of Science, Bangalore.

For her contributions in designing data structures for a spectrum of graph thematic problems and arriving at complexity analysis requiring new methodologies and mathematical techniques.

13. **Dr Perumal Senthil Kumar** (b.18.06.1973), PhD, Scientist B, National Geophysical Research Institute, Hyderabad.

For his contribution on determination of thermal structure below Archaean and proterozoic terranes in India and on fracture propagation around meteorite craton.

14. **Dr Partha Sarathi Mukherjee** (b.11.02.1973), PhD, Assistant Professor, Inorganic and Physical Chemistry Department, Indian Institute of Science, Bangalore.

For his contributions in design of molecular magnets and in the generation of nanoscopic assemblies of defined shape.

15. **Dr R Nagarajan** (b.13.07.1975), PhD, Reader, School of Chemistry, University of Hyderabad, Hyderabad.

For developing innovative procedures for the synthesis of biologically important carbazole derivatives.

16. **Dr Bipul Pal** (b.12.10.1974), PhD, Assistant Professor, Indian Institute of Science Education and Research (IISER), Kolkata.

For his contributions in the area of dynamics of excitons in GaAs quantum wells using spectrally resolved pump-probe differential reflectivity measurements.



**17. Dr Dinesh Pal** (b.20.03.1977), PhD, Research Fellow, Department of Anesthesiology, West Medical Centre Drive, The University of Michigan, USA.

For developing the understanding of basic neural mechanism for regulation of rapid eye movement (REM) sleep. The work has unraveled the interactions between GABA and noradrenaline in pedunculo-pontine tegmentum area for such regulation. He is also recipient of INSA Professor LSS Kumar Memorial Award.

**18. Dr Vaibhav Shridhar Prabhudesai** (b.08.10.1977), PhD, Post Doctoral Fellow, Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot, Israel.

For developing a novel “velocity slice imaging” technique to study the dynamics of dissociative electron attachment.

**19. Dr Rohini Qamra** (b.20.02.1976), PhD, Postdoctoral Research Fellow, Institute of Molecular and Cell Biology, Proteos, Singapore.

She has extensively characterized Cpn60s gene-protein encoded by *Mycobacterium tuberculosis* and her structural data revealed as to why the gene-product is in dimeric form and also loses its ATPase activity.

**20. Dr Ram Rup Sarkar** (b.26.09.1974), PhD, Scientist C, Centre for Cellular and Molecular Biology, Hyderabad.

For use of imaginative mathematical modelling skills towards understanding the interaction between T- cells and tumour cells.

**21. Dr Deepak Sharma** (b.27.05.1977), PhD, DBT-Postdoctoral Fellow, National Institute of Immunology, New Delhi.

He has demonstrated that a partially complemented mutant of the DevR gene of *Mycobacterium tuberculosis* had markedly reduced virulence and could be developed as a vaccine candidate. He has also developed several web based search platforms for the *in silico* analysis of regulatory networks which have a general applicability .

**22. Dr N Byrareddy Siddappa** (b.15.07.1975), PhD, Postdoctoral Research Fellow, Department of Cancer Immunology and AIDS, Dana-Farber Cancer Institute, Harvard Medical School, Boston, USA.

He has demonstrated for that the Tat protein of HIV-I subtype C is a defective chemokine, thus providing a pathogenesis model to explain low levels of dementia in Indians infected with HIV. He has also carried out studies on method of development for HIV genotyping, enabling analysis of large number of Indian cases.

**23. Dr Dharendra Kumar Simanshu** (b.13.12.1976), PhD, Research Fellow, Memorial Sloan-Kettering Cancer Center, Rockefeller Research Laboratory, New York, USA.

For his contribution to the understanding of structures of important enzymes of *Salmonella typhimurium*.

**24. Dr Sharmistha Sinha** (b.10.08.1979), PhD, Research Associate, Molecular Biophysics Unit, Indian Institute of Science, Bangalore.

For her contributions to the biology of protein misfolding that result in the formation of insoluble fibrils found in certain human dementias.

**25. Dr Durai Sundar** (b.10.10.1973), PhD, Lecturer, Centre for Bioinformatics, School of Life Sciences, Pondicherry University, Pondicherry.

For his contribution on rubber biosynthesis and its regulation in guayule (*Parthenium argentatum*), particularly in relationship with photosynthesis. He has also studied interaction of zinc finger proteins and developed tools to custom – design zinc finger proteins for exploitation in genetic manipulation.

