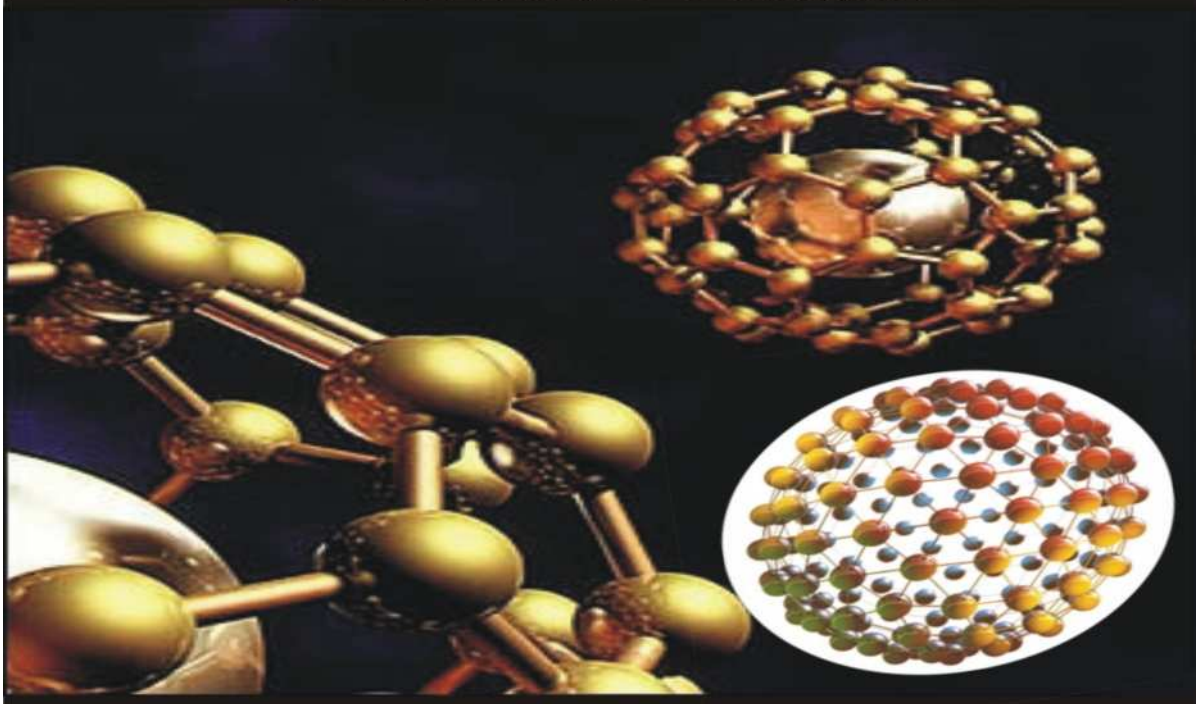
International Workshop on

NANOTECHNOLOGY

PRESENT STATUS AND FUTURE PROSPECTS IN DEVELOPING COUNTRIES



Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), New Delhi, India

Iranian Nanotechnology Initiative Council (INIC), Tehran, Iran

IOR- ARC Regional Centre for Science and Technology Transfer(RCSTT), Tehran, Iran

Iranian Research Organization for Science & Technology (IROST), Tehran, Iran

18-20 May 2009
Kashan, Iran

Introduction

Nanotechnology is the emerging technology that deals with processing, manipulating and manufacturing devices and products at the microscopic scale of molecules or atoms, with structures smaller than 100 nanometers. For comparison, a human hair is about 1000.00 nanometers thick. At this scale physical properties of matter show interesting changes and the technology promises to be one of the most revolutionary ones for the 21st century. At the nano scale, it is possible to combine material science with biological sciences and even bionics, thus offering very attractive possibilities in electronics, medicine and across many other industries such as food, energy, environment and even space technology that could have innovative applications for human development. Nanotechnology is tailor made for industry, with research being done on bio-detection, advanced sensors, communications, alternative energies and improved production materials, to name a few. Nanotechnology also promises to offer seamless integration of atoms, photons and biological cells, thus opening up unprecedented avenues of new technology capabilities.

