

Details

Center for Micro- and Nanotechnologies (ZMN)

Being a central institution of the University, the Center of Micro- and Nanotechnologies (ZMN) provides a platform of technologies for basic and for applied research in the field of micro and nano systems. Besides the Institute of Micro- and Nanotechnologies (IMN), all departments of the university can use this scientific infrastructure. Furthermore, the ZMN may offer services to third parties. The ZMN holds a total area of about 2000m², for example about 680m² clean rooms with various cleanroom classes (about 380 m² clean room class 10,000; 300 m² clean roomclass 1,000, and class 100 in the lithography area). Different materials are processed, e. g. pyroelectric and piezoelectric semiconductors for sensor technologies, polymers for solar cells and transistors, ceramics for hybrid techniques and the full range of silicon technology for fluidics, sensors and micro actuators. This scientific equipment is topped off by a powerful analytics department even to the points of atomic dimensions. Due to the spatial closeness of the different departments and research groups within the ZMN an intensive scientific exchange in a creative surrounding is promoted.

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[To website](#)

Host Institution

Technische Universität Ilmenau
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Thüringen
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Scientific Domain

Primary Subjects:

- Materials Science and Engineering
- Computer Science, Electrical and System Engineering

Secondary Subjects:

- Biology
- Chemistry
- Physics

Category

Micro- and Nanotechnology facilities

Scientific Services

The center offers a wide range of scientific services. A specific strength it has in the handling of complex problems in the field of micro-and nanotechnologies, in which multiple interdisciplinary expertise is demanded. This way silicon MEMS technology up to 6", LTCC technology for ceramics, MOCVD and MBE for group III-nitrides, FIB and e-beam technology for nanostructures, ultra-precision machining for micro-optics and laser technology are used. Furthermore, the center offers an broad range of solid analysis and surface analysis, eg for organic. photovoltaics, thermoelectrics, electrochemistry, inorganic semiconductors (particularly nitrides III) and sensors. Electrical characterization, layer measurement, TEM, SEM with EDX and EBSD, as well as surface analysis (XPS, UPS, AES, PEEM, RHEED, STM, AFM) are possible here.

Scientific Equipment

- Coating systems for semiconductors/metalls
- Coating systems for semiconducting polymers
- Plasma etch tools for micro-/nanostructures
- Nano-structuring by focused ion beam
- Ultra precision machining
- complete process line for LTCC
- UV,e-beam and nanoimprint lithography
- multifunctional atomic force microscopy
- spectroscopic analytics
- 3D-nanoanalytics by focused ion beam
- optical and tactile profilometry
- Nano-measurement and positioning tool
- Surface analytics in UHV
- X-ray structural analytics
- cell-biological applications laboratory (S1)

Keywords

- Microsystems Engineering
- (Bio-)Sensoric
- Energy Research
- Nanostructuring
- Assembly and Packaging Technology
- Solid Analytics
- Surface Analytics
- MOCVD and MBE
- Organic Electronics
- Photovoltaics
- Mikrofluidics
- Microoptics
- New Materials
- Ceramics

Networks

EuroNanoLab

<http://euronanolab.eu>

Users per annum

Internal Users: 200

External Users in total: 140

External Users: 100

External Users in the EU: 30

External Users outside of EU: 10