**26. Dr JK Thakur** (b.30.04.1974), Postdoctoral Research Fellow, Department of Cell Biology, Harvard Medical School, MGH Cancer Centre, USA

For his contribution in discovery and characterization of auxin-induced genes in rice and demonstrating their feed-back regulation by auxins. He has also demonstrated the nuclear localization of OsiEZ1 and its importance in growth and development of rice seedlings.

**27. Dr Rajeev Kumar Varshney** (b.13.07.1973), PhD, Senior Scientist, MS Swaminathan Applied Genomics Laboratory, Global Theme – Biotechnology, ICRISAT, Andhra Pradesh.

For his outstanding work in developing markers and marker assisted breeding.

**28. Dr Sudesh Kumar Yadav** (b.02.01.1976), PhD, Scientist Gr IV (2), Biotechnology Division, Institute of Himalayan Bioresource Technology, Palampur.

He has measured methylglyoxal (MG) in plants and demonstrated the importance of MG detoxification by glyoxalase pathway in conferring stress tolerance in plants.

### Anil Kumar Bose Memorial Medal - 2008

1. **Dr Veena S Anil** (b.1971), Senior Scientist, Monsanto Research Centre, 44/2A, Vasants Business Park, Bellary Road, NH-7, Hebbal, Bangalore 560 092.

For her paper on “A plant  $Ca^{2+}$  pump, ACA2, relieves salt hypersensitivity in Yeast: modulation of cytosolic calcium signature and activation of adaptive  $Na^{+}$  homeostasis” published in *Journal of Biological Chemistry*, 2008 (printed in Feb issue, online available).

### A Workshop-cum-Project Investigator's Meet

A History of Science Workshop-cum-Project Investigator's meet was organized on April 9-11, 2008 at Indian Institute of Technology, Mumbai along with the annual meetings of the Indian National Commission for History of Science and the Research Council to evaluate the progress of the ongoing projects and to consider new proposals for grant-in-aid. to inculcate an interest among the younger generation in the subject a lecture programme and a workshop covering project presentations by the investigators and proposed Investigators were organized. This new initiative was introduced since 2004.

Three lectures were delivered by eminent speakers like Professor R Sridharan, M S Sriram, Dr. S N Bhat respectively, which was attended by a large number of participants and invited guests from reputed universities and institutions including local fellows of



Participants at the History of Science Workshop-cum-Project Investigator's Meet

the Academy, eminent historians, social scientists and institutional heads with great interest.

### Awards and Assignments to INSA History of Science Project Investigators

1. Dr. Ishrat Alam of Department of History, Aligarh Muslim University, Aligarh has been appointed Member Secretary of the Indian Council of Historical Research (ICHR), New Delhi. Dr. Alam is supervising the project, “Minerals, mining and metal working Crafts in Medieval India, C. 1600-1750 AD : A study based on Dutch Sources”. He has also contributed to the *History of Technology Volume II (Medieval Period)* – A special monograph series of the Indian National Science Academy.
2. Dr. K Ramasubramanian of Deptt. of Humanities and Social Science, Indian Institute of Technology, Mumbai, has been conferred Mahrshi Badarayan Vyas Samman (2008) for his outstanding contribution in inter-disciplinary research work in Sanskrit Pali/ Prakrit, Arabic and Persian in the age group of 30-40 yrs. The award carries a cash prize of rupees one lakh (one time) and a *Sanad* and will be presented by the President of India. Dr. Rama worked on *Tantra samgraha* with Profs. M.S.. Sriram and M. D. Srinivas, which has been published by Institute of Advanced Study, Shimla. He has also published *Ganita Yuktibhasa* which brings seminal contributions of the Kerala school of Astronomy. He has presently taken up a project



on “on the works of *Nilakantha*” – a Kerala astronomer.

3. Dr. S.K. Uma, National Institute of Advanced Studies, Indian Institute of Science Campus, Bangalore has been awarded Ph. D. degree on *A Mathematical Analysis and Updating of Eclipse Procedures in Indian Astronomical Texts* under the supervision of Dr. S Balachandra Rao. Dr. Uma has worked and Co-authored the project report *Karnakathalla of Bhaskara II* with Dr. Rao, which has been published under Supplementary section of the IJHS.

### Meet on Open Access, FOSS and Copyright Law

To deliberate on an important issue of facilitating unrestricted access to information, a “*Brainstorming Meet On Open Access, FOSS and Copyright Law for Scholarly Communication and Literary Work*” was organized by INSA on April 26, 2008 in its premises at New Delhi under the convenership of Professor N Balakrishnan, Vice-President INSA. The major aim of the meet was to draft the recommendations for changes in Policy and Law to the Government of India to be in tune with changing technologies in the new information era and the international developments.

