

Shanti Swarup Bhatnagar Prize For Science And Technology

2004

Biological Sciences

Dr Gopal Chandra Kundu

The Shanti Swarup Bhatnagar Prize for the year 2004 in Biological Sciences has been awarded to Dr Gopal Chandra Kundu of the National Centre for Cell Science, Pune. Dr Kundu's outstanding contributions have resulted in the molecular dissection of the regulation of metastatic potential of melanoma and breast cancers by a chemokine like, extra-cellular matrix protein – osteopontin. He has further demonstrated the existence of a novel signaling pathway that involves protein tyrosine kinase in regulating the motility of breast cancer cells.

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Dr Ramesh Venkata Sonti

The Shanti Swarup Bhatnagar Prize for the year 2004 in Biological Sciences has been awarded to Dr Ramesh Venkata Sonti of the Centre for Cellular & Molecular Biology, Hyderabad. Dr Sonti has made outstanding contributions in the area of plant-pathogen interactions. His work has led to the identification of novel virulence genes, which led to a better understanding of pathogenic function of these genes. This has also provided insight into the different ways by which host plant specialization might be achieved. His work on marker-assisted breeding has led to the incorporation of disease resistance characteristics into the genetic background of the commercially important Samba Mahsuri rice variety.

Chemical Science

Dr Vinod Kumar Singh

The Shanti Swarup Bhatnagar Prize for the year 2004 in Chemical Sciences has been awarded to Dr Vinod Kumar Singh of the Indian Institute of Technology, Kanpur. Dr Singh has made significant contributions to asymmetric synthesis, especially for enantio-selective reactions using rationally designed chiral ligands.

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Dr Siva Umapathy

The Shanti Swarup Bhatnagar Prize for the year 2004 in Chemical Sciences has been awarded to Dr Siva Umapathy of the Indian Institute of Science, Bangalore. Dr Umapathy has made significant contributions in the area of laser spectroscopy, in particular Raman spectroscopy, in the investigation of molecular dynamics.

Engineering Sciences

Dr Subhasis Chaudhuri

The Shanti Swarup Bhatnagar Prize for the year 2004 in Engineering Sciences has been awarded to Dr Subhasis Chaudhuri of the Indian Institute of Technology Bombay, (Mumbai). Dr Chaudhuri has done seminal work in the area of computer vision. He has developed sophisticated techniques for obtaining the super-resolved depth map from defocus. His work has been used in many different areas, such as cytology, microscopy, material, biomedical and pharmaceutical sciences. He pioneered the research area called motion-free super-resolution.

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Dr Vivek Vinayak Ranade

The Shanti Swarup Bhatnagar Prize for the year 2004 in Engineering Sciences has been awarded to Dr Vivek Vinayak Ranade of the National Chemical Laboratory, Pune. Dr Ranade has made important contributions in advancing understanding of bubble column, stirred and trickle bed reactors by developing various novel CFD models. The models have helped in predicting unsteady as well as time-averaged flow characteristics of chemical reactors. They have provided new insights about multiphase systems and helped to achieve significant performance enhancements in industrial practice.

Mathematical Sciences

Dr Arup Bose

The Shanti Swarup Bhatnagar Prize for the year 2004 in Mathematical Sciences has been awarded to Dr Arup Bose of the Indian Statistical Institute, Kolkata. Dr Bose has made significant contributions to the second order accuracy of the bootstrap for dependent models. His work on resampling has provided new and robust techniques for a variety of models; these provide deep understanding of the bootstrap from theoretical as well as applied point of view.

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Dr Sujatha Ramdorai

The Shanti Swarup Bhatnagar Prize for the year 2004 in Mathematical Sciences has been awarded to Dr Sujatha Ramdorai of the Tata Institute of Fundamental Research, Mumbai. Dr Ramdorai has made significant contributions in the areas of Witt groups and levels of varieties, unramified cohomology of quadrics, Hasse principles and Iwasawa theory of p-adic representations.

Medical Sciences

Dr Chetan Eknath Chitnis

The Shanti Swarup Bhatnagar Prize for the year 2004 in Medical Sciences has been awarded to Dr Chetan Eknath Chitnis of the International Centre for Genetic Engineering and Biotechnology, New Delhi. Dr Chitnis has done significant work in identification and mapping of receptor-ligand interactions involved in red cell invasion and cyto -adherence by malaria parasites. He has also used this knowledge to develop novel vaccine concepts for *Plasmodium vivax* and *Plasmodium falciparum* malaria that have been taken up for further development.

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Dr Madan Rao

The Shanti Swarup Bhatnagar Prize for the year 2004 in Physical Sciences has been awarded to Dr Madan Rao of the Raman Research Institute, Bangalore. Dr Rao's notable contributions include non-equilibrium properties of membranes, martensite transformation and important issues in biological physics such as chirality- induced budding and dynamics of intracellular trafficking.
