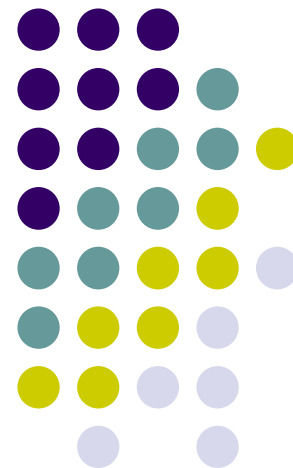


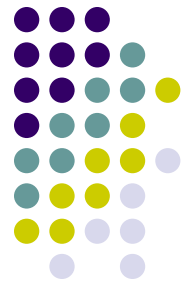
NCSU / MRC Nanofabrication Facility

Supporting ERC Efforts (and others)

February 21, 2008



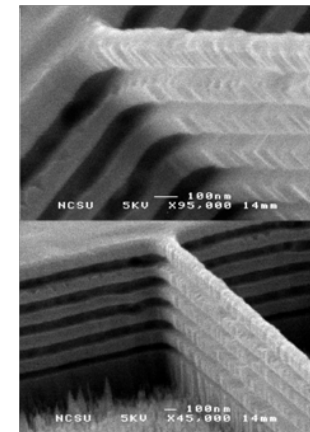
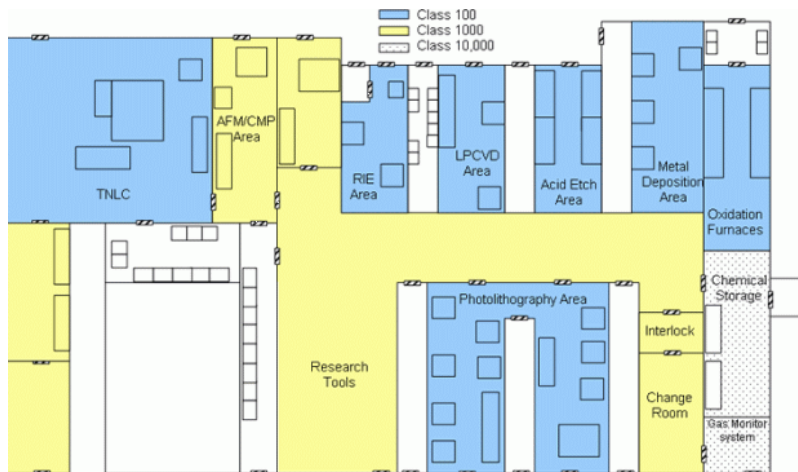
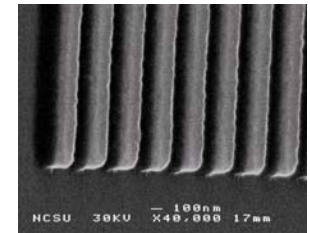
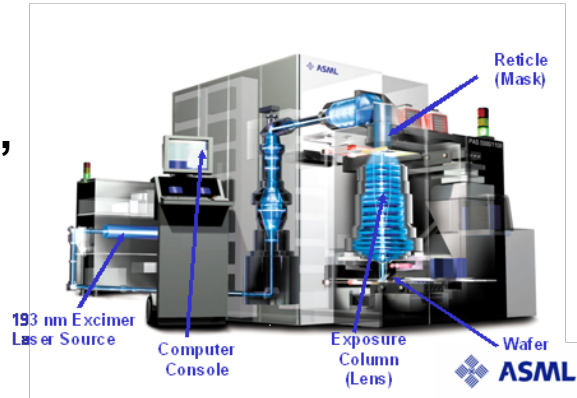
Nanofabrication User Facility – MRC



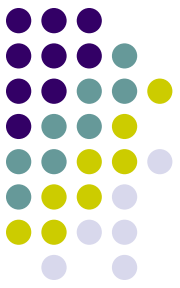
Historically: Top-Down Nanoscience
(nanopatterning, nanosynthesis,
nanoremoval)

Emerging: Nano-bio, etc...

Clean Room User Facility: 11,700 sq.ft.



Word of the Year: Change

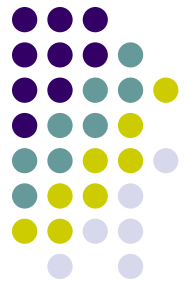


Recent Changes at NNF

- Past: Annual increases in User Fees gradually became an obstacle for Academic Users
- June 2007
 - C&G Agrees to Dramatic Rate Cut (Goal → Increase Users)
 - \$500 Monthly Cap for Academic Users
 - Faculty Stakeholder Group (Misra, Muth, Ozturk, Johnson, etc.)
- January 2008
 - Mehmet Ozturk, Director
- Now
 - Catalyze New Initiatives – ERCs, IUCRCs, etc...
 - New Equipment Programs
 - New Faculty Use Programs



Projects



- Academic Projects (increasing 2007/08)
 - NCSU, UNC & Duke
 - ECE, ChE, MSE, NE, PY
- Courses (Undergraduate and Graduate)
- Industrial Projects
 - 5 local companies

Shared User Facility – Academia & Industry

- ERC Effort -

**SiC and GaN Power Electronics Science Thrust
Nanofabrication and Education**

Interface Science and Characterization

**Mission: 'Green Grid' Future Renewable Electric
Energy Delivery and Management (FREEDM)**

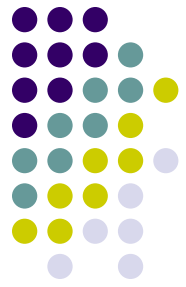




Immediate Goals

- Make the facility accessible to more faculty
 - User cap is the first step in that direction
 - Involve NCSU faculty in the management structure
- Bring new equipment
 - To keep the facility competitive, this is essential
- Move module based operation
 - Currently, we have the tools that can run processes
 - Involve students – be creative

NCSU Faculty – NNF Equipment Program

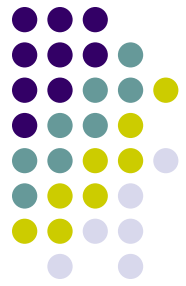


- Faculty buys the equipment
- NNF maintains the equipment
- Equipment shared by all users
 - Faculty owner pays no charge no use it
 - Others pay the academic or industrial rate

***First agreement signed with Prof. Salah Bedair of ECE
To install his \$250K ECR Plasma Etcher in NNF***



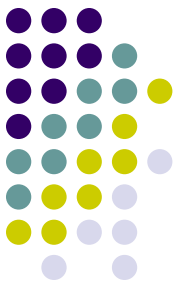
Local Industry – NNF Equipment Program



- Industry buys the equipment
- Owner maintains the equipment
- Equipment shared by all users
 - Owner pays the academic rate without a monthly cap

***Discussions with Premitec, Inc. (local company)
are underway to host their sputtering system***





In Progress – Future Plans

- New Faculty Start-Up Initiatives
 - Free use of the facility for a period
- Undergraduate Research Initiative
 - Free use of the facility to Undergraduate Researchers
- High School Education Programs
- Module Development
 - Reduced rate for module development efforts



