

IMT-BUCHAREST: NANOTECHNOLOGIES

Centre for Nanotechnologies (affiliated to the Romanian Academy)
 "Centre of Excellence in Nanotechnology" Project RELANSIN No. 4582, Contract nr. 1332

Head of the Centre: Dr. Irina Kleps (irinak@imt.ro)

Mission:

Theoretical and experimental study of nanostructures - basic physical phenomena and applications
 · Development of the new materials, technologies and nanostructures for life and environment quality;
 · Development of nanostructure characterization methods.

International projects: 5 projects

- » 1 FP5 project (Inco-Copernicus);
- » 1 FP5 project (Improving Human Potential Transnational Access to Research Infrastructures) (2001)
- » 3 bilateral projects (2000-2002)

Scientific Conferences organised by our centre

-Conference "Protein Physics" - Jakob Bohr (Technique University of Denmark), July 19, 2001, 10:00, Romanian Academy, Calea Victoriei, 125.

-Conference "NANOSCALE The Missing Length in Science and Engineering" - Mihail C. Roco, (National Science Foundation- NFS, Chairman: Nanoscale Science, Engineering and Technology, NSET, National Science and Technology Council USA); October 9, 2001, 10:00, Romanian Academy, Calea Victoriei, 125.

-"Nanoscience and technology" session, International Semiconductor Conference - CAS 2001; CAS-2002.

"Nanoelectrodes pour contrôler la pollution dans les milieux liquides", Irina Kleps, Anca Angelescu, Mihaela Miu, Monica Simion: Salon International des Inventions-Geneve, 2001: Medaille d'or

Book chapter: "Low - Frequency Noise in Nanomaterials and Nanostructures", chapter 18 in Noise and Fluctuation Control in Electronic Devices, A. Balardin(Ed.), 366-385 (2002), American Scientific Publishers; Author: Mihai N. Mihaila

"Spin- Valve Structures For Giant Magnetoresistive Sensor Applications", M. Avram, A. Angelescu, I. Kleps, M. Simion, M. Miu Best paper award: 24st. Int. Semiconductor Conference, 2002, Sinaia, Romania;

Activities:

2000-2002

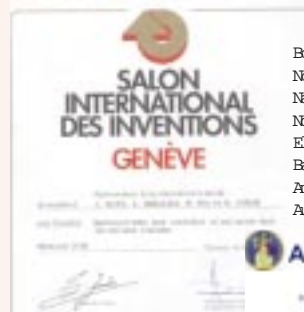
- Nano- and microelectrodes for pollution control
- Porous silicon matrix for biomedical applications
- Bio-chips for electrochemical measurements in biological media
- Nanomaterial characterization/investigation by low-frequency noise measurements
- Magnetic sensors; bipolar magnetotransistors

1995-2000

- New concepts and device modeling in vacuum microelectronics field; Field emitter's arrays of nanometric dimensions; Pressure sensor based on field emission
- Silicon carbide and diamond thin layer
- Micromechanical systems
- Low-frequency fluctuations in solid and solid-state devices

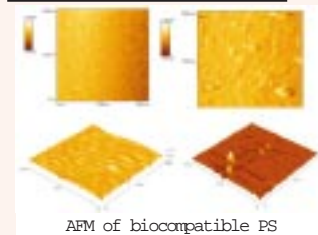
We are interested in participation in FP6 program in any project proposal related our field of activity:
 - nano-bio materials/structures-

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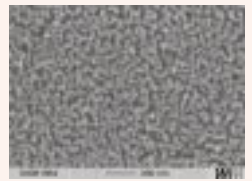


Events with Mihail C. Roco (NSF) and J. Bohr (Technique University of Denmark)

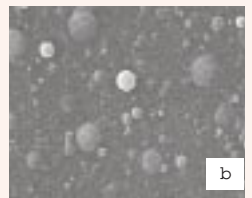
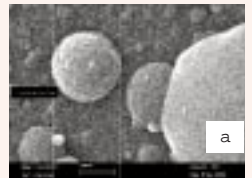
- » Member of the National NANOTECHNET Network;
- » Member of the National MIT-NANTECH Network: CENOBITE
- » Member of PHANTOMS network (2001-2003)



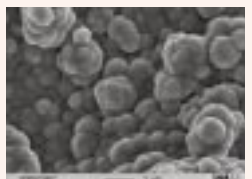
AFM of biocompatible PS



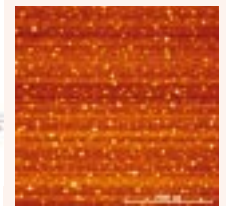
SEM image of Au/PS



Hydroxapatite on porous silicon substrate as a biocompatible structure (a, b)



SEM image of polypyrrol/PS



X-ray diffractograms of the samples NN14 and NN15 feature some Pt₃Si lines.



Nanoelectrode array



SEM image of In/PS

New FP6 - EOI in which Centre for Nanotechnologies is involved:

- Surface functionalisation of bio-materials for new processes and applications;
- Nanostructures based electrochemical systems for environmental control and biomedical applications;
- Regional Network of Nanoscience and Nanotechnology - Advanced Nanostructured Materials and Devices;
- Network of excellence on Nano- electronics

NANOTECHNET - Network of Research Laboratories in Nanotechnology (coordinated by IMT-Bucharest)

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web page: <http://www.imt.ro/NANOTECHNET>

NANOTECHNET is a national (Romanian) network, set-up in October 2001 with 13 partners, as a more focused structure (on nanotechnologies) arisen from the existing network MICRONANOTECH, which was among the 54 European networks in nanotechnologies selected by the European Commission in 2001.

The network NANOTECHNET has a truly multidisciplinary character, grouping scientists specialised in physics, microelectronics, biology, chemistry, mathematics, etc. Also, multiple forms of organising the research are involved: the participants are national research institutes, research institutes of the Romanian Academy, research centres from universities and small companies involved in research activities.

After the first year, NANOTECHNET has 18 partners from six Romanian cities. The network already organized multiple training activities.

3N -Centre of Consultance in Nanomaterials, Nanotechnology and Nanostructures

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web page: <http://www.imt.ro/3N>

Partners: IMT-Bucharest; C. D. Nenitescu Foundation

Offers consultance and advanced solutions to the Romanian scientific community with activity in "nano" field. The "3N" Center intend to classify the information from this field and to use it in conformity with the European Community and national policy.