

ELECTRONICS AND PHOTONICS

- **Advanced Nanofabrication (included Laser-assisted Processing)**
 - Nanolithography*
 - Chemical etching*
 - Laser-assisted material processing and fabrication*
 - FIB nanofabrication*
 - Electron/Ion Focused Beam processing*
 - Plasma sintering and plasma assisted processing*
 - Atomic layer deposition*
- **Silicon Photonics**
 - Si-based optical modulators, switches and detectors*
 - Hybrid systems and integration*
 - Heteroepitaxial nanostructures on Si substrate*
- **Organic/Hybrid and Printed Electronics and Photonics**
 - 2D and 3D metal-organic perovskites light emitting materials*
 - High performance OTFTs*
 - OLETs and OLEDs*
 - Technologies for high-frequency organic circuit electronics*
 - Advances products in large area electronics (thin, lightweight, flexible and/or stretchable)*
- **Electronic and Photonic Devices for Biological Applications**
 - Bio-inspired systems in organic/hybrid electronics for biotechnology and medical applications*
 - Organic and hybrid organic/inorganic transistors for chemo- and biosensing*
 - Biocompatible/biderived photonics tools for imaging*
 - Photonics for physiology*
 - Organic/hybrid nanostructures for cellular recoding/stimulation*
- **Metamaterial, Plasmonics and Nanophotonics systems**
 - Optically active colloidal nanoparticles and self-assembled structures*
 - Nanofabrication of Plasmonic nanostructures*
 - Photonic crystals*
 - High spatial resolution characterization of plasmonic modes in nanostructures*
 - 3D structures for metamaterial and plasmonic*
 - Hybrid systems*
 - New design for innovative structures*
- **Solid-state Lighting and LEDs**
 - Quantum dot light emitting materials and devices*
 - Efficient white emitting materials and devices for solid-state lighting*
 - Novel light extraction schemes*
 - Microcavity effects for solid state lighting and lasers*
 - Device failure mechanisms and durability studies*
- **Glass-Photonics and Fiber-Optics Materials and Methodologies**
 - Luminescent glass and glass-ceramics systems*
 - Active and smart fibers*
 - UV-Vis-NIR-MIR-fiber materials*
 - Nanostructured fibers*

Fiber drawing techniques for advanced applications

- **Wide Band-gap Semiconductors and Devices**

SiC, GaN and related materials

Transition metals oxides and related applications

New structures and applications (included magnetic applications)

Piezotronic and Piezophototronic Effects

- **Nanomaterials for Non-volatile Memories**

High-k dielectrics and other Oxides

Chalcogenides

Memristors

- **Low-dimensional Structures for Nanoelectronics and Nanophotonics**

Terahertz Applications

Structural characterization of low dimensional structures

Exciton-plasmon dynamics in low-dimensional structures

New-concept hybrid-devices

Flexible devices and circuits from low-dimensional materials and their heterostructures

- **Ultrafast and Non-linear Phenomena**

Probing electronic structure by ultrafast spectroscopies

Non-linear effect in plasmonic and metamaterial structures

New applications of non-linear and ultrafast phenomena

- **Materials and Systems for Quantum Processing**

Single photon emitters and detectors

Integrated quantum processing

Frequency conversion; quantum cutting, downconverters, upconverters

- **Spintronics and Magnetic Materials for Medicine**

Magnetic nanoparticles

Magneto-transport

Magnetic clusters

Thin films and heterostructures

Spin-based devices

- **Magnetism, Electronic Correlation and Topology**

Advanced imaging techniques for magnetic materials

Chiral magnetism

Ultrafast magnetism

Complex oxides

Antiferromagnets

Topological semimetals

Topological insulators

Molecular magnets

Modelling of Magnetism and topological matter

- **Advanced Superconductors**

Fe-based materials

High-Tc superconductors

Topological superconductivity

Superconducting devices

2D and layered superconductors