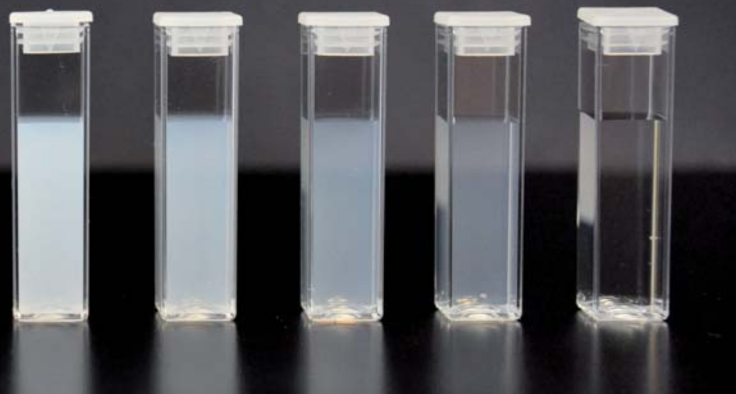


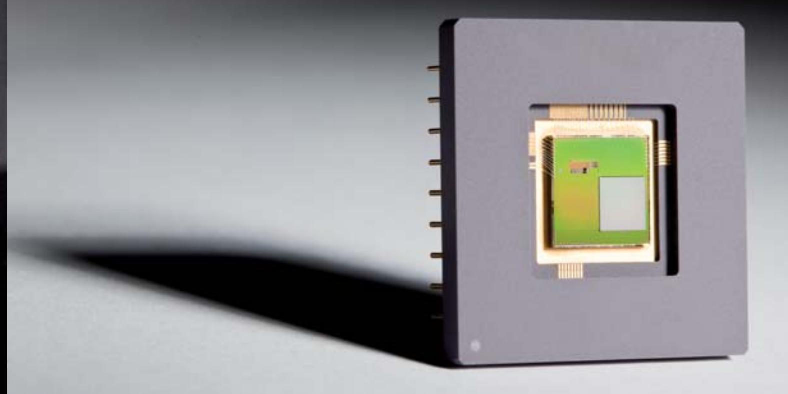
PARTNERS

Technische Universität Dresden

- Faculty of Science
- Faculty of Mechanical Engineering
- Faculty of Electrical Engineering and Information Technology

Helmholtz-Zentrum Berlin

Foto: © Carola Gerich



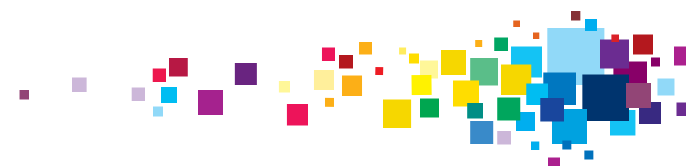
CONTACT DETAILS

Speaker
Prof. Dr. Ehrenfried Zschech
Phone +49 351 88815-543
ehrenfried.zschech@ikts-md.fraunhofer.de

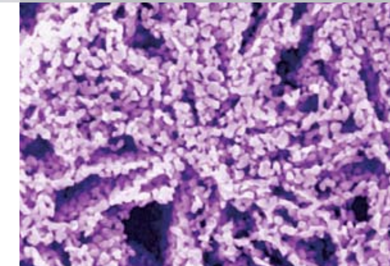
Office
Dresden Fraunhofer Cluster Nanoanalysis
c/o Fraunhofer IKTS-MD
Maria-Reiche-Strasse 2
01109 Dresden | Germany

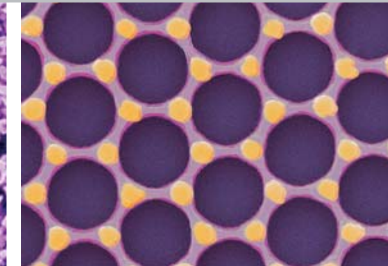
André Clausner
Phone +49 351 88815-573
andre.clausner@ikts-md.fraunhofer.de

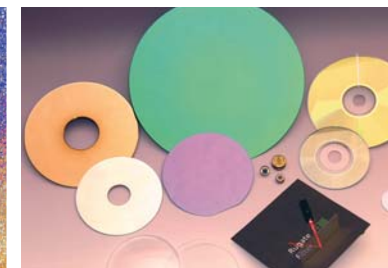
info@nanoanalysis.fraunhofer.de
www.nanoanalysis.fraunhofer.de