World-wide, Nanotechnology was incorporated into manufacturing goods worth over $30 billion in 2005 and the projections for 2015 indicate business worth over $2.6 trillion. For developing countries, nanotechnology can open up new avenues for research for rapid progress in priority areas. However, it is important to note that nation's capacity to benefit from such revolutionary technology development would depend on the prevailing institutional and human capacities and the embedded social culture of innovation and entrepreneurship. Successful research and technology transfer activities will depend on cooperative endeavors between developed and developing countries and between public and private institutions. Developing countries must determine which technologies and advancements will address their unique economic, social and environmental needs so that these countries could benefit from working with developed countries and institutions to develop, adapt and transfer innovative improvements across many application areas. Although nanotechnology is in its infancy, now may be the right time to explore its implementation in developing countries. Many developing countries, for example, China, India, Iran, Malaysia and Thailand are investing considerable resources in research and development of nanotechnologies. However, without a long-term clear perspective, the true picture with respect to developing country engagement remains unclear. In conjunction with other technologies like information technology and biotechnology, nanotechnology will usher in social and economic transformations.

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

Objectives of the Workshop

This international workshop aims at bringing together different researchers and academicians in the developing countries in the fields of nanotechnology and nanoscience.

Participants will know of present status and future prospect on nanotechnology in developing countries. The knowledge sharing during the event will facilitate developing countries in their economic and scientific development and in acquiring wealth by using nanotechnology as an emerging trend that has the potential to create many new materials and devices with an amazing range of applications, such as in medicine, instrumentation, energy, water treatment, desalination, space, food, electronics, etc. The primary objectives of the workshop are:

- To review the present and future prospects of nanotechnology
- To have an understanding of the cooperation potentials of nanotechnology research for rapid economic growth in developing countries
- To evolve guidelines for a comprehensive framework to leverage nanotechnology for enhancing developmental priorities of developing countries.
- To gain insight into the contribution of the existing industries for nano products
- To recommend schemes and programmes including training courses on nanotechnology in the developing countries
- To identify the policy initiatives required to be taken by the developing countries for nanotechnology

Programme of the Workshop

The International Workshop will be held during 18-20 May 2009. The session wise programme would be sent to the participants in due course:

About NAM S&T Centre

The Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre; www.namstct.org) is an inter-governmental organization with a membership of 44 countries spread over Asia, Africa, Middle East and Latin America. The Centre was set up in 1989 in New Delhi, India in pursuance of recommendations of various NAM Summit meetings for the promotion of South-South and North-South cooperation in science and technology. The Centre undertakes a variety of programmes, including organization of workshops, symposiums, meetings and training courses and implementation of collaborative projects and offers short-term research fellowships to the scientists from the developing countries in association with various Centres of Excellence. The Centre also brings out technical books and other scientific publications in different subjects. These activities provide opportunity for scientist–to–scientist contact and interaction; familiarizing participants on the latest developments and techniques in the subject areas; identification of the requirements of training and expert assistance; locating technologies for transfer between the members and other developing countries, dissemination of S&T information etc. The Centre also encourages academic-research-industry interaction in the developing countries through its NAM S&T-Industry Network.

About Iranian Research Organization for Science and Technology (IROST)

Iranian Research Organization for Science and Technology (IROST; www.irost.org) was approved and ratified by Revolutionary Council of the Islamic Republic of Iran in 1980.

IROST is a comprehensive science policy research center directly attached to the Ministry of Science, Research and Technology. As the biggest research center in Iran, IROST is chiefly engaged in development of strategies, policies, R&D systems, management, foresight and evaluation of related Science and Technology (S&T) developments and S&T for economic progress. Through these studies, IROST offers policy recommendations for decision-making in the advancement of national S&T and development of society as a whole. IROST undertakes commissioned research from the Ministry of Science, Research and Technology or organizations at home and abroad including that involving technical cooperation with international organizations.

About Iranian Nanotechnology Initiative Council (INIC)

Iran began its activities to develop nanotechnology since early 2001. The Iranian Nanotechnology Initiative Council (INIC; www.en.nano.ir) was established in August 2003 through an order by the President of the Islamic Republic of Iran to promote nanotechnology and advise on new directions, mobilized quickly and came together in introducing the first national nanotechnology development plan titled as 'Future Strategy' and later adopted by the Cabinet Ministers. INIC is headed by the Deputy President for Science and Technology Affairs and consists of the ministers dealing with science and technology and five senior nanotechnology experts. Its mission is to gain access to the proper position among the 15 advanced nations in nanotechnology and making effort for continuous elevation of this position in order to achieve economic development for Islamic Republic of Iran. INIC aims at gaining access to a fair share of international trade using nanotechnology, laying proper groundwork for enjoying the benefits of nanotechnology along the line of upgrading people's quality of life and institutionalization of sustainable and dynamic development of science, technology and nano-industry

About IOR-ARC Regional Centre for Science and Technology Transfer (RCSTT)

