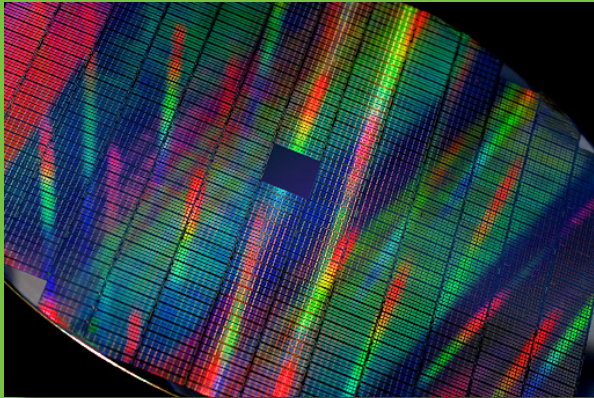


A highly qualified and experienced research team at the Intelligent Microsystems Institute focuses on the development and standardisation of new system integration processes. The base for the manufacturing of new innovative intelligent microsystems is a CMOS production process which is expanded by different modules:



- rapid prototyping by e-beam lithography
- CMOS compatible MEMS/NEMS integration
- high power/voltage component integration
- special purpose solutions for high demand operating conditions
- small batch series production including bonding and packaging.

Our cleanrooms provide the best possible working conditions with respect to research opportunities, university education, health and safety.



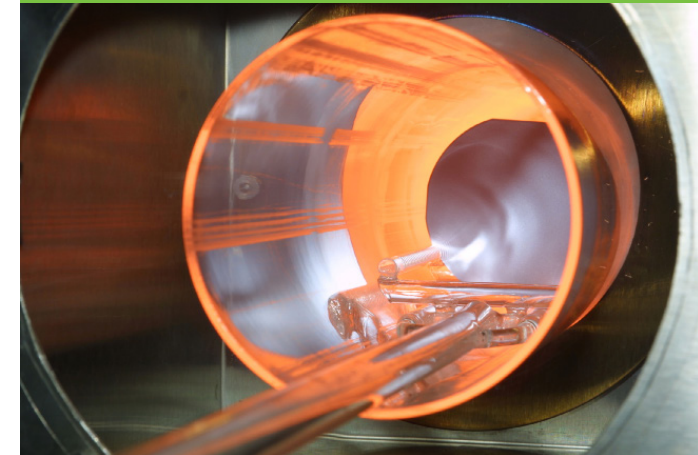
24 hours a day, 7 days a week, 365 days a year the laboratory offers:

- about 120 m² class 100 (ISO 5) cleanroom area
- full process equipment
- temperature: 21 ± 0.5 °C
- humidity: 45 ± 2.5 % (r_p)
- electronically controlled and monitored gas supply system with the highest purity available.

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Innovative Semiconductor Research

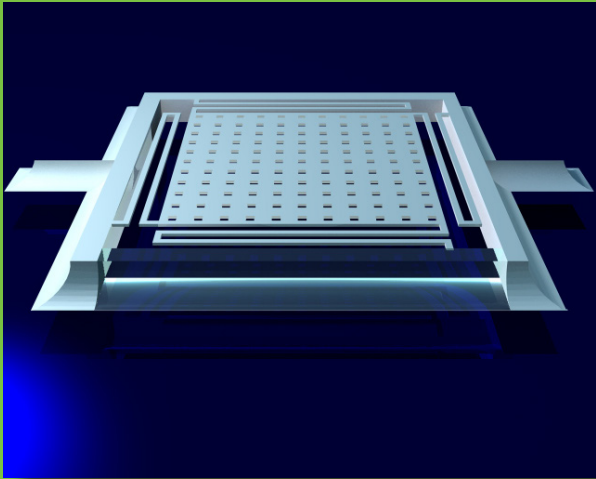


Technology for Research and Development

Faculty for
Electrical Engineering
and Information Technology

Design & Modeling

The tight networking between design, simulation, manufacturing and testing allows the evaluation and realisation of innovative devices, sensors and actors which are combined with state of the art micro- and nano-electronics.

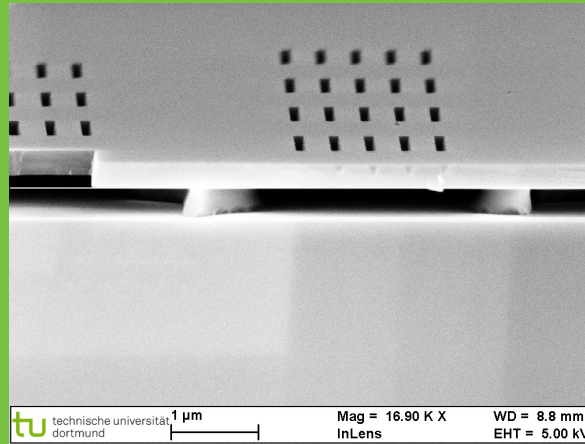


At the Intelligent Microsystems Institute ideas do not just stay ideas - they are materialized:

- innovative membrane technology for pressure sensors
- germanium based drift detectors for dispersive X-ray analysis
- nanofin based sensor read out circuits
- nanofilament gas detectors
- nanoscale thermal time of flight sensors (fluid velocity detection).

Analysis

The success of any innovative microsystem relies, first and foremost, on the precise analysis of each individual manufacturing step and the investigation of the compounded prototypes. The obtained results are directly incorporated in the design and simulation models for the next iteration.

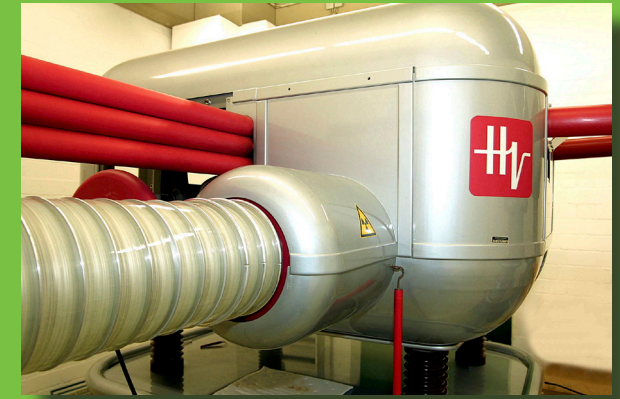


A broad range of measurement methods and monitoring procedures are available for the analysis:

- laser line width control
- spectroscopic ellipsometry
- surface profilometer
- digital microscope (54 million pixels)
- microprobers
- scanning electron microscope with laserinterferometric controlled stage.

Equipment

The Intelligent Microsystems Institute has a modern research infrastructure which is constantly expanded with regard to current scientific research issues and technological developments.



All necessary equipment for system design, manufacturing and testing is available:

- system design & simulation cluster with software packages: Cadence, Mentor, Synopsys TCAD, ANSYS, ...
- full CMOS-production line
- ion implantation system with solid and gaseous sources: B, P, As, Sb, N, C, In, Ar, ...
- e-beam lithography system (< 20 nm)
- test laboratory including state of the art equipment, waferprober, etc.