



n²STAR- Nanofabrication and Nanocharacterization Center for Science and Technological Advanced Research



Koç University
Nanofabrication and
Nanocharacterization
Center for
Scientific and
Technological
Advanced
Research

A world-class R&D infrastructure (housing a state-of-the-art cleanroom) of **over 1,000 m²** processing and characterization laboratory area

- 760 m² cleanroom (ISO 5)
- One of the best well-equipped cleanroom environments for **patterning and coating process capabilities** in the country
- Best of the best material characterization infrastructure, from atoms to complex molecules.
- Atomic level characterization up to **0.078 nm**
- ~ **4.5M €** worth cleanroom infrastructure
- ~ **17.5M €** worth total equipment park

RESEARCH FIELDS: Photonics/Nanophotonics, Optics/Optoelectronics, Electronics/Micro-Nano Electronics, Micro and Nanoelectromechanical Systems (MEMS/NEMS), Nanomechanics, Microfluidics, Materials Science and Engineering, Nanobiotechnologies, Food Science

TARGETTED SUCCESS IMPACT DOMAINS:

Energy, Environment, Health, Biomedical, Automation, Space/Aviation, Communications, Technical Textiles, Future Agriculture





OPPORTUNITIES

Working/sharing your expertise on State of the art equipment

Get adjunct to whole Research groups; 30+ faculty members using the center

Characterization Infrastructure

- Advanced Electron Beam Techniques
 - Hitachi HF5000 Cs-corrected coldFEG High Res. STEM
 - Hitachi Ethos NX5000 Focused Ion Beam
 - Hitachi HT7800 TEM
- Advanced Characterization
 - SAXS (Anton-Paar SAXSPoint 5.0)
 - 500 MHz NMR (BRUKER AVANCE NEO)
 - Q-TOF-LC-MS (Waters VION IMS)

Cleanroom Infrastructure

- Lithography
 - Jeol 8100 FS Electron Beam Lithography System
 - Heidelberg DWL 66+
 - Heidelberg mLA 100
- Deposition
 - ICP-CVD (Sentech SI 500 D with Loadlock)
 - Thermal/E-beam Evaporator (KJL PVD 200)
 - 2 x Magnetron Sputtering System (KJL PVD 75)
- Etching
 - XeF₂ Silicon Etch System (MEMS STAR Orbis Alpha)
 - ICP-RIE Silicon DRIE (Sentech SI 500 C)
 - ICP-RIE Metal (Sentech SI 500)
 - RIE Silicon & Dielectric (SENTECH Etchlab 200)
- Over 25 Characterization/Inspection Packaging Equip.



A Glimpse of Research @n²STAR

Prof. Murat Kuscü Group:

Our current research activities revolve around the **Internet of Bio-Nano Things (IoBNT)**, an emerging information and communication technology (ICT) framework aiming at extending our connectivity and control to nanoscale and biological environments with collaborative networks of artificial nanomachines and biological entities. At the intersection of ICT, nanotechnology and biotechnology, we conduct highly interdisciplinary theoretical and experimental research with the objective of realizing the futuristic medical, environmental, and industrial applications of the IoBNT. Our work ranges from the design and fabrication of nonconventional molecular communication systems, microfluidic and lab-on-a-chip systems, and biosensors based on graphene and related 2d nanomaterials, to the design and modeling of synthetic biological networks, and the development of ICT-based diagnosis and treatment techniques.

QUESTIONS?

<https://ku.ilab.agilent.com>

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