The IOR-ARC Regional Centre for Science and Technology Transfer (RCSTT) was established on 28 October 2008 pursuant to the recommendation of Academic Group of the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC), approved in the 7th meeting of the IOR Council of Ministers, held on 7-8 March, 2007 in Tehran, Islamic Republic of IRAN, and MOU dated 23 June 2008 between Islamic Republic of Iran and the IOR-ARC Secretariat. The Centre will be functioning under the authority of the IOR-ARC secretariat and the IOR-ARC Council of Ministers. It will follow the aims and objectives of supporting applied research, policy and human resource development programme as well as supporting development of new technologies, joint cooperation, commercialization and transfer of technology among the Member States and the other countries, focusing on supporting technology transfer, development and management; supporting the formulation of strategic development plan for technology enhancement in the IOR-ARC region; assisting for acquisition, dissemination, assimilation and generation of new technologies; promoting commercialization of technology and competitiveness; supporting technology business missions and business matching; supporting development of all kinds of applied science related technologies such as Biotechnology, Nano-technology, IT, New energy, Space Technologies and etc. by the Member States; carrying out related analytical research on technology policy, marketing opportunities, and possible joint venture among the Member States; providing advisory services; disseminating information and good

practices; networking among the key stockholders; and providing training to senior officials and policy makers.

Participants

This workshop has been primarily designed for the academicians, researchers, scientific officials of the concerned government departments and policy makers, R&D personnel and representatives of private bodies working in the relevant areas in the developing countries. The selection of the participants will be strictly based on merit and the quality of the extended abstract of presentation material to be submitted along with the completed nomination form. A **pre-condition** for participation in the workshop is that the participants must submit the full manuscript of their presentation material at least a fortnight before the commencement of the workshop.

Venue

The international workshop will be held at Kashan in Iran.

Resource Persons

Resource persons for the workshop will comprise eminent experts from Iran, India and other developing countries.

Submission of Nominations

Applications for participation (excepting those from Iran) are required to be submitted in the prescribed form to the NAM S&T Centre as early as possible but **latest by 10th April 2009**. The form should be completed in all respects and no column should be left blank. Iranian scientists should send their applications directly to the Iranian organizers.

The submitted application should contain an extended abstract of the paper proposed to be presented in the workshop.

Presentation of Paper

Each selected participant will be required to present a country status report and/or a research/ scientific paper on any of the themes appropriate to the workshop.

Publication of Proceedings

The country status reports, scientific/research papers and other study material presented during the workshop will be compiled along with the learned articles form other authors and will be brought out in the form of an edited book. All applicants are required to submit the extended abstracts of their papers proposed to be presented during the workshop along with the completed nomination form. Those finally selected to attend the workshop will be required to submit the full manuscript of their papers/country reports as per the Centre's prescribed guidelines at least 15 days before the commencement of the workshop i.e. by **3rd May 2009.**

Local Hospitality and Travel within Iran

All foreign participants will be received at the Tehran international airport and will be transported to the venue of the workshop. Local hospitality, including accommodation, meals and local transport during 17th May to 21st May 2009 (i.e. commencing from one day before the workshop and for an additional day after its conclusion) will be arranged by the

Iranian organizers. The participants will have to make their own arrangement of stay beyond these days and therefore they should arrange their flight schedules accordingly.

Financial Arrangements for Travel

This is being conveyed separately to each member country of the NAM S&T Centre and other developing countries.

Entry Formalities, Immigration and Health

Participants of the workshop must be in possession of a current passport and valid visa for entry into Iran. The embassies / diplomatic mission of Iran located in the country of the participants should be approached for obtaining an entry visa. If a particular country does not have an Iranian Mission, participants from that country would be issued visa on arrival provided a specific request is made to the Iranian organizers well in advance. The Iranian organizers will facilitate the issuance of a visa by providing the participants with an official letter of invitation.

About Kashan and its Surroundings

Kashan is a city in the province of Isfahan in Iran. It is situated about 250 Km South of Tehran, the capital of Iran and is the first of the large oases along the Tehran - Isfahan road which runs along the edge of the central deserts of Iran. The city with its suburbs has a population of ~400,000. Its charm is thus mainly due to the contrast between the parched immensities of the deserts and the greenery of the well-tended oasis. Qamsar and Abyaneh are notable towns around Kashan, attracting tourists the year around. An incredible man-made cave and a historical fireplace in the town of Niasar near Kashan, are also notable although not much known to the tourists. It is internationally famous for manufacturing carpets and textiles. Kashan today houses most of Iran's mechanized carpet-weaving factories, and has an active marble and copper mining industry. It is connected via freeways to Isfahan and Natanz to the South, and Qom, which is an hour drive away to the north.

