National Seminar of Nanoscience and Nanotechnology

The 5th edition of the National Seminar of Nanoscience and Nanotechnology was organized on 2nd of March by the Romanian Academy and the National University Research Council with the logistic support of the European project **ROMNET-ERA** (coordinator **IMT Bucharest**) 68 oral and poster presentation were sustained. The selection of papers was assured by 16 high profile scientists. As a result of the strong collaboration with the National University Research Council, 40 of the presentations had authors from universities. 155 scientists from universities (30%), national research institutes (36%), institutes of the Romanian Academy (14%) and other centers were present.

At this edition of the seminar, the "bio" component of the topics was increased. The most interesting presentation will be published further by the Romanian Academy.

Opening the seminar, Prof. Dan Dascalu presented "European perspective at "nano" scale". Most of the presentations were:

"Synthesis, characterization and properties of gold nanoparticles in colloidal aqueous solutions in the absence and in the presence of globular proteins. Auto-assembled gold nanostructures in thin films" from Babes-Bolyai University Cluj-Napoca, Faculty for Chemistry and Chemical Engineering,

"Some aspects concerning the use of magnetic nanofluids to obtain magnetizable nanocomposites" from National Center for Complex Fluids Systems Engineering "

"The study of self-assembled nanostructures by Atomic Force Microscopy" from Valahia University of Targoviste,

"Determination mod of magnetic characteristics and magnetic moment to the magnetic bacterium case study of the magnetospirillum gryphiswaldense" from INCDIE CA

"HfO_2 thin films prepared by sol-gel method" from Institute of Physical Chemistry of the Romanian Academy

"Size dependent phenomena in nanoparticles: magnetic resonance detection" national R7D Institute of Isotopic and Molecular Technologies, Cluj

" Tunable surface-enhanced Raman scattering (SERS) fron nanostructured noble metal films fabricated by nanosphere lithography" from from Babes-Bolyai University Cluj-Napoca, Faculty of Physics and Institute for Experimental Interdisciplinarity Research

"ISFET micromachined sensors HfO_2 and Ta_2O_5 based" from IMT Bucharest

"Spin density calculation for electron acceptor-building blocks of molecular magnets" from Ovidius University Constanta

"Soft chemical synthesis of nanomaterials: challenges for technology transfer in electronic applications" from national R&D Institute for Non-ferrous and Rare Metals, Bucharest.

"PROmotion of Romanian competences for the European co-operation in micro-nano-BIOSYStems" PRO-BIOSYS

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PRO-BIOSYS intends to promote the Romanian competences, *by intensifying the cooperation of the Romanian research organisations and private companies in the micro-nano-biosystems domain ("bio-chips") with the European research and industry area*, with the main aim to increase the number of proposals with Romanian participation and the rate of success in FP7 of Romanian projects. The development of bio-chips has numerous implications for biology, medicine, toxicology, genetics, pharmacology, etc.

PRO-BIOSYS will stimulate the **formation of new collaborations and partnerships and is open to cooperate with other networks or projects in the field**. The project consortium is formed by four partners with complementary competences and equipment: two national institutes (one active in micro-nanotechnology and other in microbiology and immunology), a university and a private company (interested in biochip manufacturing).

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The **PRO-BIOSYS** project is referring to a **field of great importance**, due to the progress brought by **micro and nanotechnologies** in creating new instruments **for studying the biological phenomena, medical applications, pharmacology, toxicology, food control, control of environment quality and, generally speaking**, *the quality of life*. These technologies may act at molecular level, with more adequate techniques for the living matter. In the same time, they offer technical intelligent, miniaturised, low consumption, cheap and reliable means for monitoring, diagnosis and intervention.

Objectives

1. **Developing the links between the existing Romanian scientific networks and consortia, on one side, and the European networks in the field, on the other side, in order to achieve direct contacts between research groups and to develop together co-operation proposals financed by the future FP7 and from other sources**:

-visits in Romania of foreign visitors (personalities with recognized activities in the field)
-national workshops, with international participation, as a tool for developing the links between Romanian scientific networks in the field, but also with European networks
-short documentation visits of Romanian researchers at foreign partners
-meetings on new projects (participation to meetings for preparing new proposals of international projects)

2. **Disseminating at European level the knowledge for research and technological development acquired in the frame of national programmes, including the transfer of knowledge and technology for possible co-operations with companies from the European Union:**

-participation or organization of international events and other initiatives for correlating the national programmes with the European themes and integration with the European technological platforms;
-disseminating electronically, through webpage, electronic publications and also printed materials.

3. **Extending some activities** performed in common with European partners, **by reciprocal visits and training stages**:

-training stages for personnel (training visits) at foreign partners
-organizing seminars during the visits in Romania of foreign partners

The chances of success of this project will be substantially increased by the creation of the **"PRO-BIOSYS network"**, containing besides the consortium members, also partners of the consortium as members in various running projects. In the **"PRO-BIOSYS network"** (with the partners having access to project results, information, contacts with foreign partners) private companies interested in the field are associated, in particular those which will be hosted by the Scientific and Technological Park in Micro and Nanotechnologies **MINATECH-RO, coordinated by IMT-Bucharest**, or will benefit from its services.

"Integrated Research Network Devoted to Nanobiotechnology for Health – Romanian Nanomedicine Network" RO-NANOMED (http://www.imt.ro/ro-nanomed)

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As a national contact point for ETP Nanomedicine in Romania, IMT-Bucharest has initiated and created an **interest group** – **"Nanomedicine" Romania.**

Until April 2006, 101 participants (persons) are involved in this group: 33 participants from National R&D Institutes, 11 participants from R&D Institutes of the Romanian Academy, 5 participants from R&D Institutes, 36 participants from Universities, 10 participants from research centers and SMEs, 6 participants from Hospitals.

The interest group has a special section on the Ro-Nanomed website, restricted to the group, with information about various events and significant topics.