

**International Workshop on:  
Nanotechnology – Present Status and Future Prospects in Developing Countries  
18-20 May 2009, Kashan, Iran**

**BRIEF REPORT**

Nanotechnology involves the manipulation of matter on the nanoscale to develop new materials and devices and is hailed by many as the next industrial revolution, promising to change everything from the cars we drive to the clothes we wear, from the medical treatments our doctors can offer to our energy sources and workplaces, from new cancer therapies to pollution-eating compounds, from more durable consumer products to detectors for biohazards from novel foods to more efficient solar cells. Nanotechnologies are changing the way people think about the future. The global nanotechnology market could top \$2.7 trillion by 2012. Nanoparticles are already being used in developed countries in items such as cosmetics, sunscreens, surface coatings, printing, water treatments kitchenware and food processing. Internationally, more than 100 foods have been manufactured, processed or packaged using nanoparticles.

Nanoparticles are more chemically reactive than larger particles. They can get inside cells more easily, even into the nucleus. Nature is already working at the nanoscale. But in so far as the manufactured nanostructures are concerned, these have special composition, reactivity and uniformity that may substantially increase the health and environmental risks. One must recognize that free nanoparticles do pose a hazard and this must be investigated from the beginning. As is said, ostriches hide their heads in the foolish hope that if they cannot see a threat, the threat cannot see them. There has to be balance between benefits and risks and one must quickly address the social and ethical issues concerning this fast emerging scientific field.

Although nanotechnology is in its infancy, this is the right time for the developing countries to invest in this new arena and explore cooperative ventures between developed and developing countries and between public and private institutions. Individual developing countries should take their own policy decision to identify the facet of advancements in nanotechnology which can address their unique economic, social and environmental needs.

In order to deliberate on the growing awareness of the importance of nanotechnology and its role in sustainable development, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) organized a 3-days International Workshop on Nanotechnology: Present Status and Future Prospects in Developing Countries from 18-20 May 2009 at Kashan, Iran jointly with the Iranian Research Organization for Science & Technology (IROST), Iranian Nanotechnology Initiative Council (INIC), Kashan and IOR-ARC Regional Centre for Science and Technology Transfer (RCSTT), Tehran.

The Opening Session was held in Tehran in Laleh Hotel on 17<sup>th</sup> May 2009, after which the participants were transported to Kashan, ~260 km South of Tehran in Esphahan Province, for the technical sessions.

The Inaugural Ceremony commenced with the traditional recitation of Holy Quran and National Anthem of the Islamic Republic of Iran, which was followed by the welcome address by Dr. Saeed Sarkar, Director, Iranian Nanotechnology Initiative Council (INIC). After the opening remarks by Dr. M. Molanejad, Director, Iranian Research Organization for Science & Technology (IROST), Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre gave introductory

address highlighting the background of the Workshop. This was followed by the remarks by Dr. Abbas Sadri, Director of ISESCO Regional Office in Tehran. Dr. Entezari, Vice President, IROST made the Inaugural Speech. H.E. Engr. H. Amirinia, Chairman, Technology Cooperation Office, Presidency, Islamic Republic of Iran was also present at the podium during the Inaugural ceremony. Mr. Ali Reza Roodsaz of INIC presented the Vote of Thanks.

The Technical Sessions of the Workshop were held at the Essence Research Center, Ghamsar in Kashan. Dr. S.J. Sadatinejad, Chancellor and Assistant Professor in Hydrology, University of Kashan inaugurated the Technical Sessions. The Kashan component of the Workshop was conducted in nine technical sessions broadly categorised under the themes 'Characterization and Synthesis of Nano-Materials', 'Applications of Nanotechnology', 'Nanotechnology: Policy, Strategy and Market Development' and 'Nanotechnology: Status and Prospects in Developing Countries'.

The Workshop was attended by ~35 experts and senior professionals from 16 countries, including Armenia, Cuba, India, Indonesia, Iraq, Kenya, Libya, Malaysia, Mauritius, Myanmar, Nigeria, South Africa, Sri Lanka, Syria and Uganda, and the host country Iran. The overall technical programme of the workshop was coordinated by Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre.

The Plenary Concluding Session was led by Dr. M. Molanejad (Director, International Cooperation, IROST), Dr. Mohsen Jahanshahi (Head, Nanobiotechnology Research Centre, Babol University of Technology) and Prof. Arun Kulshreshtha (Director, NAM S&T Centre) when a Kashan Declaration on 'Nanotechnology: Present Status and Future Prospects in Developing Countries' was adopted after considerable deliberations and debate. The workshop ended with the distribution of the Certificate of Participation to the participants.

The participants thanked the organizers of the Workshop and unanimously hoped that more similar events will be held in future with a focus on South-South cooperation for the emerging need and sustainable development of Nanotechnology.