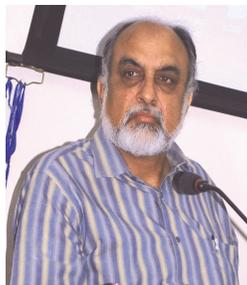


FOREWORD



On December 29, 1959, Prof Richard P Feynman, addressed the gathering at an American Physical Society meeting at the California Institute of Technology with the opening remark, "There is plenty of room at the bottom". The talk raised the possibility of direct manipulation of individual atoms. He suggested that the entire Encyclopedia Britannica can one day be written on a pinhead. This vision of the future technology which was later called 'nanotechnology' by Taniguchi lead to the science of designing, producing and using structures and devices from single atoms and molecules.

The scope of nanotechnology is mind-boggling and expected to touch every field: medicine, health, aerospace, defense construction, engineering, entertainment, and household. In particular, Nano-biotechnology can make tiny medical devices and sensors for human benefit. Converting sunlight into power, targeting a drug against a single malignant cell, cleaning ponds and creating sensors in the form of a biochip to be inserted in the human body are expected to be some of nanotechnology's landmark breakthroughs. The nanotechnology R&D is truly interdisciplinary. Fields as diverse as biomedical and biotechnology, material science, optoelectronics, energy and the environment, pharmaceuticals, cosmetics and microelectronics overlap.

As nanotech moves from research to commercialization, there is need to have standards regulatory policies. Most of the advanced countries such as the US, Europe, China, Taiwan and India have taken steps in this direction in order to control potential environmental and health hazards.

Although the field is in its infancy in India, the country is making dedicated efforts to keep pace with global leaders. Initiatives have been taken by the Department of Science and Technology, Govt. of India as well as other government funding agencies to sponsor and promote research related to all aspects of nanotechnology. A great demand is perceived for students with training in nanotechnology with opportunities in established industries such as chemicals, pharma-biotech, aerospace, transportation, energy, microelectronics as well as new industries such as nanotechnology materials, coatings and structures (crystal, wires, tubes), nano-biotechnology, nano-electronics, microfluidics.

The conference organized at the Jawaharlal Nehru University during November 2009 was a welcome step towards bringing together scientists and students from different disciplines. I congratulate the organizers for holding the conference. This issue of *Indian Journal of Experimental Biology* brings out some of the papers presented at the conference. I am sure it will fulfill an important need of scientists working in this area.

Prof. Vikram Kumar
 Department of Physics &
 Centre for Applied Research in Electronics
 (CARE)
 Indian Institute of Technology
 New Delhi 110016, India
 Telephone: +91 11 26596296