

ADVANCED MATERIALS, NANOTECHNOLOGIES & DEVICES



DEMOKRITOS
NATIONAL CENTRE FOR SCIENTIFIC RESEARCH

COLLABORATE WITH US

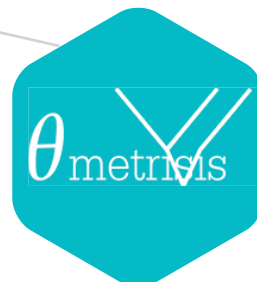
Advanced Materials, Nanotechnologies, & Devices, considered by EC as Key Enabling Technologies (KETs), is pursued at Demokritos as one of the key research areas, essential for the development of high-added value products, touching every aspect of human life; Health, Energy, Environment, Information & Communications. Three Institutes efficiently organize and integrate most of the best research and human resources available in Greece to address the research excellence and innovation challenges and to increase the European competitiveness of the country in this field.

EXPERT SERVICES

ISO certified (ISO 9001:2008)

- Clean-room processes
- Device Electrical Characterization (at temperatures 10K-600K)
- Laboratory of Environmental Analysis (Accreditation Certificate Number: 580 according to ISO 17025)
- Laboratory of Helium Liquifier
- NMR Laboratory
- Advanced Ceramics Laboratory
- Laboratory of Electron Microscopy
- Laboratory of Magnetic and Thermoelectric Materials
- Laboratory of Crystallography and Coordination Chemistry

Technology Transfer



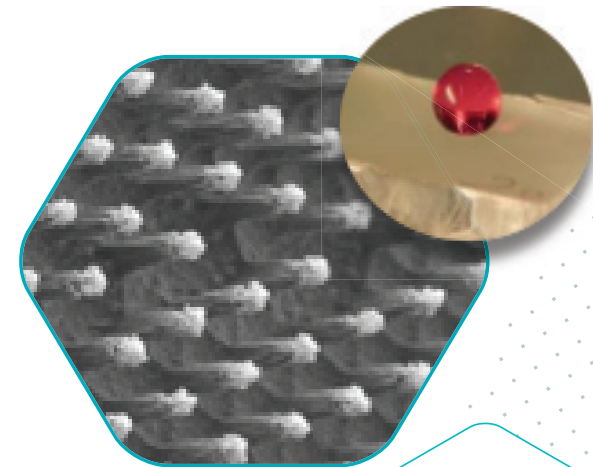
✓ independent environmental consultants

plinios



NaOmetris

nanoplasmas



RESEARCH

Advanced Functional Nanomaterials & Processes

Nanoporous materials and membranes for environmental separations • Magnetic/superconducting and thermoelectric materials • Advanced ceramics and Polymer nanocomposites • Functional 1-D, 2-D and 3-D carbon-based materials • Catalytic & photo-catalytic processes • Nanotechnology processes for solar energy conversion and environmental protection • Materials for cultural heritage protection

- Superhydrophobic and antibacterial surfaces
- Semiconductor nanostructures
- Nanofabrication processes
- Nanostructures and Nanomaterials (semiconductor, low dimensional, nanostructures, metal oxides, photonic)
- Nanofabrication processes (lithography, plasma etching, chemical vapor and atomic layer deposition, front-end, electrochemical)

Nanomaterials & Nanostructures for Biological Applications

Natural products • Nanomaterials as drug delivery systems • Radioisotopes, Radiopharmaceuticals and Immunodiagnostic products

Nanoelectronics, Photonics & Microsystems

Electronic devices (FETs, information storage devices, RF passive devices)

- Organic electronics
- Photonic devices
- Sensors & sensor networks
- Microfluidics & Lab-on-a-chip
- Energy harvesting devices
- LEDs & solar cells
- Gaseous and Radiation detectors

APPLICATIONS

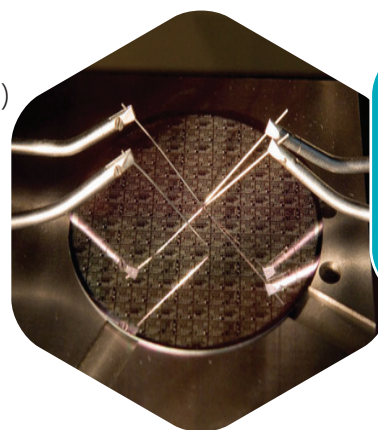
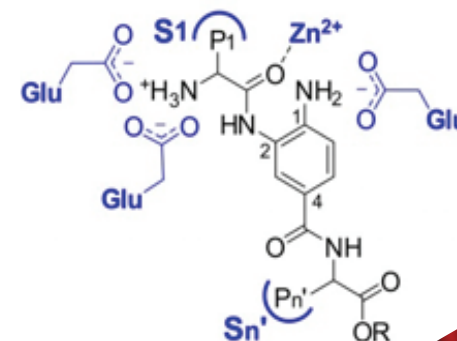
Health Diagnostic devices • Drug design • Drug delivery
• Tissue engineering • Medical microdevices • Antibacterial surfaces

Energy Energy conversion • H₂ storage • Energy harvesting
• Automotive catalysts

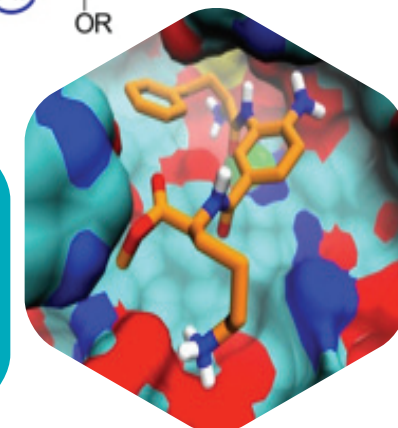
Environment Water treatment • CO₂ capture
• Food safety • Environmental monitoring for safety
• Coatings for protection • Marine applications

Information & Communications

Technology Information storage • Processing devices



INNOVATION.EL
National Infrastructure
in Nanotechnology,
Advanced Materials
and Micro/
Nanoelectronics



INFRASTRUCTURE

The existing infrastructure, devoted to the synthesis and characterization of novel nanomaterials and devices, includes a unique national nanofabrication/nanoelectronics facility fully equipped for Silicon processing and featuring an electron-beam nanolithography (E-beam) and a molecular beam epitaxy (MBE) system, NMR Facility, Microscopy Facilities (TEM, SEM, AFM), X-ray Diffraction, etc.

Contact

P.O. BOX 60037
15310 AGIA PARASKEVI
TEL. 0030 210 650 3000
projectoffice@central.demokritos.gr
www.demokritos.gr