

ACADEMY NEWS

INSA MEETINGS

Several meetings were held during July 23-25, 2018 in the Academy premises. These included meetings of ICSU National Committees, Sectional Committees for recommending names of new Fellows and Committee for the selection of Foreign Fellows to be elected by the Council of the Academy. These were followed by meetings of the Council and General Body on July 25, 2018.

During the General Body Meeting, Professor AK Sood, President INSA, announced the following:

- (a) An Innovation Cell will be established in INSA which will draw support from the fellowship of NASI, IASc and INAE besides INSA. Professor Ashok K Singhvi, Vice-President, Science and Society, will monitor the activities of this cell.
- (b) There is a change in the schedule of Council/General Body meetings. Instead of four, only three Council and General Body meetings will be held each year. This will save the precious man days of the participating members besides the expenditure involved in organizing these meetings.

AWARD LECTURES DELIVERED UNDER LOCAL CHAPTERS

Professor Subramania Ranganathan Memorial Medal (2018): Professor VK Singh, FNA, Director, Indian Institute of Science Education and Research Bhopal, Bhopal delivered Professor Subramania Ranganathan Memorial Medal lecture on *Chirality Transfer in Asymmetric Synthesis: Conjugate and Vinylogous Conjugate Addition Reactions* at CBMR, Lucknow on June 21, 2018.



Professor KN Ganesh, FNA presenting a medal of the award lecture to Professor VK Singh, FNA

Professor Darshan Ranganathan Memorial Lecture (2016): Professor M Lakshmi Kantam, FNA, Dr BP Godrej Distinguished Professor, Department of Chemical Engineering, Institute of Chemical Technology, Mumbai delivered Professor Darshan Ranganathan Memorial Lecture on *C-H Bond Activation by using Copper Catalysts* at Institute of Chemical Technology, Mumbai on July 30, 2018.

Syed Husain Zaheer Medal (2017): Professor GD Yadav, FNA, Vice-Chancellor & RT Mody Distinguished Professor, Institute of Chemical Technology, Mumbai delivered Syed Husain Zaheer Medal lecture on *Selectivity Engineering in Valorisation of Biomass, CO₂ and Water into Chemicals, Materials and Energy* at Institute of Chemical Technology, Mumbai on July 30, 2018.

INTERNATIONAL ACTIVITIES

Nominations/Election of Indian scientists for various positions at International Council for Science (ICSU) and its different Unions

- **Professor TR Ramadas, FNA**, Distinguished Professor, Chennai Mathematical Institute, Kelambakkam has been elected as Member-at-

Large, Executive Council of International Mathematical Union (IMU).

- **Professor Dipendra Prasad**, FNA, Distinguished Professor, School of Mathematics, TIFR, Mumbai has been elected as President of Commission for Developing Countries (CDC).

VISIT OF OVERSEAS DELEGATE TO INSA

- **INSA Chair Awardee**
 - **Dr V Ramalingaswami Chair Award (2017-18)**

Professor Anantanarayanan Raman, Ecological Agriculture & Sustainable Land Management, Charles Sturt University & EH Graham Centre for Agricultural Innovation, Australia, awardee of Dr V Ramalingaswami Chair of INSA visited India during July 16-26, 2018 as middle level outstanding scientist, nominated by Professors Raghavendra Gadagkar and Raman Sukumar, FNA, Centre for Ecological Sciences, Indian Institute of Science, Bengaluru. Professor Raman's report on the visit is as below.

The approved program entailed my professional visit to Centre for Ecological Sciences, Indian Institute of Science (CES-IISc), Bengaluru, as my principal host institution, and supplemental visits to several other universities and research institutions from July 16 to 26, 2018. During my visit, I delivered talks and conducted interactive workshops at Tamil Nadu Agricultural University, Coimbatore; Institute of Forest Genetics and Tree Breeding (Indian Council of Forestry Research and Education), Coimbatore; Department of Zoology, University of Calicut, Calicut; Manonmaniam Sundaranar University, Tirunelveli; Centre for Ecological Sciences, Indian Institute of Science, Bengaluru; School of Agriculture, Indira Gandhi National Open University, New Delhi and Division of Entomology, Indian Agricultural Research Institute, New Delhi.

This professional visit was mainly intended to explore new scientific research collaborations, sharing details of my research in the fields of chemical and molecular ecology of insect and plant interactions and environmentally friendly restoration of

contaminated land sites conducted over the last 10 years. Additionally some of the Indian colleagues wanted workshops on different, contemporary teaching strategies such as problem-based teaching-learning and curriculum design as relevant in science (especially agriculture) teaching. Accordingly, my interactions and interventions were carried out *via*

- formal talks/lectures
- interactive workshops for university academics
- interactive workshops for post-graduate students of biology, ecology and environmental sciences, and agriculture
- popular talks on selected themes of science history of India and on one occasion on the biological diversity of Australia.