The meeting had over 100 participants from all over the country representing all stakeholders and was inaugurated by the President INSA, Professor M Vijayan. In his welcome address, Professor Vijayan opined that the Academy would support and encourage policies requiring open access to research. It should be endeavoured by all key stakeholders to raise awareness about open access, both the concept and the many open access resources, through means appropriate to each stakeholder, such as education campaigns and promoting open access resources. Also support to the development of open access in all of its varieties, including gold (OA publishing) and green (OA self-archiving) is centric to these activities. Professor Balakrishnan, in his introductory remarks, gave the structure of the entire programme and said that no one is in doubt about the advantages of open access and the need for adopting it. What we need is a road map or an action plan.

The meeting had two sessions with first concentrating on Open access and FOSS, with focus



Professor N Balakrishnan, Vice-President INSA giving his introductory remarks on "Meet on Open Access, FOSS and Copyright Law"

on discussion on and finalization of the recommendations for changes in Policy and Law for enabling an Indian initiative in OA and FOSS. While the focus for the second session was Copyright of Scholarly Communication and Literary work.

The first session highlighted the initiatives taken in this direction and thus acknowledged the contributions of the Academies in the recent past. Dr S Arunachalam stated that INSA signed the Berlin Declaration on Open Access, made all its journals OA and convened a one-day session on OA at its annual meeting in Pune. IASc made its journals OA too. About thirty institutions set up institutional repositories, but only one of them made OA mandatory. The easiest mandate to implement is immediate deposit (ID)/ that should also be immediately made OA, but closed access is allowed if necessary during a publisher embargo (preferably capped at no more than 6 months). In addition to the above, there can also be a mandate to retain copyright, but with an optional author opt out from the copyright retention (as in the case of Harvard), if desired. There is a need to sensitize our scientists at all levels to the advantages of and need for adopting OA. We need to mount massive advocacy programmes. International collaboration and participation is essential for success of a global advocacy issue like OA.

Two other speakers of this session were Dr DK Sahu and Dr. Sunil Abraham. While Dr Sahu demonstrated to the participants his successful initiatives of a number of OA journals as a private

publisher, Dr Abraham focused on OA and FLOSS, and opined that a national policy on OA and FLOSS is necessitated. Support for legacy proprietary formats, adherence to open standards, cost of migration and disruption during migration needs to be addressed, he stated.

The second session was focused on *Copyright for Scholarly Communication and Literary work* with presentations by Prof N Balakrishnan and Shri Pravin Anand, where the draft recommendations were put forward, brainstormed and were given a concrete shape for further consideration.. While focusing on the Scholarly Communication, Literary work and Heritage Documents, Prof Balakrishnan stated the two items that need immediate action are (i) copyright period and (ii) Government Initiatives to improve access to Knowledge. Under these two action items, he outlined the initiatives to change the age old scenario and promote free, unlimited and unrestricted access to all. The Academy is actively considering the outcome of the Meet and taking further necessary steps to progress the matter in appropriate direction.

### International Activities

#### Meeting of Science Academies of G8+5 Academies

Professor M Vijayan, President, INSA and Professor TP Singh, Vice-President INSA attended the meeting of the Science Academies of G8+5 countries in Tokyo from March 16-19, 2008 which was hosted by the Science Council of Japan. Two statements on *Climate Change Adaptation and the Transition to a Low Carbon Society* and on *Global Health* were drafted jointly by the Heads of the Academies for submission to the Heads of Govt. of these countries. The Statements duly signed by the Heads of the G8+5 Academies was officially released in June 2008. A copy of joint statements may be seen in the following pages. Professor M Vijayan and Professor TP Singh also met President, and other officers the Japan Society for Promotion of Science (JSPS) to review the existing bilateral cooperation.

#### INSA signed agreement with the Turkish Academy of Sciences

The Indian National Science Academy signed an agreement with the Turkish Academy of Sciences



**Professor M Vijayan, President INSA and Professor TP Singh, Vice-President with Scientists of Turkish Academy of Sciences**

(TUBA) on May 29, 2008 to promote scientific and technological cooperation between the two Academies. The agreement will envisage on reciprocal basis, the organization of bilateral scientific meetings such as symposia, conference, workshop; exchange of information and publications and the exchange visits of scientists/scholars for short term to develop cooperative activities etc.

#### Visit of the President, Brazilian Academy of Science

Prof. Jacob Palis, President, Brazilian Academy of Sciences, visited INSA on September 15, 2008 and had discussions with Prof. N K Gupta, Vice-President and others on the existing bilateral cooperation with the Brazilian Academy of Sciences.



