



**M**ANTARC Center of Excellence was established to carry out research in the area of design and fabrication of microelectronic, micromechanical and optoelectronic devices and integrated systems (MEMS/MOEMS), as well as to form the scientific and technical basis for the development of nanotechnology based on modern applications of silicon technology. Working on its goals **MANTARC Center of Excellence** conducts (according to the guidelines of the Government's policy of science) fundamental and applied research in the area of micro- and nano-technology, as well as participates in the organization of European Research Area. R&D activities are undertaken in co-operation with the leading Polish research centers.

**The main tasks of the Center are as follows:**

co-operation with universities and other research centers in Poland, European Union, and countries belonging to the European Research Region; support for multi-disciplinary research on the application of micro- and nano-technology, as well as support for the technical education.

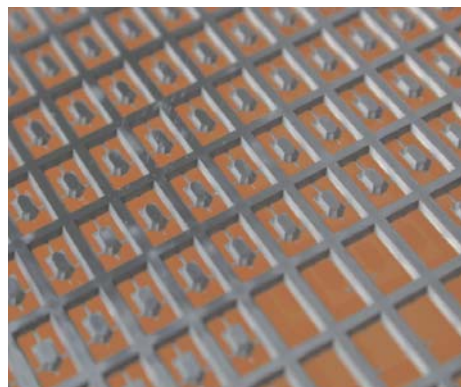


Photolithography Clean-Room

The Center's research and development area includes:

- design of analog and digital integrated circuits and systems, including ASIC's and systems-on-chip (SoC);
- design of the topography of functional blocks of IC's in the form of the so-called IP blocks;
- design and fabrication of silicon sensors of physical and chemical parameters;
- design and development of the fabrication process sequence for MEMS and MOEMS for interdisciplinary applications;
- fabrication of silicon micro- and nano-probes for AFM analysis of the surface;
- design and fabrication of photodetectors, including avalanche Si photodiodes;
- design and fabrication of silicon detectors of radiation;
- development of new electrical, photoelectric, SEM/TEM methods to characterize semiconductor structures;
- development and implementation of partial technologies.

**M**ANTARC provides academic researchers and students with the access to semiconductor technologies (sensors, microsystems and integrated circuits). It provides a platform for development of IC prototypes in the form of multi-project wafers and contracting orders of the development of the fabrication process sequence and actual fabrication of non-standard micromechanical structures. The Center contributes to making the domains described above more attractive to students, improving the level of education in the area of micro- and nano-technology and creating new prospects for the development of experimental research.



Micromachined silicon microprobes

**National Center of Silicon Micro- and Nano-Technology** is an important part of **MANTARC** activities. Through this **MANTARC's** potential in the area of microsystem technology is available to Polish research community.

Superior qualifications of scientific staff, motivation, international contacts, wide scope of basic and market oriented applied research together with unique facilities and equipment resulted with many prestigious achievements. The most important results within the last years are as follows:

The scientific results of the research works were widely published in international scientific journals and presented at conferences. Since the year 2002, our research teams published 281 papers, 78 of which in journals selected by the Institute for Scientific Information, Philadelphia, USA;

The developed products have been awarded many nation-wide prizes and favors. The most important include: Economic Award of the President of the Republic of Poland for the best invention of the year, twice the 1-st category award of the Polish High Technical Association as well as the Polish Product of the Future award and medals on hi-tech fairs. Broad international co-operation with both scientific institutions and commercial enterprises confirms the European level of RTD activities of the Center.

**M**ANTARC is a member of European initiatives as a competence center for microsystems fabrication offering access to advanced MOEMS technologies for industrial organizations.

The permanent staff of the Center consists of 53 scientists (2 full professors, 2 associate professors, 14 Ph.D.'s, 27 engineers and 8 assistants) and 26 technicians.

In the ITE, there exists an organizational basis for Ph.D. and D.Sc. oriented research and granting the scientific degrees. Also, ITE is authorized to confer PhD and D.Sc. Degrees. With this opportunity and with the experienced scientific staff of the Institute, there is a possibility of attracting Ph.D. students wishing to work in the scientific direction of the semiconductor microelectronics.

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