Silicon-chip-based bioanalytical microdevices (2003-2005)

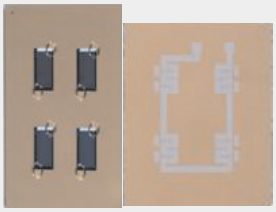
Partners:◆IMT-Bucharest◆Faculty of Biology, University of Bucharest◆Dextercom. SRL

Objectives:

❑silicon array microfabrication; surface chemistry and DNA immobilization;

❑PCR cycling and on-chip DNA microarray hybridization

Contact person: **Dr. Irina Kleps,** irinak@imt.ro



CHEMFET Sensors for pH, K+, Na+, Mg+2, Ca+2 determination (2002-2005)

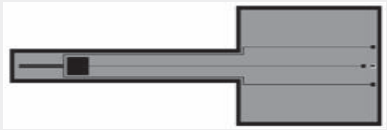
Partners:◆IMT-Bucharest◆Centre of Military-Medical Research

Objectives:

❑ CHEMFET sensors use the field effect transistors to detect chemical quantities;

❑the basic research target of the project is to integrate the CHEMFET sensors on an microprobe that can be used for measurements of different chemical gaseous species of interest (NO, NO2) and the development of the suitable sensing materials.

Contact person: **Dr. Carmen Moldovan,** cmoldovan@imt.ro



Nanoelectrode arrays for pollution control (2001-2003)

Partners: ◆IMT-Bucharest◆University of Bucharest;

Results:

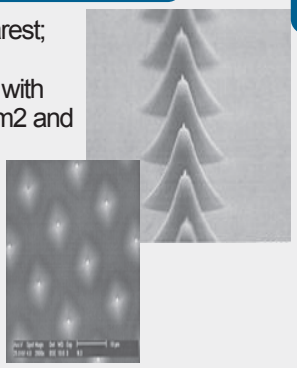
❑ Various geometries of nanoelectrode array with silicon electrodes of pyramidal shape of 2x2 mm2 and 8x8 mm2 base area and 50-250 nm top radius were realised. Each array is constituted from many types of test devices with various number of nanoelectrodes and various distances.

Applications:

❑ nanoelectrodes arrays may be used as working electrode for metallic traces detection;

❑ biosensors (bio-chips).

Contact person: **Dr. Irina Kleps,** irinak@imt.ro



Microsystem for controlled drug delivery (2003-2005)

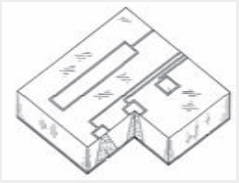
Partners:◆IMT-Bucharest◆National Institute Chemical-Pharmaceutical for R&D◆Oncological Institute "Al. I. Treistoreanu"

Objectives:

❑design and fabrication of a microchip with a reservoir array;

❑calibration of the microchip to deliver programmed drug dosages over a prolonged period, at specific time intervals.

Contact person: **Eng. Mihaela Miu,** mihaelam@imt.ro



Nanostructurated silicon membranes technology for pharmaceutical microdevices (2003-2005)

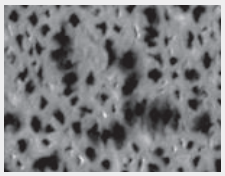
Partners:◆IMT Bucharest◆National Institute for Chemical-Pharmaceutical R&D◆Center for Organic Chemistry

Objectives:

❑ design and fabrication of pharmaceutical microdevices on silicon;

❑ study of mesoporous silicon implant for pharmaceutical substances release

Contact person: **Eng. Anca Angelescu,** ancaa@imt.ro



Bio-chips for ellectrochemical activity investigation of biological media (2001-2002)

Partners:◆IMT-Bucharest◆University of Bucharest◆Institute of Biology (Romanian Academy)

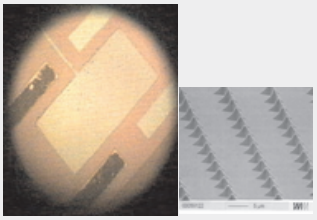
Results:

❑ design and fabrication of devices based on silicon nano-electrodes array for biological application;

❑ investigation of ellectro-chemical activity of bacteria;

❑ study of electron transfer in biological media; cell growth on metallic tips.

Contact person: **Dr. Irina Kleps,** irinak@imt.ro



A network for bringing NANOtechnologies TO LIFE (NANO2LIFE) - NoE priority 3, NMP

Coordinator: **Dr. Patrick Boisseau** (patrick.boisseau@cea.fr) , CEA France

Web site: **http://www.nano2life.org/**

The Nano2Life network of excellence has as main objective the merging of the existing European expertise and knowledge in the field of nanobiotechnology, in order to keep Europe as a competitive partner and to make it a leader in nanobiotechnology transfer.

Nano2Life intend to tackle fragmentation of European nanobiotech by joining 24 so far unconnected dynamic, highly specialised and competent regions and centres with experience in initiating and running nanobiotech programmes. Also 21 high tech companies are associated to the network. The National Institute for Microtechnologies (IMT), Bucharest, Romania is an Associate member in Nano2Life.

The main activities of the Nano2Life network are related to: joint research projects; education and training; sharing of resources; communication and dissemination

The project will contribute to ensure the development of nanobiotech devices, material and services according to the needs of European industry and in agreement with international social and ethical standards.

The project started in 2004 and will continue for 4 years. Nano2Life aims to set the basis of a virtual European Nanobiotech Institute, focused on the understanding of the nanoscale interface between biological and non-biological entities, **The working meeting of Nano2Life** was held at Stresa, Italy, between 18th and 21th of April, 2004. During the meeting, a session of brain-storming took place, in with the objective of generating new projects proposals. The working meeting of Nano2Life in Stresa is organized with the specific objectives of:

❑ Learning to know each other better through individual presentation and a poster session

❑ Proposing ideas of projects, actions or initiatives to work on. The participants were initiating new FP 6 projects.

Note: CENOBITE is represented in Nano2Life by two associate partners: Institute of Macromolecular Chemistry "Petru Poni", Iasi and (on behalf of the "Bucharest cluster", see page 6) by IMT-Bucharest.