**Professor NK Gupta, Vice-President (Resource Management) with Professor Jacob Palis, President Brazilian Academy of Sciences during later's visit to INSA**



## Participation of Indian Scientists to the World Congress of International Union of Theoretical and Applied Mechanics (IUTAM)

Twenty five Indian scientists participated in International Congress of Theoretical and Applied Mechanics (ICTAM) - 2008 held in August 2008 at Adelaide (Australia) which was jointly hosted by Australian Academy of Sciences and New Zealand Theoretical and Applied Mechanics community.

Professor NK Gupta, FNA led the Indian delegation representing the Indian National Committee for IUTAM to the Congress which was attended by around 1200 scientists from all over the world. Indian scientists made presentations covering experimental, analytical and numerical studies in various areas of solid and fluid mechanics. Professor N K Gupta delivered an invited lecture on *Plasto-mechanics of Large Deformation under Impact Loading*. Professor Gupta has been elected to the Bureau and the Congress Committee of IUTAM. The IUTAM Congress Committee also agreed to sponsor a symposium in India.

## 31<sup>st</sup> International Geographical Congress (IGC), Tunis, Tunisia during August 12-15, 2008

The 31<sup>st</sup> IGC, Tunis programme included plenary sessions, and special sessions on International Year of Planet Earth (IYPE), and Culture and Civilisation of Human Development (CCHD), Technical sessions, Pre and Post Congress excursions and Workshops. Indian delegation in the congress were led by Dr RB Singh (Delhi University) included other 17 geographers from Delhi, Rohtak, Patna, Bangalore, Shilong, Aligarh, Mysore, Bodh Gaya and Siliguri etc. Dr. R B Singh has been nominated as Vice-Chair of the IGU Commission on Biogeography and Biodiversity. A Country Report-Progress in Indian Geography 2004-08, containing 20 Chapters on Indian Researches done in different fields of Geography, was distributed to the IGU General Assembly and National Delegates. Recommendation included strengthening teaching and research for promoting ecosystem integrity, conservation and sustainable use of resources and social-ecological resilience through focusing food, climate, water, biodiversity and health. They discussed the concerned area of vulnerability like resource-use conflict, policy-implication conflict and risk-awareness

analysis to develop strategies for communication and geoscientific knowledge transfer to policy makers. There is a need to use a diversity of channels in a targeted manner to ensure that appropriate geographical technology such as GIS, GPS and Remote Sensing is used for solving global geographical problems. Attempt should be made to bridge the gap between academic community and policy development. Inviting officials and community leaders to geographical activities, it is possible to resolve various socio-economic and ecological conflicts at local, regional and national levels.

## Eighth Sir J C Bose Memorial Lecture (2008)

The Eighth Sir JC Bose Memorial Lecture(2008) was delivered by Professor Narendra Kumar, FNA, Homi Bhabha Distinguished Professor, Raman Research Institute, Bangalore at the Royal society ,London on September 16,2008 entitled *Quantum Phase and the Phase Breaking: Classicalization through Decoherence* covered two interesting physical phenomena that are essentially quantum mechanical in nature,i.e.classically these vanish identically,and, therefore, serve as laboratories (theorist's)for studying the classicalization caused by coupling to a dissipative environment phase breaking.The first of these two is orbital diamagnetism or rather the absence of it in a classical system of charged particles .This has been recognised by some as a surprise of theoretical physics in that the elementary but compelling picture of a charged particle orbiting in a magnetic field is expected to subtend a magnetic moment due to the amperian loop traced out by it ,with a sense that ought to be diamagnetic (Lenz's law).It is an insightful result (Bohr-van Leeuwen theorem)that these (diamagnetic)moments due to the charged particles orbiting in the interior of the sample are cancelled by the moments of the particles cuspidally skipping the bounday in a necessarily retrograde(paramagnetic) sense.The cancellation is exact and that is the surprize Prof. Kumar deconstructed thi surprize through an explicit and exact space- time picture described by the classical Langevin equation for a harmonically bounded particle,and brought out the subtle role of the boundary contained in the ordering of the two limits—one must let time tend to infinity before letting the boundary recede to infinity,that leads to zero orbital diamagnetism classically.Reverse the order of the limits and the moment turns out to be non-zero! Earlier

equivalent result was arrived at by C G Darwin based on equilibrium statistical mechanics(hence the phrase Darwin Limit). Quantum Langevin equation of course gives the expected diamagnetic moment that crosses over to the classical limit(zero) as the dissipation is increased to infinity.Again the order of limits is crucial. Based on these, Prof.Kumar wondered what if the system is finite but unbounded (a dielectric core with an ultra- thin conducting shell).Should we expect a giant diamagnetism? Also,for particles with finite lifetime(electron -hole pair recombination )the boundary may never get sampled. These Avoided Cancellations offer experimental challenge. The other phenomenon discussed was the resistance fluctuation of disordered quantum resistors-again an essentially quantum phenomenon which was shown to classicalize to zero with increasing dissipative coupling.For this he made use of the Invariant Imbedding technique due originally to the Astrophysicist S. Chandrasekhar. As an aside, Prof.Kumar pointed out that the quantum resistors (he labelled them provocatively A,T G C...) combine serially not only non-additively but also in a sequence-dependent manner .Could the sequence information be encoded resistively,he wondered.

