



Institute of Electron Technology, Warsaw, Poland

MINAS- SCIENTIFIC NETWORK MICRO AND NANO STRUCTURES



MINAS is a Polish scientific network. It consist of 19 research teams from Technical Universities and Research Institutes and its objectives is strengthening of competencies of Polish MNT research and development potential due to intensification of the international cooperation through exploitation of the instruments which require organized activities. Details see on web page www.ite.waw.pl/minas/.

MINAS combines joint tasks performed by university teams oriented mostly on basic research and educational activities with teams from industrial institutes with stronger background of industrial co-operation. Then integration activities is of most importance to create synergy effect necessary to achieve objectives and attract industrial partners to network activities and exploitations of its developments. Joint research efforts have to be undertaken by the network in order to accomplish solid theoretical basis and interdisciplinary approach. Existing individual areas of expertise have to be integrated in order to achieve better performance by solving problems in a coordinated way. Sharing of research infrastructure and personnel exchange program will be provided with possible cooperation with industrial organizations.

Each research group participating has already established co-operation with industrial partners including SME's. To improve this links and widespread them among all partners, series of meetings are organized. These meetings takes form of seminars where representatives of R&D presents new achievements and capabilities while industry representatives focus on industrial goals. Besides, visits to industrial enterprises are arranged. In this way a constant exchange of ideas and concepts between research and industry is enabled and strong ties especially with SME's established.

MINAS Objectives

1. To strengthen interdisciplinary cooperation and systematic approach through gathering Polish MEMS-players into one network.
2. To promote new MEMS-projects creation by uniting key players.
3. To promote development of new multi functional intelligent products and processes by making MEMS-technologies and its applications well-known.
4. To stimulate market oriented application-pull activities rather than technology-push
5. To enhance knowledge of international MEMS-markets through networking.

Coordinator: Institute of Electron Technology;

Partners:

- AGH University of Science and Technology;**
- Institute of Biocybernetics and Biomedical Engineering;**
- Wroclaw University of Technology;**
- Warsaw University of Technology;**
- Silesian University of Technology;**
- Technical University of Lodz;**
- Gdynia Maritime University;**
- Rzeszow University of Technology;**

**Department of Silicon Microsystem and Nanostructure Technology,
National Center for Micro- and Nanotechnology, Institute of Electron Technology,
Offer and resources for cooperation in FP7**

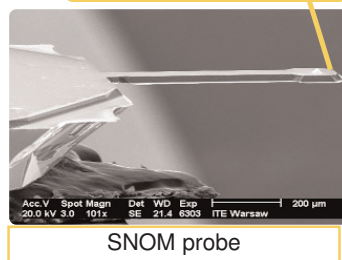
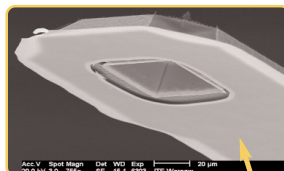
Experience in European projects 2000-2006: Opening of EU sponsored Framework 5 and following research programs has triggered intensive activity of our team in European projects, resulting in impressive total number of 14 projects in which our Department has participated (or still participates). It has to be also emphasized, that head of the Department, dr. Piotr Grabiec is an EU expert, employed as the reviewer, evaluator and consultant in many national and international programs. He works also in the Scientific Community Council of ENIAC.

Competence

- MEMS/MOEMS devices based on silicon micromachining
- Biocompatible microelectrodes for medical implants
- Silicon micro- and nano-probes with in integrated piezoresistive force sensor
- MEMS design and modeling & simulation
- Integration of various silicon and non-silicon micro-technologies
- Customer specific PINs and Avalanche Photodiodes
- Customer specific Detectors of ionizing radiation
- Ion Sensitive FET's, incl. back side contact devices

Department maintains Si-microfabrication facility

Total Clean Room Area approx. 1200 sq. m.; cleanliness class 1000 and 100 up to 10 (photolithography); silicon wafers 100 mm; design rules 3 µm (available 1.5 – 1.0 µm)



SNOM probe

Our proposal/our interest

Our R&D scope covers a broad range of technologies, from silicon photo- and radiation detectors through Integrated Circuits up to sensor and microsystem (MEMS and MOEMS) with a special emphasize on integration of different technologies and devices for interdisciplinary applications. We still maintain CMOS IC's technology envisaged as a tool for technology stabilization and fabrication of ASICs for industrial customers interested in low volume fabrication. Recently, our research efforts are more and more focused on niche areas such as sophisticated, custom specific detectors, sensors and smart microsystems.

Significant results achieved in co-operation with our partners have led us into a fascinating world of modern technology. Our achievements include fabrication of the first in the World detectors of ionizing radiation with pixels interleaved during the read-out cycle and prototyping of the first in the World monolithic pixel detectors of ionizing radiation in SOI technology. In May 2006 thanks to chromatographic detectors produced at the IET for the first time in history the atoms of a new element 112-283 were registered in Dubna.

We are seeking partners for further development of micro- and nanosystems with special interest on specific sensors integrated with CMOS electronics. We are interested in gaining partners for future European projects in NMP/ICT areas.

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