

## 76th Annual Meeting of the Academy\*

About 300 fellows and associates of the Indian Academy of Sciences, Bangalore, gathered under the oyster-shaped dome of the auditorium at the National Institute of Oceanography (NIO), Goa for the 76th annual meeting of the Academy, traditionally held at different locations each year. The three-day meeting started with the Presidential address and included lectures by fellows and associates of the Academy. It also included public and special lectures, and two mini-symposia on stem cells and Indian estuaries.

Andre Geim and Konstantin Novoselov were awarded the Nobel Prize 2010 'for groundbreaking experiments regarding the two-dimensional material graphene'. Incidentally, in the Presidential address, A. K. Sood (Indian Institute of Science (IISc), Bangalore) talked about research in nanotubes that led to the two-dimensional structure called graphene and mentioned the areas of nanotechnology that are being worked on in his laboratory.

A symposium on stem cells in development and regeneration was organized keeping in view that stem cell biology is currently the most attractive field of research in biological sciences and is of huge demand with potential clinical applications. The adult brain has stem cells and the ability to make new neurons, but this ability is affected by environmental factors. The number of neurons increases with learning and administration of antidepressants! Antidepressants, however, have side effects and the exact time taken to induce new neurons in response

to the treatment of depressed patients with these drugs is not known! Also discussed were the feeder cell-free way of culturing corneal epithelium from limbal tissues using human amniotic membrane as a scaffold, beta-catenin and N-cadherin distribution in the brain, and the role of Lhx2 transcription factor in the formation of cerebral cortex of brain.

The other symposium was dedicated to a wide range of topics under the broader theme of Indian estuaries, aimed at creating awareness of the significance of estuarine systems and their important role in hydrological cycles, sediment supply to the oceans, small and large-scale ocean dynamics, local climate, etc. S. R. Shetye (NIO, Goa) presented a long-term data for the Mandovi estuary. Several other talks delivered by NIO faculty shed light on our current understanding of the physical and biogeochemical processes in the Indian estuaries. They urged the present scientific community to focus more intellectual power and effort in creating a holistic and systematic knowledge framework that can lead to policies for future protection, conservation and sustainable management of these ecosystems.

The first special lecture was delivered by A. K. Singhvi (Physical Research Laboratory, Ahmedabad) who showed reconstruction of the history of rivers, floods, earthquakes and deserts in India and Africa. K. V. S. Rao (International Centre for Genetic Engineering and Biotechnology, New Delhi), in the second special lecture, explained how interfering with the interaction between host cell and pathogen *Mycobacterium tuberculosis*, can serve as an alternative to chemotherapy for the treatment of tuberculosis.

Two public lectures were delivered; one by C. Raja Mohan (*The Indian Express*, New Delhi) and the other by Kaushik Basu (Chief Economic Advisor, Government of India). Mohan talked about the emerging role of India and China to engage in protection of the Indian Ocean. Basu emphasized on the role of higher education in the economic development of India.

Other topics discussed were organic-based technologies developed at IIT; bulk metallic glasses; self-assembly of donor and acceptor chromophore; development of substances for fast detection of methanol; potential of marine gas hydrates as an unconventional energy source; the analytical formulation and simulation testing of vortices in density gradients for possibly advancing the understanding of ocean floor mixing and cyclones; the history of research in neutrino detection and the ongoing effort to construct the India-based Neutrino Observatory in Bodi West Hill in southern India; the large potential of wireless sensor networks for industrial, environmental and defence monitoring; protein misfolding in multiple sclerosis; identification of structural motifs; engineering plants for disease resistance; role of heat shock proteins in seed germination and seed development in wheat during heat stress; etc. This way the annual meeting was a representation of almost all areas of science.

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