



Department of Physical Sciences and Technologies of Matter



Optics, photonics, atomic and quantum technologies

Optical and photonic systems for advanced imaging; photonic technologies for investigating matter under extreme conditions; photons and ultra-cold matter for communication networks, simulators and quantum computing.

Micro-nanoelectronics, sensors, micro-nanosystems

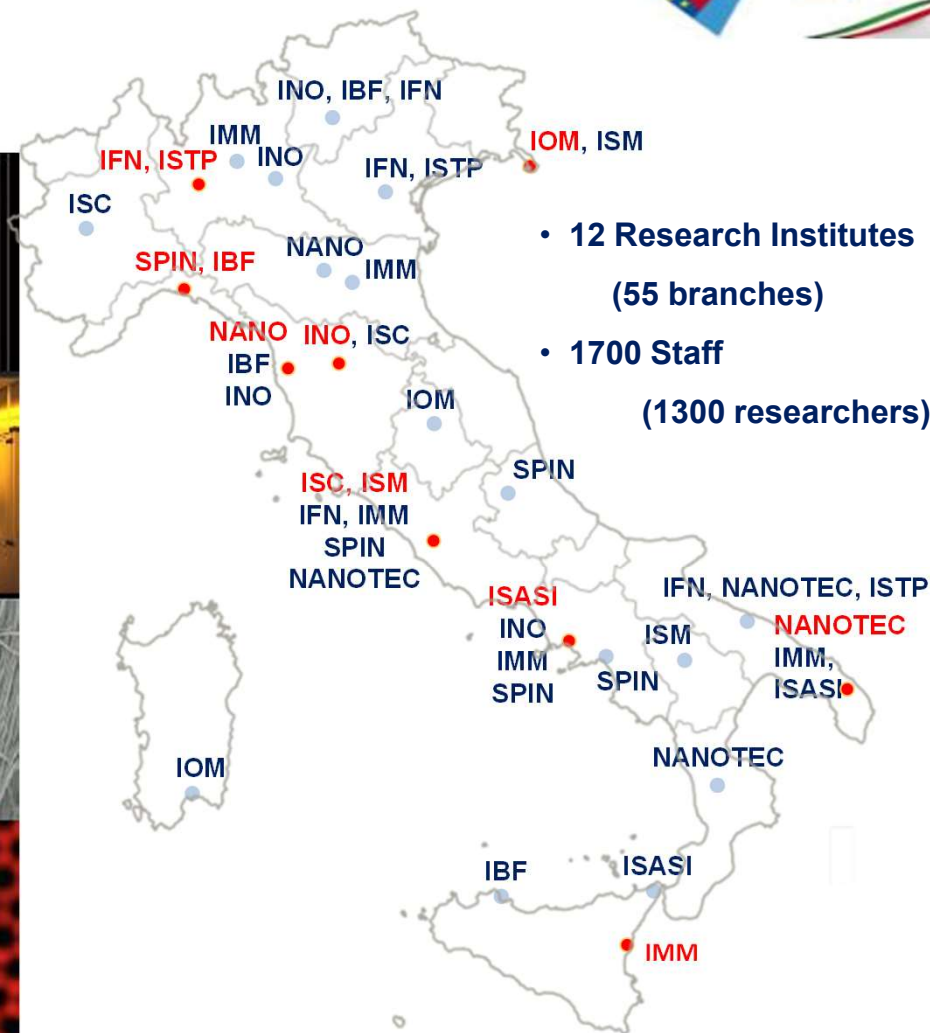
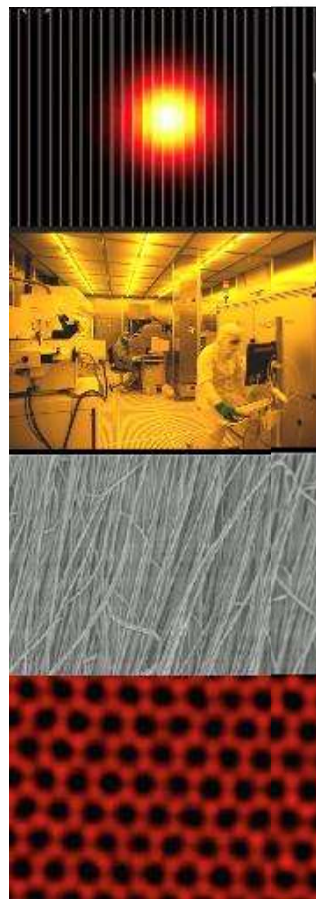
Devices with logic and/or memory functionality based on new emerging concepts; high-frequency and power devices based on advanced materials (SiC, GaN, graphene, etc.); advanced photovoltaics.