The Dean (Sciences) of the Tamil Nadu Agricultural University, Coimbatore, Head of the Department of Zoology at the University of Calicut, Calicut, Head of the Department of Plant Sciences, Tirunelveli, Director of the School of Agriculture of the Indira Gandhi National Open University, New Delhi, and the Head of the Department of Zoology at the Manipur University, Imphal requested my attendance as a Visiting Scholar under this scheme. However due to constraints of time and possible inclement weather at Imphal, the proposed trip to Manipur University was abandoned. However, invitations from the Xavier Board for Higher Education in India, Bengaluru, Institute for Forest Genetics and Tree Breeding, Coimbatore, Director of the Museum of Agriculturally Important Insects of India, Indian Agricultural Research Institute, New Delhi materialized and I accepted their invitations as well.

I owe a deep sense of gratitude to Professors R Gadagkar and R Sukumar for nominating me for this prestigious award, which I cherish as intensely valuable. My thanks go to the Indian National Science Academy, New Delhi, for recognizing me and granting me this award. I am particularly delighted that my award went in the name of a highly distinguished medical scientist of India, the late Vulimiri Ramalingaswamy, whom I keep in high regard and respect.

SUPPORT FOR VISITING SCIENTISTS DURING MAY - JULY 2018

- Five Indian scientists were supported by the Academy for attending various ICSU sponsored international conferences abroad.
- 13 Indian scientists were supported by the Academy for attending various Non-ICSU sponsored international conferences abroad.
- 24 Indian scientists visited aboard under INSA Bilateral Exchange Programme with overseas academics.

SCIENTIFIC MEETINGS DURING MAY- JULY 2018

- Local Chapter conveners' meeting was held on June 14, 2018 at INSA premises. Professor AK Singhvi, Vice-President, Science and Society chaired the meeting. Convenors of several local chapters presented their activity. Members discussed about various steps and initiative that can be taken to make the local chapter activity more vibrant and contemporary.
- A meeting of Founding General Assembly of the International Science Council (ISC) was held in Paris during July 3-5, 2018. Professor Ajay Sood, President and Dr Chandrima Shaha, Vice-President, International affairs, INSA attended the meeting.

SCIENCE & SOCIETY PROGRAMME

- A conference on *Perspectives in GNE Myopathy: Research, Clinical Management and Patient Care* under the convenorship of Professor Alok Bhattacharya, School of Life Sciences and School of Computational and Integrative Sciences, JNU, New Delhi, was held at INSA, New Delhi during February 16-17, 2018. The conference was attended by stakeholders including patients, caregivers, clinicians and scientists. A report on the above conference follows:

GNE myopathy is an adult onset genetic disease in which there is progressive weakness

of distal muscles of the limbs, eventually leading to severe disability. To provide a platform for discussing different aspects of GNE myopathy, including patient care, a two-day meeting of all stakeholders including neurologists, physiotherapists and other experts, basic scientists, patients, families and caregivers was organized. The main theme of the meeting was "Finding a cure through sustained research" and covered five major subjects, clinical manifestations, diagnosis, current research, future prospects and patient well-being. The meeting was attended by more than 100 people and was sponsored by Jawaharlal Nehru University and World without GNE Myopathy, in addition to INSA.

The meeting started with opening remarks by Dr VK Paul, FNA a member of NITI Aayog. He emphasized the importance of working on rare diseases. Though the disease burden and the morbidity and mortality are huge in other diseases, rare diseases also need to be studied. Since rare genetic diseases affect a relatively small number of people they have been neglected. However, public health concept has to go beyond numbers. The problems of each individual must be addressed in a fair way - not taking away the rights of others. He further suggested that patient groups should guide the Government on how to move forward through concrete plan of action with timelines and milestones to be achieved. He also felt that there is a need for effective policy for drug development and drug adaptation. Government could give incentives like tax exemption.

Dr Zohar Argov, Isreal and Dr I Nishino, Japan, who have played key roles in the discovery of GNE myopathy, described different aspects of the disease as well as methods for diagnosis and the mutation spectrum seen in different patients in Japan and other parts of the World. Possible therapeutic options were also suggested. Different aspects of GNE myopathy in Indian patients were presented by Dr A Nalini, NIMHANS,

Bengaluru and Dr RK Singh, Grant Medical College, Mumbai. It appears that more and more patients from India are increasingly being diagnosed. Therefore, this disease may not be that rare. Newer methods are being tried for diagnosis and study of progression of the disease. Dr Jagannathan, FNA, AIIMS, New Delhi explained how magnetic resonance imaging can be used for determining progression of muscle degenerative diseases as well as its diagnosis. Dr Ashraf Mannan, Strand Life Science, Bengaluru showed how newer sequencing technologies, such as Next Generation Sequencing platforms are helping correct diagnosis of rare genetic disorders. Dr Stella Mitrani-Rosenbaum, Isreal, described her research into understanding the pathobiology of the disease, particularly the role of protein interaction partners of GNE in the disease phenotype. She believes that the manifested pathobiology may not be due to lower levels of sialic acid production. This was further emphasized by Dr R Arya, Jawaharlal Nehru University, New Delhi. She showed using an experimental cellular model that the mutations cause stress leading to an effect on cytoskeleton, mitochondrial and ER functions. Dr Madhuri Hegde, Emory University, USA presented preliminary data based on whole genome sequencing that suggest involvement of genes other than GNE in GNE myopathy. She plans to carry out a larger study to elaborate on this.