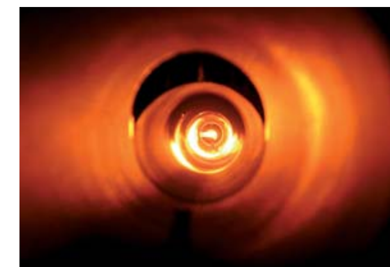
DRESDEN FRAUNHOFER CLUSTER NANOANALYSIS

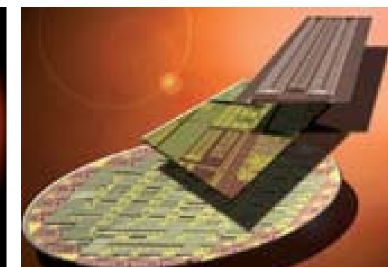


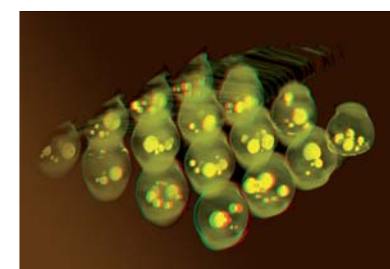


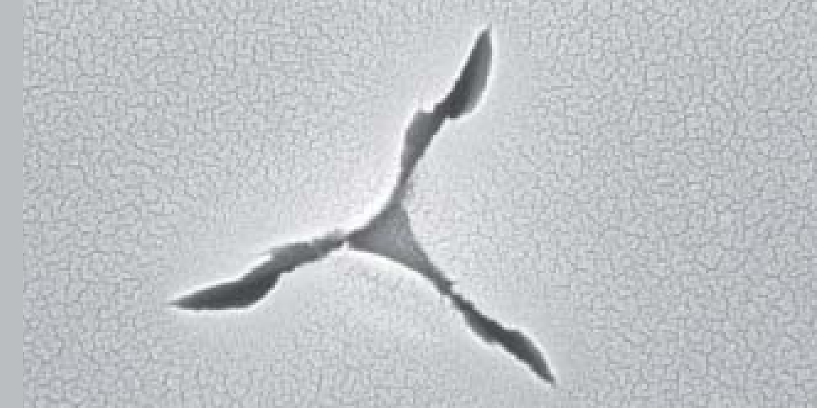


NANOANALYSIS COMPETENCE IN DRESDEN









VISION

Establish an internationally visible competence center for nanoanalysis as recognized partner for industry.

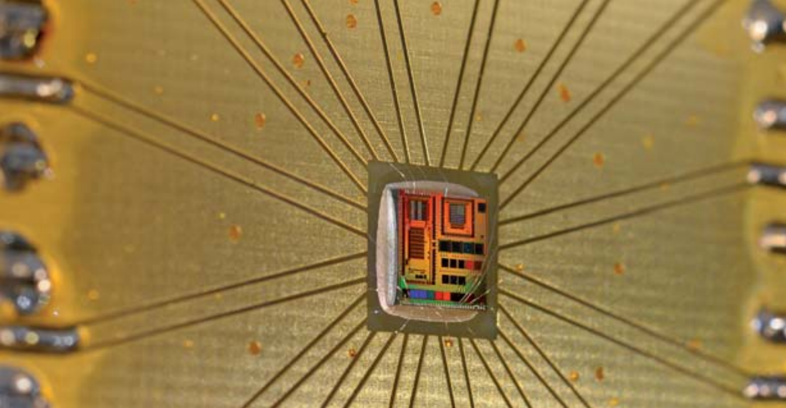
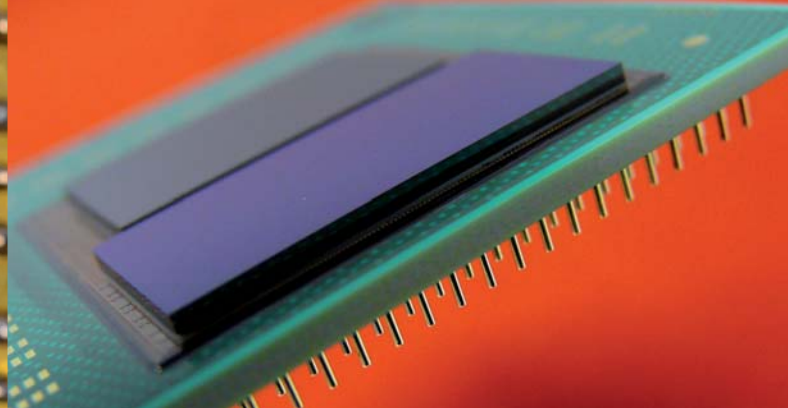
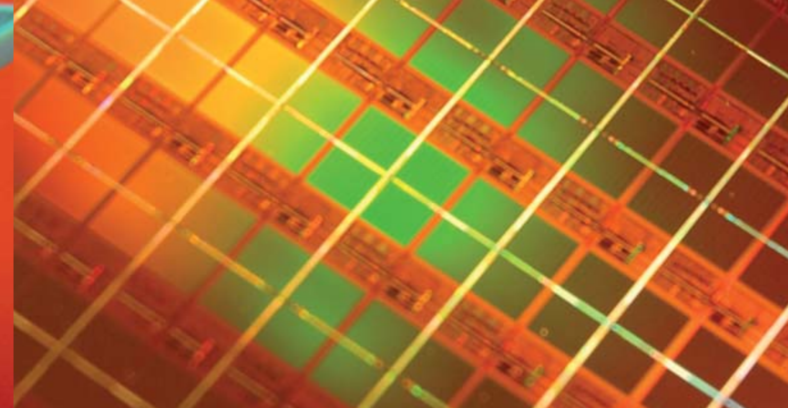
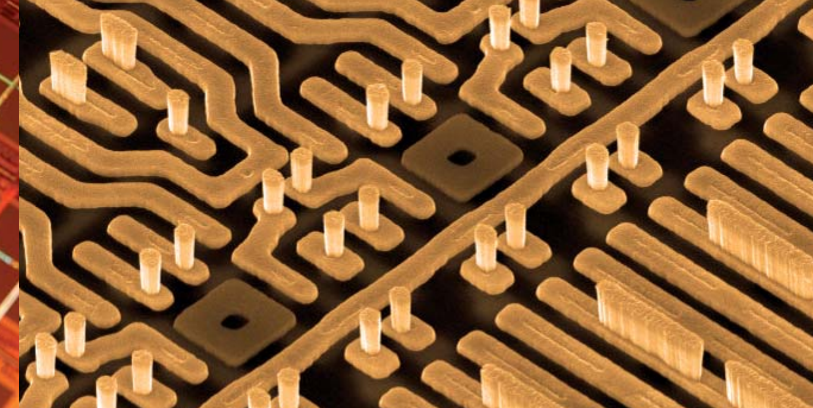
MISSION

