

IMT-MINAFAB:

a micro- and nanotechnology centre, open to industry

Mission statement

The micro- and nanofabrication centre from IMT-Bucharest will provide a platform of interaction devoted to multidisciplinary research and education-by-research, as well as to innovation and knowledge transfer to industry. As far as innovation is concerned, IMT-MINAFAB allows development of experimental models and prototypes, but also can support small scale production.

IMT-MINAFAB is an interface created by IMT - Bucharest in order to fully exploit its tangible and intangible assets in micro- and

nanotechnologies (clean-room facility, equipments, human resources, partners and clients). The so-called "fabrication centre" is in fact a complex technological platform including also CAD tools, characterization equipments, a mask shop, a reliability lab. Services provided by **IMT-MINAFAB** are ranging from direct access to equipments to cooperation in RTD activities, from execution of masks, processes, measurements, to education and training. The full offer is displayed at www.imt.ro/MINAFAB.

Infrastructure and equipment

IMT-MINAFAB benefits from the following infrastructure: the main clean room (200 sqm) is a class 100 to class 1,000 facility (main technological equipments, a mask shop). A class 100,000 clean room, the so called "grey area" (200 sqm) is used mostly for the characterization equipments, but also for e-beam nanolithography. A class 10,000 clean room (100 sqm) for thin layer growth by CVD techniques, RTP etc. will also become operational in 2009.

IMT-Bucharest acts as a technological platform, providing tools for design, fabrication (including a mask shop), characterization and reliability tests:

- Design, simulation of MEMS/Microsystems, nanostructures (using COVENTOR WARE, ANSYS, COMSOL OptoiFDTD, IE3D);
- Fabrication of micro- nano structures, microsensors, microsystems (MEMS, MOEMS, RF- MEMS, microfluidics, biochips: microarrays, biosensors) based on semiconductor technology, including also mask fabrication, electron beam lithography (EBL), dip-pen nanolithography and nanoprinting;
- A laboratory for rapid prototyping (with laser) is under development;
- Microphysical characterization (SPM, SEM, XRD, SNOM, WLI, Impedance spectroscopy, Raman, Spectrophotometer; Spectroscopic Ellipsometer, X-ray diffractometer, characterisation in the UV-VIS-IR spectral range);
- Reliability tests (electrical, thermal, mechanical etc.);

Important! Mounting and packaging is provided by small companies (from the science park), with equipments located in the same technological area.



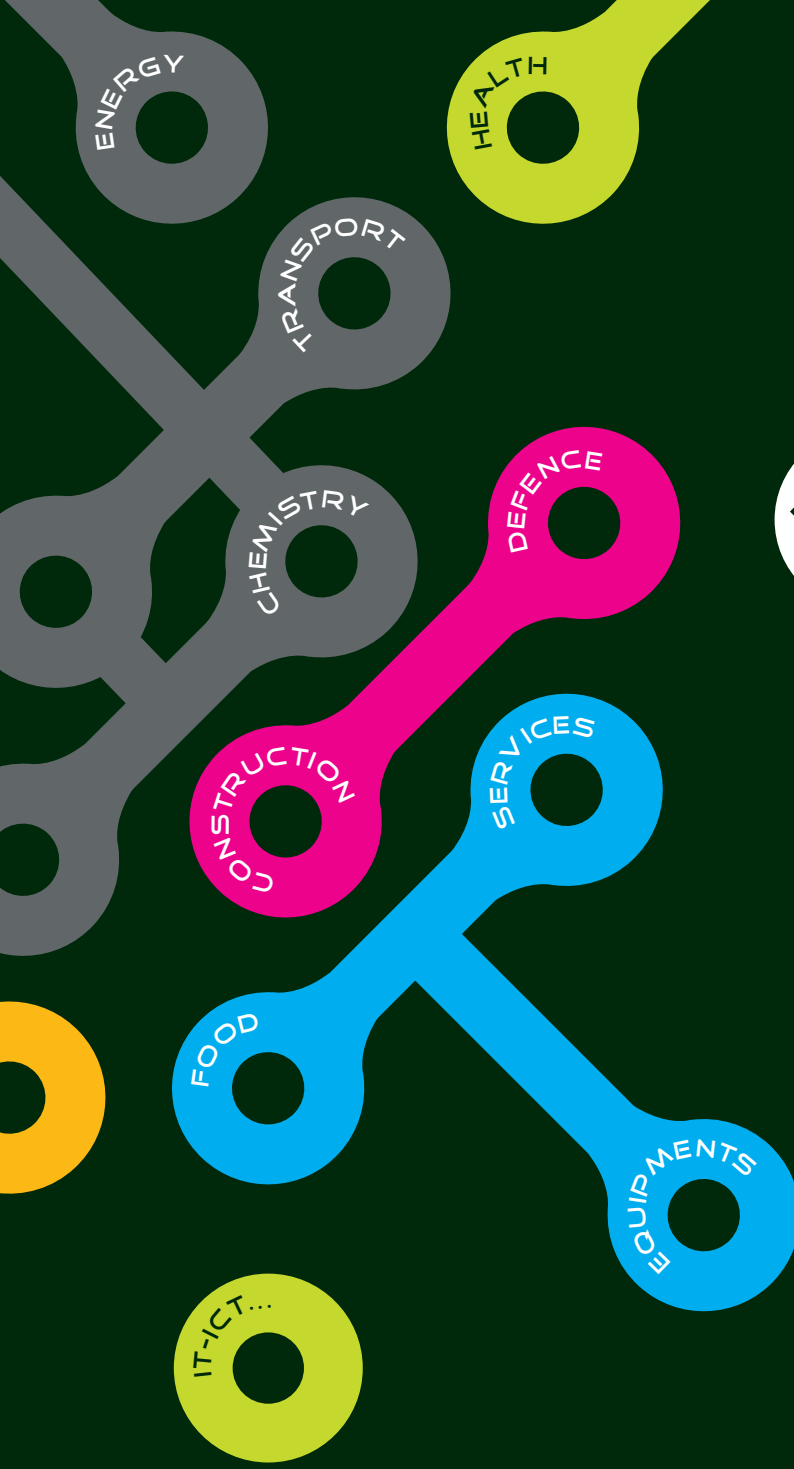
The main topics of research in IMT

- MEMS based microsensors and actuators for bio-medical, environmental applications and robotics: pressure sensors, accelerometers, microgrippers
- RF-MEMS devices and circuits: design, modelling and manufacturing of dielectric membrane supported inductors, capacitors, filters and antennae based on silicon and GaAs micromachining; micromachined millimetre and sub millimetre wave receiver modules, SAW interdigitated traducers
- Photonic devices and MOEMS (waveguides, optical couplers, µring filters and resonators; grating-based microstructures, tuneable interferometers based on movable micromirrors, optical sensors), photonic circuits for optical interconnections

The research laboratories of IMT-Bucharest are also developing: CNT based micro-nanostructures for sensing and interconnections; microfluidic devices; biochips for biological materials investigation and detection (proteins, DNA, enzymes) on various substrates (silicon, glass, polymers), microarrays, biosensors; silicon nanoelectrode arrays, porous silicon layers (EI, PL and bio-active properties); field emission nanostructures;



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Sous le haut patronage
de Monsieur **Nicolas Sarkozy**,
Président de la République française



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