The next sessions were on different therapeutic options. A possible small molecular therapy was suggested by Dr Kausik Chakraborty, IGIB, New Delhi. There are many possibilities including chemical chaperones. Dr Arkashubhra Ghosh described their effort in developing gene therapy system for eye disorders and how the system can be used for other rare genetic disorders. Other possible therapeutic option is stem cell therapy. This was covered by Dr Sujata Mohanty, AIIMS, New Delhi who has developed a facility in Delhi. Dr Mitrani-Rosenbaum described the current effort towards development of a gene therapy system

for GNE myopathy and elaborated on problems faced. There was also a panel discussion of different approaches to development of a cure for GNE myopathy and possible roadmap towards this direction.

There were also a number of talks on patient well-being and independent living. Dr T Umopathy, Singapore, talked about enabled-leaving, drawing from many of their activities in Singapore. There were talks on Yoga, Ayurveda and physiotherapy to highlight their usefulness in keeping patient active. Overall, the meeting was a unique effort to look at the problem from different perspectives and one of the first on a rare disease.

- An International Conference on *Medicinal, Aromatic and Nutraceutical Plants from Mountainous Areas* will be organised jointly by The Departments of Life Sciences & Biotechnology, Graphic Era (Deemed to be University), Dehradun, Uttarakhand, India and American Council for Medicinally Active Plants (ACMAP), USA during February 14-19, 2019 at Graphic Era (Deemed to be University), Dehradun, Uttarakhand. The conference will be chaired by Professor LMS Palni, Vice-Chancellor, Graphic Era (Deemed to be University), Dehradun and Professor Joshee Nirmal, Fort Valley State University, USA.

RECENT PUBLICATIONS OF THE ACADEMY

Proceedings of the Indian National Science Academy

Volume 84, No. 2 (June 2018) issue of *PINSA* has been published. This issue included two sections, viz., i) INSA Commissioned Report on *A Strategic Roadmap for Computing Science and Engineering* consisting of six review articles and ii) a special section on RNA Biology consisting of nine review articles. It also included an INSA Policy Statement by Dr Praveen Chaddah and Professor SC Lakhotia, guest editorials by Professor RK Shyamasundar, FNA and Professor SC Lakhotia, FNA, and Academy News.

Indian Journal of History of Science (IJHS)

Volume 53, No. 2 (June 2018) issue of *IJHS* has been published. This issue includes papers on Concept of *śruti*, *svara* and *rāga* of classical music in Sanskrit texts; Brass, Zinc and the beginning of chemical industry; Discourses on indigenous and western medicines in colonial south India; Punjab agricultural college and research institute, Lyallpur (1906-1947); History of Yavaka from ethno-pharmacological perspective and Survival of stone wheel manufacture in south India and a Physics museum in BHU in 1942. The issue also contains three book reviews on Vedic Mathematics, plants of Kedarnath, and a brief history of science, besides a report on workshop on Importance of Eclipses in the History of Astronomy.

OBITUARY

RENGASWAMY RAMESH

Rengaswamy Ramesh (*b* 2 June 1956; *d* 2 April 2018) secured a PhD from Gujarat University under the supervision of K Gopalan at PRL, Ahmedabad and did his postdoctoral studies at his mentor's laboratory. He joined the Planetary and Geosciences Division of PRL as a research associate in 1987 and served the institution in various capacities as a Scientist-Grade D (1987-94), Reader (1994-98), Associate Professor (1999-2001), Professor (2002-07) and Senior Professor (since 2008) and was holding the position of a Foundation for GLocal Science Initiatives (FGSI) Outstanding Scientist. He was Visiting Research Associate with Devendra Lal at the Scripps Institution of Oceanography (1992-93).



