

## **International Conference on Carbon Nanotechnology: Potential and Challenges (Carbon 10)**

15 - 17<sup>th</sup> December 2010

Since the discovery of the carbon nanotube (CNT) about two decades ago, research related to its synthesis, property measurement, modeling, and applications, has seen rapid progress. This is natural for any new and novel material. The CNTs, however, unlike many other new materials, helped us understand the fundamental physics behind the dimensional dependence of material properties. Scientists are intrigued to observe the amazing transition that happens to the properties of materials as the length-scale approaches molecular dimension. For instance, the CNTs, in spite of having molecule-scale diameter, show novel physical and chemical properties. Compared to most other known materials, the CNTs exhibit superior mechanical strength, thermal/electrical conductivity, ballistic quantum conductance, and surface functionality. No wonder CNT research has led to a variety of applications, ranging from strong composites, to flat panel displays and a whole range of nanodevices. While the last two decades has seen significant progress in CNT research, the annoying questions, relating to property-tailoring, scaling-up and device durability remain unanswered.

To explore the opportunities hidden in these nagging challenges, the Department of Mechanical Engineering in association with the Materials Science Program, and the Indian Society for Advancement of Materials and Process Engineering Kanpur Chapter hosted the 'International Conference on Carbon Nanotechnology: Potential and Challenges' with the theme of '**Innovations in Carbon Nanotechnology for the New Century**', from 15<sup>th</sup> to 17<sup>th</sup> December 2010. The conference brought together academicians and researchers from industry for an exchange of ideas and opinions related to the applications of carbon nanotechnology.

Prof. Sanjay G. Dhande, Director, IIT Kanpur was the chief patron of this international conference, while Dr. S. Sankaran, President, ISAMPE-India; Prof. I. Manna, Director, CGCRI (CSIR); Prof. B. K. Mishra, Director, IMMT (CSIR); Dr. A. R. Upadhyay, Director, NAL(CSIR); Prof. A. K. Bhowmick, Director, IIT Patna; Dr. K. U. Bhasker Rao, Director, DMSRDE (DRDO); and Dr. G. Sundararajan, Director, ARCI were the patrons.

More than 200 delegates participated in the conference including 37 foreign delegates from the USA, Japan, Italy, Germany, China, Taiwan, South Korea, Portugal, and South

Africa. Prof. Anil K. Bhowmick, Director, IIT Patna was the chief guest of the conference.

A total of 150 papers were presented on various topics such as carbon nanofiber, carbon nanotube, carbon based fullerence, other forms of carbon such as diamond, amorphous carbon, graphite, carbon-carbon composites, etc. To ensure the highest standards, all papers submitted to the conference were rigorously peer-reviewed by the subject experts. Only the best selected papers were published in the conference proceedings. A separate proceeding known as 'Program and Abstracts' was also printed which includes all abstracts. The proceedings might serve as a valuable tool for scientists, technologists, and managers working with carbon materials as well as for the Nodal Government Agencies connected with the industries.

The conference was funded by the Toshniwal Bros(SR) Pvt. Ltd., the Council of Scientific and Industrial Research (CSIR), the Bhabha Atomic Research Centre, the Defence Research & Development Organisation (DRDO) and DMSRDE, the Department of Space-Indian Space Research Organization, the Indian Institute of Technology Kanpur, the Indian Society for Advancement of Materials and Process Engineering Kanpur Chapter, the NC A&T Joint School of Nanoscience and Nanoengineering, Greensboro, North Carolina, USA, Carl Zeiss India, the Quantum Materials Corporation, the Photonics Marketing Company, PerkinElmer India Pvt. Ltd., Vaiseshika Electron Devices, and others.