NNCI: Southeastern Nanotechnology Infrastructure Corridor (SENIC)

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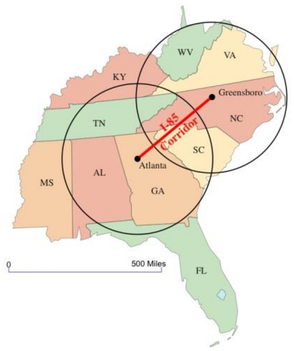
SENIC Vision and Partnership

- Partnership of two major & modern nanotechnology centers in the southeastern USA:
  - Institute for Electronics and Nanotechnology (IEN), an Interdisciplinary Research Institute at Georgia Tech
  - Joint School of Nanoscience and Nanoengineering (JSNN), an academic collaboration between North Carolina A&T State University (NCA&T) and University of North Carolina, Greensboro (UNCG)

IEN Marcus Nanotechnology Building

JSNN @ Gateway Univ. Res. Park



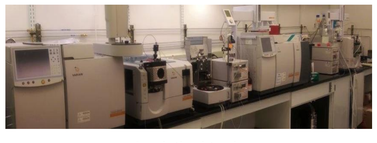
- **Innovation**: Strengthen and accelerate discovery in nanoscience and nanoengineering across the southeastern USA
- **Commercialization**: Allow nanotechnology-based innovations to reach the market quicker
- **Education/Outreach/SEI**: Provide education, outreach and SEI programs in nanotechnology with a focus on the southeastern US

Shared-User Facilities

	GT-IEN	JSNN
Cleanroom Area	28,500 sq.ft.	8,000 sq.ft.
# Fab./Charac. Tools	200+	100+
Wafer Sizes	100 mm (some 150 mm) 300 mm panels (packaging)	200 mm
Technical Staff Support	30	12
Facility Strengths	• Broad top-down micro/nanofabrication • Patterning down to <10nm • Packaging facility • Teaching cleanroom	• Bottom-up material synthesis • 200 mm wafer processing • He-ion imaging and nanofabrication • High-performance computing
Capabilities for Users from Non-traditional Disciplines	• Nanomaterial dep./growth • Organic/bio cleanroom • Laser machining • Imaging & metrology	• Nanomaterial synthesis • Analytical chemistry lab • BSL-3 lab • Material testing lab

User Benefits

- Single facility with 2 locations
- Complementary capabilities
- Single agreement and billing
- Education and outreach programs
- Seed grant program



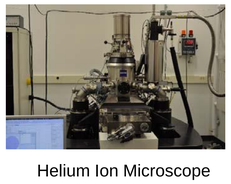
Analytical tools

E-beam lithography

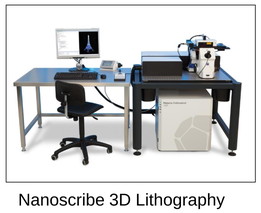
TEM

200 mm Fabrication Tools

Inkjet Deposition

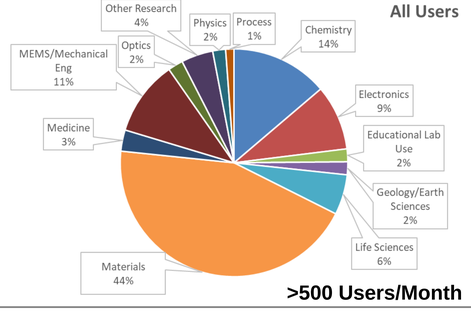


Helium Ion Microscope



Nanoscribe 3D Lithography

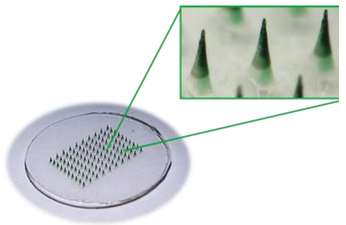
Nanobiocleanroom

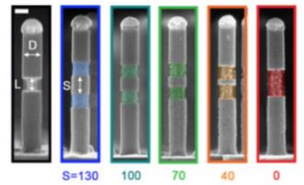


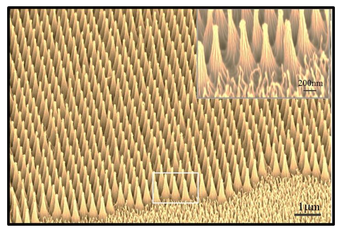
>500 Users/Month

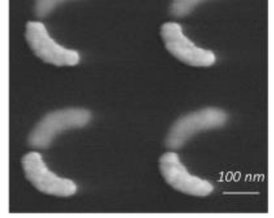
Principal Research Areas

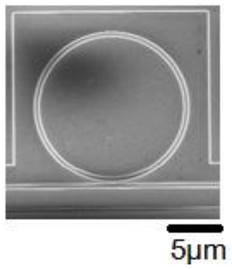
- Nanomaterials and Structures
- Flexible Electronics
- Compound and Next-Gen Semiconductors
- Optoelectronic and Photonic Devices and Systems
- MEMS, NEMS, and Sensors
- Interconnect and Packaging
- Medical/Health
- Energy

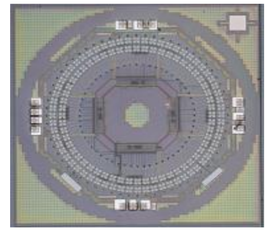






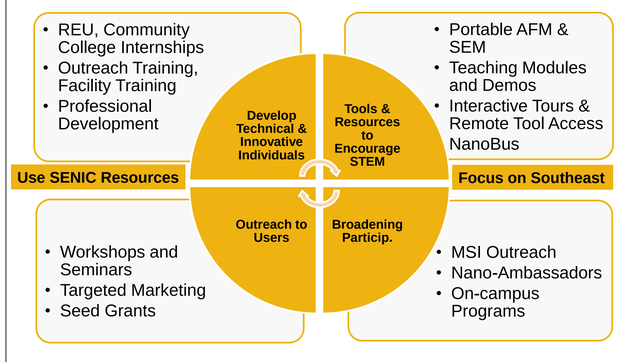


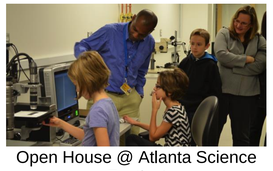




Materials • Processes • Devices • Systems & Applications

Education, Outreach & Dissemination





Open House @ Atlanta Science Festival

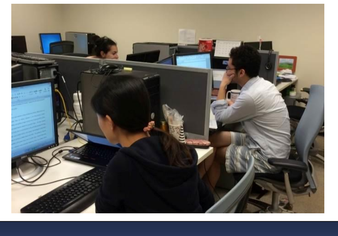
Nanobus

Teacher Workshop

Atlanta Girl School @ GT-IEN

Social and Ethical Implications

- I-Corps Plus: add a social and ethical implications module
- Nano-Informatics User Infrastructure: briefings, training, hosting visitors
- Education and Training: presentations, workshops, advising doctoral minors



For more information about using SENIC facilities, contact:

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