## Local Chapter Activities

### Mumbai Local Chapter

Mumbai Chapter of the Indian National Science Academy organized the National Science Day celebrations on February 28, 2008, jointly with Bhabha Atomic Research Centre (BARC). As a part of the celebrations, about 200 science students studying in XIth std. were invited to BARC from various colleges, including the Atomic Energy Jr. College, Anushakti Nagar, SIES College, Sion; Swami vivekanand College, Chembur, and St. Xaviers' College, Fort. The students were first briefed about the various facilities and thereafter taken around to visit DHRUVA Reactor, APSARA Reactor, Food Irradiation Processing Laboratory and Waste Management Division of BARC.

In the afternoon, three popular science lectures were delivered by Mumbai-based newly elected fellows of the Indian Academy of Sciences, Bangalore. Dr Srikumar Banerjee, FNA, Director, BARC, presided over the function held at the Central Complex

Auditorium, BARC. He briefed students about the various R&D activities of BARC and elaborated the efforts that are being made to attract young minds to the field of R&D. Dr S M Sharma, Head, High Pressure Physics Division spoke on Physics with Synchrotron Radiation. Dr S K Apte, FNA, Associate Director, Bio-Medical Group delivered a talk entitled *Living Dangerously; The Deinococcus way*, wherein he described the extreme radioresistance of this superbug and elucidated the biotechnological applications thereof. Prof Dulal Panda, from the School of Biotechnology, Indian Institute of Technology, Mumbai discussed the importance of cell architecture in his talk entitled *Cytoskeleton and Human Diseases*. Mr R K Sharma, Head, Media Relations & Public Awareness Section, BARC proposed a vote of thanks.

### Chandigarh Local Chapter

A symposium in honour of the internationally renowned mathematicians, Prof R P Bambah, FNA was held at the Indian Institute of Science Education and Research (IISER), Mohali on August 16, 2008 in recognition of his services in mathematics education and research.

Professor Bambah is a specialist in the “number theory” and “discrete geometry”. He has authored/co-authored/edited a large number of research publication. He is presently Professor Emeritus at Punjab University and has played a leading role in building the Department of Mathematics, Panjab University, and getting it raised to the level of a center for advanced study in mathematics.His efforts in developing a school in number theory at Chandigarh have received world-wide acclaim. He has been the President of the Indian Mathematical Society.

Professor Bambah is a former Vice-Chancellor of Punjab University. He is trustee of the Tribune Trust and Vice Chairman of the governing body of CRRID, Chandigarh. He has been honoured with the Srinivasa Ramanujan Medal, Distinguished Service Medal by the Mathematics Association of India, Meghnad Saha Award, Padma Bhushan by the Govt. of India, Ramanujan Memorial Lecture Award, Jawaharlal Nehru Birth Centenary Lecture Award and the Aryabhatta Medal of the Indian National Science Academy among others. He has been the general president of the Indian Science Congress Association,



a member of the University Grants Commission and the chairman of the governing body of the Inter-University Centre of Astronomy and Astrophysics. He was elected fellow of Indian National Science Academy in 1955 at the young age of 30. He is a fellow of the Indian Academy of Sciences, National Academy of Sciences and the Third World Academy of Sciences.

Two of Professor Bambah's former students and presently colleagues at PU delivered lectures at the symposium namely Professor R J Hans Gill, FNA Professor Emeritus and NBHM visiting Professor spoke on *Mathematical contribution of Professor Bambah* and Professor IBS Passi, FNA Professor emeritus and honorary Professor, IISER Mohali, spoke on *Niels Henrik Abel (1802-1829) and Abel Prize - 2008*. The Symposium was sponsored by the Chandigarh Chapter of the Indian National Science Academy and the Indian Institute of Science Education and Research, Mohali. It was organized by Prof R C Mahajan, FNA, convener, INSA(Chandigarh Chapter) and Prof N Sathyamurthy, FNA Director, IISER, Mohali.