Applied research and development in the field of nanoanalysis for discovering suitable technical and conceptual solutions:

- Advancement of analysis methods
- Development of components and systems for new analysis techniques
- Development of application strategies for advanced analysis methods and systems
- Consultation and accomplishment of services in the field of analysis for high-tech companies

APPLICATION AREAS

- Micro-, nano-, and optoelectronics
- Renewable energy sources
- Lightweight construction and functional materials

KEY COMPETENCES

Electron and Ion Microscopy

- Scanning Electron Microscopy (SEM)
- Analytical Transmission Electron Microscopy (TEM)
- Focused Ion Beam Technique (FIB)

Scanning Probe Microscopy

- Atomic Force Microscopy (AFM)
- Surface Potential Microscopy
- Electrochemical Scanning Tunneling Microscopy (STM)

Spectroscopic Techniques

- X-ray Photoelectron Spectroscopy (XPS)
- Secondary Ion Mass Spectroscopy (SIMS)
- Atom Probe Tomography

X-ray Analysis

- Nano X-ray Microscopy / Nano X-ray Computed Tomography
- X-ray / EUV Reflectometry & Module Development
- Temperature-dependent X-Ray Diffraction (XRD)

Synchrotron Analysis

- X-ray Microscopy / X-ray Computed Tomography
- Photoemission Electron Microscopy (PEEM)
- X-ray Spectroscopy

Characterization of Nanoparticles

- Particle Size
- Behavior in Suspensions
- Toxicology

Optical Techniques

- Thin film analysis / Ellipsometry
- White Light Interferometry
- Materialography

Nanomechanical Techniques

- Nanoindentation
- Atomic Force Acoustic Microscopy (AFAM)
- Laser-Acoustic Testing

Digital Image Correlation Techniques

- Deformation Analysis – MicroDAC, nanoDAC
- Quantification of Strain Fields
- Residual Stress Analysis

Inline Metrology

- Review SEM with FIB
- X-Ray Diffraction (XRD)
- Spectral Ellipsometer

System Integration

- 3D Wafer-Level System Integration
- 300 mm Cu TSV Technology
- 300 mm Wafer-Level Assembly and Stacking

Design and Design Support Systems

- Technology aware Modelling
- Simulation and Modelling Methods
- Design under Constraints

Organic Thin Film and Device Analysis

- Optical thin film analysis
- Photometric device analysis
- Lifetime and reliability testing

FRAUNHOFER INSTITUTES

ENAS	Fraunhofer Institute for Electronic Nano Systems
FEP	Fraunhofer Institute for Electron Beam and Plasma Technology
IFAM DD	Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Branch Lab Dresden
IIS/EAS	Fraunhofer Institute for Integrated Circuits, Design Automation Division
IKTS	Fraunhofer Institute for Ceramic Technologies and Systems
IPMS	Fraunhofer Institute for Photonic Microsystems
IWS	Fraunhofer Institute for Material and Beam Technology
IZM-ASSID	Fraunhofer Institute for Reliability and Microintegration – »All Silicon System Integration Dresden«
THM	Fraunhofer Technology Center for Semiconductor Materials