# NANOFABRICATION LABORATORY

## *An MRI Shared User Facility*

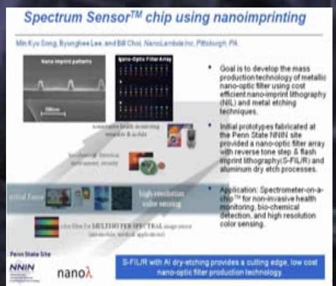
## *Overview:*

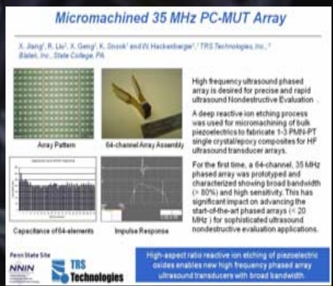
Penn State's Nanofabrication Facility (Nanofab) is a full-service user facility providing faculty, students, and industry researchers the opportunity to perform hands-on research with some of the world's most sophisticated instruments for micro- and nano-fabrication. The Nanofab's technical support staff offers expertise in a wide range of fabrication techniques, with a primary focus on chemical and molecular scale nanotechnology and complex ferroelectric oxide devices.

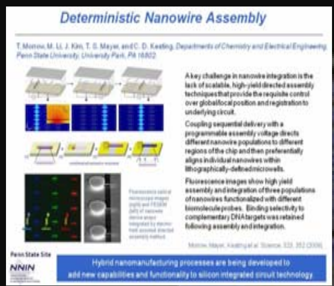
## *Capabilities Include:*

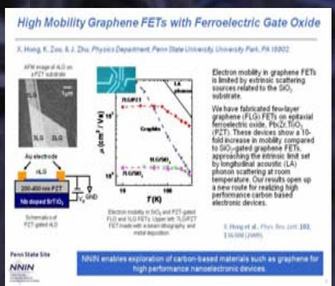
- **Lithography**
  - Ebeam Writer
  - Stepper
  - Nano Imprinter
  - Laser Writer
  - Contact Aligners
  - Resist Processing Stations
- **Plasma Etching**
  - Plasma Surface Modification
  - Reactive Ion Etching
  - Deep Silicon RIE
  - Deep Oxide RIE
  - XeF2 Etch
  - MERIE Dielectric Etch
  - Polymer Etch
  - Cluster Etch System
  - Inductively Coupled Plasma Etch
- **Chemical Nanofabrication**
  - Glove Boxes for SAM Deposition
  - Soft Lithography Processing
  - Parylene Thermal Evaporator
  - Wet Chemical Etching
- **Thermal Processing**
  - Atmospheric Oxidation Furnace
  - Annealing Furnace
  - Rapid Thermal Processing
- **Characterization**
  - Field Emission SEMs
  - Ellipsometers
  - Profilometers
  - Surface Particle Inspection Analyzer
  - CV/IV Test Equipment & Probe Station
  - Four Point Probe
  - Film Stress Measurement
  - Film Stack Measurement Capability
- **Thin Film Deposition**
  - Electron-beam/Thermal Evaporator
  - Sputtering Systems
  - Chemical Solution Dep Station
  - LPCVD Furnace Systems
  - PECVD Cluster Tool
  - ICP PECVD
  - Atomic Layer Deposition
  - Electroplating

## *Research Nuggets:*






## *Contact Information:*

For technical questions, please contact:
William Mansfield, Director of Operations
814.863.6332, wmm14@psu.edu

For administrative information, please contact:
Leeanna McCool
814.865.3303, lrm14@psu.edu

For more detailed information, visit our website:
www.mri.psu.edu/facilities/Nanofab