### Kolkata Local Chapter

The Kolkata Chapter discussed the ways to promote science awareness and temperament to take research in science as a career for the school students. The meeting was attended by a number of scientists from various institutes and universities in Kolkata. It was decided that the main thrust should be given in the rural and urban areas away from the Kolkata metro, since the students in Kolkata are generally privileged to have lectures, seminars, discussions etc. on science frequently in the city.

Two measures were suggested for the purpose. Lectures etc. in Kolkata will be preferable where it will be easier to get transport for the students from districts to come to the city than organizing the event in their schools. Second option will be that the scientists/teachers will go to schools and undergraduate colleges in remote districts where teaching aids and power supply would be dependable.

Initially a few events were suggested: In Narendrapur R K Mission where students from adjacent areas could join the seminars etc. In association with JBNSTS, the organization that take up such activities

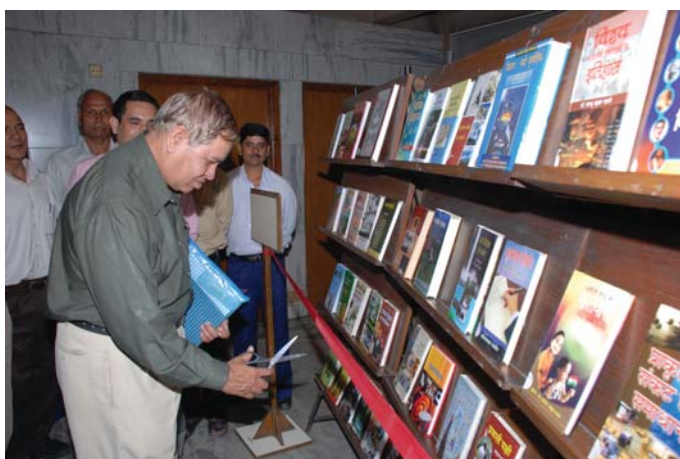
in many places far from the city and developed liaison with many schools, colleges and other organizations interested in promoting such activities and can provide infrastructures for this purpose. Schools around the city where individual INSA fellows could lecture to students were not included in this discussion because these events are very frequent.

The following Lectures / Seminars/Discussion meetings were further organized:

1. A Summer School at Indian Association for the Cultivation of Sciences was organised during May 17-31, 2007 participated by about one hundred High School students from all over West Bengal.
2. An Open House in the Department of Biophysics, Molecular Biology and Genetics, College of Science, Calcutta University was organised on July 27, 2007 with participation of about 20 students of class XI from B D Memorial Institute at Narendrapur. They were told about the use of various instruments used in molecular biology labs and demonstrated the use of some of them. They purified plasmids from cells and ran agarose gel electrophoresis.
3. A Science workshop at Ananda Ashram Sarada Vidyapith, Kolkata was arranged on February 23, 2008 with participation of around 100 High School Science students from 5 schools in North 24 Parganas. There were two lectures held on Molecular Biology and Chemistry followed by Poster presentation by the students who worked hard to collect information from books and mainly internet.
4. One Day seminar in the Chemistry Department in Presidency College, Kolkata on March 18, 2008 was held in collaboration with West Bengal Council of Science & Technology. A number of distinguished speakers talked about their research and area of expertise. It was attended by many students from a number of colleges and schools in and around Kolkata.

### Hindi Fortnight

Hindi Fortnight was observed in the Academy during September 15-29, 2008 to promote use of official language. During the period, various programmes in



**Shri Nand Kishore Chawla, Central Translation Bureau inaugurating the exhibition of Hindi Books on 15 September 2008**



**Dr HN Dutta, Director, Roorkee Engineering and Management Technology Institute delivering the talk on "Bhucompon Ka Purwabhash"**

Hindi language such as Lectures, Play, Sulekh Competition, Dictation Competition, Quiz Competition. Documentary Films were arranged. Staff members with great enthusiasm participated in these programmes: Shri Jagdish Kumar, Junior Translator gave an update of the official language position in the Academy. A lecture on *Importance of official language Hindi and its constitutional status* by Shri Nand Kishore Chawla, Assistant Director (O.L), Central Translation Bureau, New Delhi was organized on September 15, 2008. An exhibition of Hindi books was also arranged which was opened by Shri Chawla following the lecture. A Hindi play was organized on 17 September directed by Sh Danesh Iqbal. A lecture was delivered on 29 September entitled *Bhucompon Ka Purwabhash* by Dr H N Dutta, Director, Roorkee Engineering and

Management Technology Institute, Shamli which was followed by Prize distribution to the winners of various competitions by Deputy Executive Secretary.

