

NANOMATFAB and European Cooperation

NANOtechnology research center for new MATerials and FABrication processes (NANOMATFAB) is a virtual research center in the field of nanotechnology, consisting in a network of multidisciplinary research centres, operating in the fields of engineering (micro- and nanotechnologies), physics and chemistry.

The Center's main field of activity will be nanotechnology scientific research for developing new materials and new fabrication processes. Its mission is concentrating and developing the internal resources at national level in the field of nanotechnologies and orienting them toward applications. These developments will take place in the context of participating at FP6 and integrating in ERA.

The list of network centers

- C1: Microstructures and Microsystems Center for the Environment Monitoring and Biomedical Applications - National Institute for Research and Development in Microtechnologies, Bucharest;
- C2: Nanotechnologies Center (affiliated to the Romanian Academy) - National Institute for Research and Development in Microtechnologies, Bucharest;
- C3: Nano(bio)materials center - "Petru Poni" Macromolecular Chemistry Institute of the Romanian Academy, Iasi;
- C4: Physical and Chemical Micro-and Nanoprocesses Center, "Petru Poni" Macromolecular Chemistry Institute of the Romanian Academy, Iasi;
- C5: Laser-Surface-Plasma Interactions Center - National Institute for Research and Development for Lasers, Plasma and Radiations Physics, Bucharest;
- C6: Photochemical Lasers Center, - National Institute for Research and Development for Lasers, Plasma and Radiations Physics, Bucharest;
- C7: Oxidic Compounds and Materials Science Laboratory - "Ilie Murgulescu" Chemical Physics Institute, Bucharest;
- C8: Kinetics / Catalysis Laboratory - "Ilie Murgulescu" Chemical Physics Institute, Bucharest;
- C9: Conductive Polymers Laboratory - National Institute for Research and Development



NANOMATFAB members at the Nanoforum Workshop, 05-07 Oct. 2003, Sinaia: Dr. Maria Zaharescu (left), "Ilie Murgulescu" Chemical Physics Institute, Bucharest, Dr. Ladislau Vekas (right), The Romanian Academy, Timisoara subsidiary.

for Isotopic and Molecular Technology, Cluj-Napoca;

- C10: Fundamental and Advanced Research Center - The Romanian Academy, Timisoara subsidiary;
- C11: The Complex Fluids Institute - Politechnical University, Timisoara.

The 11 centers belong to 7 organizations: 3 national R&D institutes, 3 research units belonging to the Romanian Academy and one university.

Objectives:

- Cooperation in scientific research in the field of nanotechnologies, with applications in developing new materials and new fabrication processes;
- Assuring the connections between the Romanian scientific community and the European research;
- Cooperation in developing the field's strategy (project financed by the MATNATECH program between 2003-2004);
- Cooperation in making the technology transfer basis on national scale, by extending the network with other partners, including industrial ones.

NANOMATFAB is financed (2003-2005) from the MATNATECH R&D programme (see page 15) as a network of research centres, aiming at integration (the NoE, FP 6, see also CENOBITE project on page 12). The NANOMATFAB project was assembled by research units participating in "new instruments"-type proposals in FP6 (for integrated projects and networks of excellence), after the first stage of evaluation in priority 3 (NMP).

About one third from the proposals going to the second stage are now in the negotiation process. The success rate was about the same for Romanian participants. However, for the NANOMATFAB partners the rate of success was about two times higher. The inventory of their participation is presented in this issue of the MNT Bulletin. In fact, the projects described here are all NMP "new instruments" Romania is involved up to now. Unfortunately, for a couple of Romanian partners (page 13), going from the preliminary proposal to the final one meant also changing the status of full partner with that of associate partner.

However, these Romanian research units may have an important role in promoting European cooperation at the national scale, in the domain corresponding to priority 3 (NMP) of FP 6. First, they may have a key role in "spreading the excellence" (a specific task for the new networks of excellence). Secondly, they may act as contact points for partner matching in new proposals.

Another FP 6 Network: "Advanced Handling and Assembly in Microtechnology" (ASSEMIC) A Marie Curie Research Training Network

Coordinator: Institut für Mikro-und Feinwerktechnik, Technische Universität Wien-IMFT - Prof. Dr. Werner Brenner



ASSEMIC Partners

IMT - Bucharest (Dr. Raluca Müller) is partner in ASSEMIC Network, coordinated by Prof. Dr. Werner Brenner, from IMFT TU-Vienna, which join 14 partners spread all over Europe. The aim of the project is devoted to training and research in handling and assembly at the micro-dimension, involving advanced methods and tools and providing a multidisciplinary,



Associate Prof. Dr. Werner Brenner, the coordinator of ASSEMIC Network at Euronet Workshop, Sinaia, Sept. 2003

complementary approach.

The Main Objectives of the Network are:

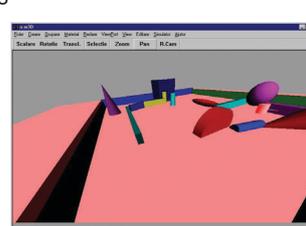
- High resolution positioning systems, micromotors and microrobots.
- Advanced tools and control for microhandling (visual/force feedback, haptic interfaces, etc.)
- Microassembly tools and strategies (self-assembly, bonding, soldering...)
- Quality management for industrial manufacturability
- Know-how management (e-learning, technology transfer and dissemination, etc.)

IMT-Bucharest Expertise

IMT-Bucharest will be involved in all work packages of the project, and will coordinate together with Medplant Genetics S.L., Spain the workpackage referring to Know-how management. IMT role in the project will refer to: design and fabrication of optical sensors, modelling and simulation for fluid micro handling, developing of technologies for hybrid MOEMS, handling of biological materials and fluids, concurrent engineering techniques based on methods of computational intelligence, e-learning.



Training course in MEMS Design IMT- Bucharest, April 2003



Software for robot testing



Hybrid integration of LEDs with a photonic circuit