Complex systems, soft matter and biophysics and plasma physics

Advanced polymers, bio-ecocompatible, bio-mimetic, and granular materials;; complex biological systems; networks theory for controlling techno-social phenomena; plasma physic; nuclear fusion technologies

Innovative materials and advanced characterization techniques

Semiconductor, oxide, organic, magnetic, superconductor, piezoelectric and hybrid materials. Design and realization of advanced instrumentation; development of computational models





Beyond-Nano facility @ IMM-CNR Catania

40 M€ of investment



15 M€

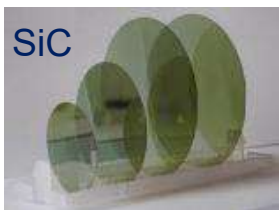


19 M€

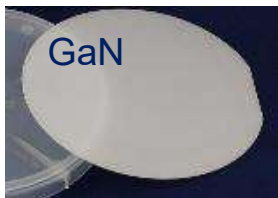


6 M€

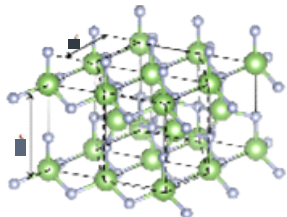
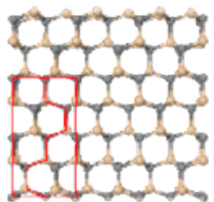
Wide band-gap semiconductors



SiC



GaN



500 m² clean room class 10 (ISO4)



3000 m² new Labs



Advanced equipment for analytical characterization





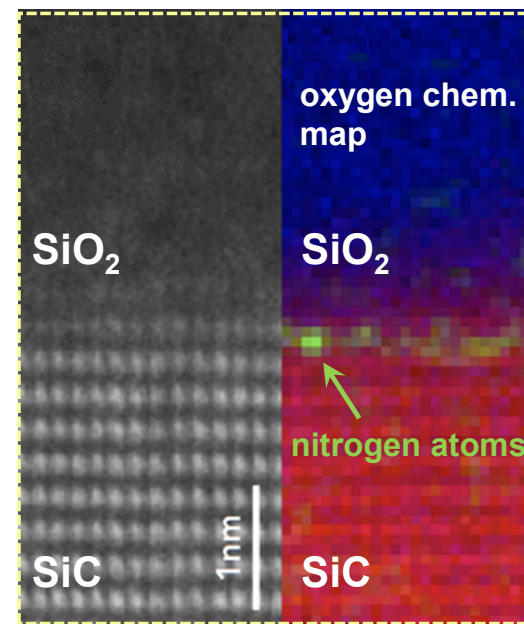
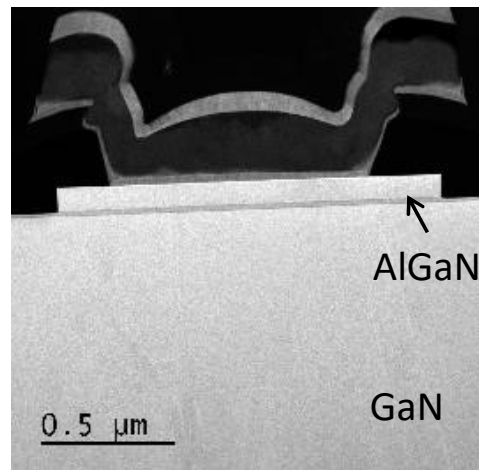
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Gallium nitride and/or silicon carbide technology: from materials to device optimization



GaN growth



atomic resolution