### **Congratulation for Completion of 50 year of INSA Fellowship** (in continuation of issue no 191)

**Dr RN Chakravarti** (b. 1916), Elected (1956)

**Dr K Chandrasekharan** (b. 1920), Elected (1954)

**Dr BR Nijhawan** (b. 1915), Elected (1957)

**Professor CR Rao** (b. 1920), Elected (1954)

### **Awards and Honours**

**Professor KL Chopra, FNA**, was conferred with Distinguished Engineering Educator Award by Indian Society of Mechanical Engineers. He had also received Plaque of Honour by Photovoltaic Community of India for lifetime contributions to the Science and Technology of Thin-Films.

**Professor NK Gupta, FNA**, has been elected to the Congress Committee and to the Bureau of the International Union of Theoretical and Applied Mechanics (IUTAM). He was elected member of the Scientific Programme Committee of the International Congress on Industrial and Applied Mechanics and also the Chairman of the Panel on Solid Mechanics. Professor Gupta has also been awarded the degree of Doctor Honoris causa by the Russian Academy of Sciences and has been elected a Fellow of the Third World Academy of Sciences (TWAS).

**Professor BLS Prakasa Rao, FNA**, has been selected for National Award in Statistics for Senior Statistician (2007-2008) instituted by the Govt. of India in the memory of Professor PV Sukhatme.

**Professor J Nanda, FNA** has been selected for INAE Professor S N Mitra Memorial Award-2008

**Dr Satinder Kumar Sikka, FNA** has been selected by the Indian Nuclear Society for the Seventh INS Homi Bhabha Life time Achievement Award for the year 2007.

**Professor N Rudraiah, FNA** has been awarded Sir M Visvesvaraya State Award – 2006 in appreciation and recognition of his exceptional life time contribution for the development of Science and Technology by the Deptt of Science & Technology, Government of Karnataka during September 2008.



## INSA Fellows elected to the Fellowship of Third World Academy of Sciences (TWAS)

### 2008

R V Hosur, FNA  
K Bhattacharyya, FNA  
T K Chandrashekar, FNA  
N K Gupta, FNA  
J B Joshi, FNA  
V P Dimri, FNA  
S W A Naqvi, FNA  
G Baskaran, FNA  
R Ramaswamy, FNA

### 2007

D Chatterji, FNA  
S K Banerjee, FNA  
S Dasgupta, FNA  
R Ramesh, FNA  
C Dasgupta, FNA  
D D Sarma, FNA

### 2006

B B Chattoo, FNA  
V S Chauhan, FNA  
A S Raghavendra, FNA  
S K Sarin, FNA  
K N Ganesh, FNA  
J S Yadav, FNA  
B Raj, FNA  
R J Hans-Gill, FNA  
M Barma, FNA  
D Dhar, FNA  
S Wadia, FNA

### 2005

V P Sharma, FNA  
S K Sopory, FNA  
M K Bhan, FNA  
N Sathyamurthy, FNA  
D Chakravorty, FNA  
A Sahni, FNA

### 2004

B Bhattacharyya, FNA  
M R N Murthy, FNA  
B Bagchi, FNA  
E DJemmis, FNA

S S Katiyar, FNA  
J Nanda, FNA  
A K Singhvi, FNA  
G B Nair, FNA  
J N Goswami, FNA  
A Sen, FNA

### 2003

S Z Qasim, FNA  
T P Singh, FNA  
A Surolia, FNA  
B M Deb, FNA  
N Balakrishnan, FNA  
P R Rao, FNA  
D K Paul, FNA  
A Anand, FNA  
N K Ganguly, FNA  
K Krishnaswamy, FNA  
L C Gupta, FNA

### 2002

N B Nair, FNA  
J S Singh, FNA  
K Datta, FNA  
M R S Rao, FNA  
G R Desiraju, FNA  
P T Manoharan, FNA  
S Ranganathan, FNA  
B L K Somayajulu, FNA  
K B Sinha, FNA

### 2001

H G S Chandra, FNA  
P S Goel, FNA  
B D Kulkarni, FNA  
R C Mahajan, FNA  
D Mukherjee, FNA  
V S Ramamurthy, FNA  
V Ravindranath, FNA  
S M Roy, FNA  
L Singh, FNA  
B Sinha, FNA  
A K Sood, FNA  
S K Tandon, FNA  
M Vijayan, FNA

**News about Secretariat****Retirement**

**Shri Vijay Kumar Gupta** retired on 30 June 2008 as Section Officer II on superannuation. He had joined the Academy on 09 November 1978. During his tenure, he worked in Publication, ICSU and Inter-Academy sections of the Academy.