Currency

The Iranian currency is Rials, 10 Rials = 1 Toman

Each US dollar ≈ Rls 9200

People and Culture:

The population of Iran is 70 million, the major religion is Islam and the major language is Persian. Iran's population is made up of numerous ethnic groups, the Persian being the largest. Culture of Iran is reflected in the aesthetic thinking of the Iranian inhabitants, which finds reflection in the mosaic paintings of Bishapur and Achaemenid reliefs in Persepolis.

Other Useful Information

Standard Time: 04:30 hours ahead of GMT (between 21st March up to 23rd September)

Voltage: 220 volts 50 Hz

International Dialing code: +98

Internet Domain: ir

Note

- According to the law, importing and use of alcoholic drinks are prohibited.
- According to the law, all women must wear Islamic clothing (covering hair and body).
- Individual participants or their governments / institutions will be required to bear the following costs:
  - All expenses in the home country incidental to travel abroad, including expenditure for passport and visa, required medical examinations and vaccinations and miscellaneous expenses such as internal travel to/from the airport of departure in the home country.
  - Salary and other related allowances for the participants during the event.
  - Cost of medical insurance to cover the period of their participation in the Workshop.
- The organizers will not assume responsibility for the following expenditure in connection with the participant's attendance in the Workshop:
  - Insurance, medical bills or hospitalisation fees.
  - Compensation in the event of death, disability or illness of participants.
  - Loss of personal belongings or compensation for damage caused by climatic or other conditions.
  - Travel or other costs incurred by the dependents that might accompany the participants, or because of overstay.

Contact Details

NAM S&T CENTRE

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IRANIAN NANOTECHNOLOGY INITIATIVE COUNCIL (INIC)

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IRANIAN RESEARCH ORGANIZATION FOR SCIENCE & TECHNOLOGY (IROST) ***and*** **IOR-ARC REGIONAL CENTRE FOR SCIENCE AND TECHNOLOGY TRANSFER (RCSTT)**

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Website: www.irost.org

In order to avoid confusion, interested scientists from countries other than Iran may in the first instance please correspond only with the NAM S&T Centre, and not with IROST/ INIC/ IOR-ARC RCSTT, Tehran. All such applications will be initially processed by the NAM S&T Centre.

Scientists from Iran may however submit their requests to the IROST/INIC/IOR-ARC RCSTT.

CENTRE FOR SCIENCE AND TECHNOLOGY OF THE NON-ALIGNED AND OTHER DEVELOPING COUNTRIES (NAM S&T CENTRE)

INTERNATIONAL WORKSHOP ON NANOTECHNOLOGY - PRESENT STATUS AND FUTURE PROSPECTS IN DEVELOPING COUNTRIES KASHAN, IRAN, 18-20 MAY 2009

NOMINATION FORM

(PLEASE TYPE OR USE BLOCK CAPITALS; NO COLUMN SHOULD BE LEFT BLANK, OTHERWISE THE FORM WILL BE REJECTED)

Affix Recent Photograph

SECTION –A

(To be filled in by the nominee)

1 Name (Dr/Mr/Mrs/Ms):.....
(As mentioned in the Passport)

2 Designation (Position held):……

3. Nationality:.....……..

4 Date of Birth:……. Place of Birth (City) …….. (Country)…….

5 Passport No: .....Place of issue: .....

Date of Issue: ..... Valid up to: .....….

6 Name of the Parent Institution: ……

Full Address (Office):.....……

.....

Phone: .....…..... Mobile: .....

Fax: .....…. E-mail: .....

7 Full Address (Home): .....

.....

Phone: .....…..... Mobile: .....

Fax: .....…… E-mail: .....

8 Educational Qualifications: Highest Degree: .....

Year of Award: ..... University:.....

Field of Study: .....

9 Brief Bio data: ……..
(To be attached on separate sheet)

10 What in your opinion qualifies you for the participation in this Workshop?
(To be attached on separate sheet)

11 Brief (1-2 page) Resume of your presentation in the Workshop.
(To be attached on separate sheet)

Date: ..... Signature: .....….

SECTION -B

ENDORSEMENT BY NOMINATING AUTHORITY

(The Applicant in a member country of the NAM S&T Centre may get the following endorsement signed by the Focal Point of the Centre in his/her country, *if he/she wishes to take advantages accrued to the official nominee of the country*. For the list of member countries and names/addresses of the Focal Points please visit Centre's website www.namstct.org)

Signature:.....….....

Name (in full): .....

Designation:.....….....

Date:.....….....…….....

SEAL