Professor Ramesh made significant contributions to the reconstruction studies of paleo-

climatic and paleo-oceanographic conditions of the Indian Ocean. He, along with SK Bhattacharya and K Gopalan, established the first Stable Isotope Laboratory in India and applied the stable isotope methodology to various fields such as meteorology, paleoclimatology, archeology, ecology, hydrology, geology and oceanography. Various natural archives such as tree-rings, corals, peat deposits, speleothems, lake sediments and marine sediments were studied to decipher past climate changes, especially monsoons for the past 35 ka. His important discoveries include: equations for calculating past temperatures and rainfall from stable isotope ratios of some of these archives, and documentation of monsoon changes during the Holocene with high resolution. He was one of the lead authors of the book, *Climate Change 2013: The Physical Science Basis*, published by Cambridge University Press in 2014. He was also the project director of the National Program on Palaeoclimate studies of the ISRO-Geosphere Biosphere Programme (GBP).

Professor Ramesh was conferred with many awards including the National Merit Certificate by Ministry of Education and Social Welfare, All India Bengali Literary Conference Medal, Jawaharlal Nehru Memorial Fund Award, Jagirdar of Arni Gold Medal, Professor PE Subrahmanya Ayyar Gold Medal, Dr KS Krishnan Gold Medal, Dr KS Krishnan Memorial Prize, INSA Medal for Young Scientists, SS Bhatnagar Award for Earth, Atmosphere, Ocean and Planetary Sciences, TWAS Prize and Lifetime Achievement Award from Indian Space Research Organization. He was elected Fellow of the Indian Academy of Sciences, Bengaluru, National Academy of Sciences (India), Allahabad and the Third World Academy of Sciences (TWAS).

Professor Rengaswamy Ramesh was elected to the Fellowship of the Indian National Science Academy in the year 2001.

ANNOUNCEMENTS

Nomination for Election of Foreign Fellows

Nominations are invited from the Fellows of INSA for election of Foreign Fellows for the year 2019. Nomination form can be downloaded from the INSA website www.insaindia.res.in

INSA Medal for Young Scientists - 2019

Nominations are invited for **INSA Medal for Young Scientists – 2019**. Those born on or after **January 1, 1984** are eligible for consideration in the year 2019. The awardee shall receive a **certificate**, a **bronze medal** and cash award of **Rs. 50000/-**. Nominations may be proposed by a Fellow of the Indian National Science Academy or by earlier recipients of this award. Scientific societies of national standing, university faculties, post-graduate departments or research institutions may also nominate eligible candidates. The last date for receiving nominations for INSA Medal for Young Scientists is **October 31, 2018**. Nomination proforma can be downloaded from the INSA website www.insaindia.res.in.

Proposal for Lectures in the Remote/rural areas

The Academy has launched a programme under which INSA Fellows, Young Scientists, Teacher Awardees and INYAS members are encouraged to deliver Popular Lectures to young students and teachers of schools and colleges in remote/rural areas in India.

Proposals are invited from Fellows, INSA young scientists, INSA teacher awardees and INYAS members with details like name and address of the school/college where they wish to deliver lectures, title/s of lecture/s, proposed dates and the quantum of required travel support. Proposals may be sent to Executive Director, INSA at esoffice@insa.nic.in and to scisoc@insa.nic.in at the earliest.

Nomination for INSA Awards

The last date for receiving nominations for the following INSA Awards due for the year 2019 is **October 15, 2018**:

1. INSA-Vainu Bappu Memorial Award
2. PMS Blackett Memorial Lecture
3. Srinivasa Ramanujan Medal
4. Jagadis Chandra Bose Medal
5. Silver Jubilee Commemoration Medal
6. Golden Jubilee Commemoration Medal (Chemical Sciences)
7. Professor Brahm Prakash Memorial Medal
8. Professor K Naha Memorial Medal
9. Chandrakala Hora Memorial Medal
10. Professor Mihir Chowdhury Memorial Medal
11. Professor S Swaminathan 60th Birthday Commemoration Lecture
12. Professor Darshan Ranganathan Memorial Lecture
13. Dr Biren Roy Memorial Lecture

Nomination form can be downloaded from the INSA website **www.insaindia.res.in**.

Call for Research Proposal in History of Science

The Indian National Commission for History of Science approves, under the guidance of a Research Council, Research Projects on various subjects pertaining to history of science and technology in India. Through this programme, the Investigator can take up source and theme oriented study and compilations of important sources with commentaries; translation of important technical primary sources on mathematics, astronomy, medicine, alchemy, agriculture, natural products, life sciences, scientific traditions including oral traditions of scientific nature, metals and metallurgy, architecture and irrigation technology, for critical assessment relating to ancient and medieval periods. The Commission gives equal emphasis for historical evaluation of science and technology scenario in India during the 19th and 20th centuries. Study of pioneering institutions, popular perceptions of science development, tools, techniques and how the knowledge in each area of science has grown conceptually on the basis of International perspectives, are some examples of the research areas. Themes may also be selected depending on candidates' own aptitudes and specializations.

The last date for submitting research proposals is December 31, 2018. For all other details and application form, visit the website **www.insaindia.res.in** or mail at **ijhs@insa.nic.in**/**esoffice@insa.nic.in**.