**Change of Address****Professor RC Mahajan, FNA**

Email: indurcool@gmail.com

**Professor RP Gandhi, FNA**

Fax: 27667730

**Professor NS Narasimhan, FNA**

Email: nsn1928@gmail.com

**Professor Calyamudi R Rao, FNA**

School of Life Sciences

University of Hyderabad

Gachibowli, Hyderabad 500 056

**Professor R Sridharan, FNA**

INSA Senior Scientist

Chennai Mathematical Institute

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Padur PO, Siruseri, Chennai

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L & T Serene County, Gachibowli

Hyderabad-500032.

Ph. Nos. (040)-2300 3455 (landline);

99-082-35050 (M)

**Professor R Jayaraman, FNA**

RH 35, Palaami Enclave

Reserve Line,

New Nathan Road

Madurai 625 014

**Professor V M Katoch, FNA**

Director General,

Indian Council of Medical Research,

Ansari Nagar,

New Delhi - 110029

**ANNOUNCEMENTS****Third World Academy of Sciences (TWAS) Awards and Prizes****• TWAS Prizes**

The TWAS Awards in Basic Sciences and the TWNSO Prizes in Applied Science have been merged to form this new programme. Each year the Academy will award eight prizes of US\$10,000 each to individual scientists from developing countries who have made outstanding contributions to knowledge in the following eight fields of science: biology, chemistry mathematics, physics, agricultural sciences, earth sciences, engineering sciences, and medical sciences. Next deadline for nominations: 31 March 2009.

**• The Trieste Science Prize**

TWAS and illycaffè, in collaboration with the Municipality of Trieste and Fondazione Internazionale per il progresso e la libertà delle scienze, have launched the Trieste Science Prize. Two prizes are given annually to eminent scientists living and working in developing countries who have made significant contributions to global science. Each prize carries a US\$50,000 award. Deadline for 2008 nominations (in earth, space, ocean and atmospheric sciences and in engineering sciences): 31 January 2009.

**• TWAS Prizes to Young Scientists in Developing Countries**

The Academy invites national science Academies, scientific research councils, ministries of science and technology and high-level research organizations in the South to institute a scheme of TWAS prizes for young scientists in their countries. Important: The programme is directed at organizations, not individual scientists. Deadline: None.



- **TWAS Medal Lectures**

Every year, the Academy honours three TWAS Members for their achievements in their fields of research. The recipients lecture on a main aspect of their work, and are presented with a plaque.

- **Abdus Salam Medal for Science and Technology**

The medal was instituted to honour the Academy's founder and first president, Professor Abdus Salam. It is awarded to highly distinguished personalities who have served the cause of science in the Third World. Research grants of up to US\$ 10,000 each are offered to scientists from developing countries of proven ability for research projects in Biology, Chemistry, Mathematics and Physics. The Grants are intended to cover the costs of specialized equipment, essential consumable material, and scientific literature. Deadlines: 1 July and 1 December each year

- **TWAS Research Units in Least Developed Countries**

The Academy has instituted a new project in support of science and technology developments in the Least Developed Countries. The initiative is meant to build and sustain units of scientific excellence, assisting them to achieve a critical mass of highly qualified and innovative scientists who will be able to better address real-life problems facing the countries. Each TWAS research unit selected receives a grant of up to \$30,000 to strengthen its activities. The grant can be renewed for up to three years. The deadline for submission is 31 August of each year.

- **Spare Parts for Scientific Equipment**

The Academy provides funds for covering the cost of small items of spare parts for scientific equipment in Third World Institutions, up to a maximum of US\$1,000 each. Deadline: None.

## **Proceedings of the Indian National Science Academy**

### **Invitation to Authors**

Proceedings of the Indian National Science Academy is an inter-disciplinary journal devoted to publication of review papers, original research articles, short communications, commentaries, lateral thinking and emerging techniques in the areas of Physical, Biological, Applied Sciences and also Engineering. There are four issues of the Journal published in March, June, September and December.

Three copies of the manuscript complete with figures, tables and any other material (one original and two copies) may be submitted to the Editor-in-Chief, Proceedings of Indian National Science Academy, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110002. A copy of the manuscript may also be submitted in the electronic form at [procinsa@insa.nic.in](mailto:procinsa@insa.nic.in).

### **History of Science**

Research proposals are invited from researchers interested in taking up source and theme oriented studies by compiling important sources for study, translation of important scientific and technical works and making critical assessment in the areas like mathematics, astronomy, medicine, architecture, product, life and works of eminent scientists, institutions, science and societies etc. relating to Indian science and technology in proper historical perspective.

Application form may be obtained by sending a request to the History of Science Unit of Academy.

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