



Call for Papers

Abstract Deadline: May 18, 2018

Extended to June 1, 2018

The IIT 2018 conference is an open forum for discussion of major challenges in current and emerging technologies related to the tools and processes for ion implantation, annealing of semiconductors and non-semiconductors, implanted devices, metrology of implanted layers and devices, as well as methods related to ion implantation. The conference offers an excellent opportunity for engineers and researchers in industry, research institutes, and universities to present new results and to discuss ideas of new applications of ion implantation. The organizers welcome contributions from a wide range of topics, from fundamental research to industrial applications and equipment. The technical program will consist of invited and oral presentations as well as poster sessions. Conference topics include, but are not limited to:

Equipment for Ion Implantation, Annealing, and Metrology

- Tools for advanced beam line ion implantation
- Tools for plasma doping, cluster, and molecular ion beams
- Equipment for thermal and a-thermal annealing (laser, microwave, flash, neutral beams, etc.)
- Metrology equipment for implantation control (particles, contamination, charging, etc.) and for implanted layers (implant profiling, sheet resistance, etc.)
- Advanced process control (tool software assisted, fab solutions, "tool health factors")

Ion Implantation and Annealing of Semiconductor Materials

- Ion implantation and annealing of Si, Ge, SiC, GaN and other III-V semiconductors, graphene, etc.
- New doping techniques: monolayer doping, atomic layer deposition, selective CVD/epi, MOCVD, laser-assisted doping, thermal and recoil mixing methods, etc.
- Ion-assisted methods for advanced photovoltaic devices and photon energy-shifting layers, etc.
- Layer transfer for heterogeneous materials integration, 3D IC stacking, etc.
- Comparison of different annealing techniques

Ion Implantation and Annealing of Non-Semiconductor Materials

- Etch rate control
- Dielectric constant modification
- Photo resist stabilization for multi-exposure lithography, etc.
- Biotechnology: processing of bio-compatible surfaces and interfaces, fabrication of DNA-scale sensors and bio-active devices, etc.

Ion Implantation for Devices

- Power and RF devices (Si, Ge, SiC, GaN, etc.)
- Large-area devices (displays, solar cells, wearables, etc.)
- LEDs, MEMS, image sensors, chemical and physical sensors, etc.
- Planar and non-planar CMOS (FinFETs, nanowires, etc.), 3D memories, etc.
- Junction contact and metal gate work function engineering
- Photonic devices: CMOS-photonic integration, materials for multi-dimensional photonic signal processing and transmission, vertical-cavity surface-emitting lasers, etc.
- Nano-scale device fabrication for quantum confined films, wires and dots, quantum information processing, etc.
- Metrology methods: elemental, electrical, and morphological analysis of 3D devices, junctions, strain, interfaces and contacts, etc.

Modeling and Simulation of Ion Implantation

- Non-mainstream ion implantation methods (using plasma, high energy ions, atomic clusters, ion beam mixing, etc.)
- Ion implantation into novel and exotic materials or device structures
- Defect generation due to ion irradiation
- Sputtering and surface modification due to ion bombardment
- Ion beam assisted methods for near-surface material analysis (SIMS, RBS, etc.)