#### Inventory of nanotechnology research in Romania

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The main directions of the studies in the field of nanomaterials are focussed on:

- Preparation of oxide and hybrid inorganic-organic nanomaterials for several applications and obtaining of carbon nanotubes by using of specific methods as: sol gel method (i), hydrothermal method (ii), methods based on oxides melts (iii) and methods using molten salts (iv)
- Development and optimization of specific (spectroscopic, electrical, thermodynamic and themochimical) methods of characterization with application in the nano-material field
- Modeling of phenomena and properties specific for nanomaterials.

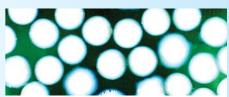
## "PETRU PONI" INSTITUTE OF MACROMOLECULAR CHEMISTRY, IASI (INSTITUTE OF EXCELLENCE OF THE ROMANIAN ACADEMY) POLYMER PHYSICS AND STRUCTURE DEPARTMENT

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Fields of interest in nanotechnologies:

- CVD procedure to obtain transparent layers of photo-conducting azopolymers with controlled thickness of 50,500 nm and integration of this procedure in technologies used in microelectronics.
- Exploration of opto-electrical properties of the films in normal and doped states for application in opto-electrical traducers, xerography, electroluminiscent and other molecular electronic devices.



Microspheres prepared by ionic crosslinglinking of SAV3 sodium salt (details in MNT-Bulletin V3, no.4)

# NATIONAL INSTITUTE FOR CHEMICAL-PHARMACEUTICAL RESEARCH AND DEVELOPMENT, PHARMACOLOGY DEPARTMENT, CENTER FOR CELLULAR AND MOLECULAR PHARMACOLOGY

General manager: Dr. Ing. Misu Moscovici (iccf@ncpri.ro)
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SEM on Ni<sub>80</sub>Fe<sub>20</sub> nanowire array after dissolution of the membrane (details in MNT-Bulletin V3, no.4) The Center developed cell culture techniques for:

- cito- and genotoxicity studies used in drug research, in biomaterials and medical devices testing
- biomedical applications: tissue engineering, studies of signal transduction and biological responses at cellular and molecular level, inter-

actions of cells with nanomaterials and nanostructured materials.

#### NATIONAL INSTITUTE OF RESEARCH AND DEVELOPMENT FOR TECHNICAL PHYSICS IASI

General Director: Prof. Dr. Horia Chiriac (hchiriac@phys-iasi.ro)

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The specific research agenda includes: theoretical and experimental studies on the nanostructured magnetic materials' formation and their specific physical properties; investigation of magnetization processes and specific magnetic interactions within novel magnetic materials; design and fabrication of new devices (micro-sensors, actuators, transducers) based on new magnetic phenomena and novel magnetic materials.

#### INSTITUTE OF BIOLOGY OF THE ROMANIAN ACADEMY, CENTER OF MICROBIOLOGY

Dr. Lucia Dumitru, Head of the Center (lucia.dumitru@ibiol.ro)
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Expertise in the nanotechnologies:

- Biochips obtained with immobilized cyanobacteria on micro- and nano-electrodes, for environment monitoring (together with IMT and Univ. Politehnica).
- Biomolecules (isolation and purification): proteins with enzymatic or antimicrobial activity; S-layers; ether lipids with potential applications (the construction of biosensors, new types of liposomes, etc.).

### "AL.I.CUZA" UNIVERSITY OF IASI, DEPARTMENT OF SOLID STATE PHYSICS, FACULTY OF PHYSICS, LABORATORY FOR PHYSICS OF THIN FILMS

Rector: Prof. Dr. Dumitru Oprea, Dean: Prof. Dr. Mitachi Strat Dept.

Head: Prof. Dr. Mihaela Rusu (Accredited B-type Center of Excellence for Research in Condensed Matter Physics)

Laboratory Head: Prof. Dr. Nicolae Sulitanu

Address: 11 Carol I Blvd., Iasi 6600

#### Research domains

- Inorganic and organic semiconducting thin films-fundamentals and applications (heterojunctions, solar cells, biosensors, gas sensors, transparent electrical heaters, laser-damage and heat protective coatings, transparent electrodes, antistatic surfaces.
- Nanostructured magnetic materials-advanced applications: high density magnetic storage, thin films magnetic sensors, magnetostrictive microactuators,
   bidirectional pulse transformer cores, magnetic modulators, DC converters, magnetic shields.