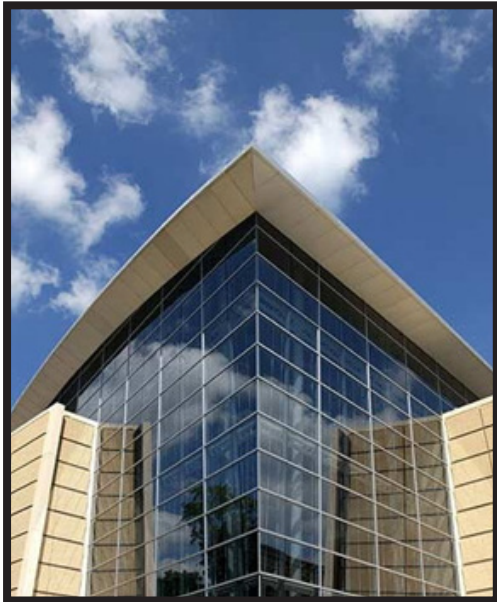




Wisconsin Centers for Nanoscale Technology

Nanoscale Fabrication Center

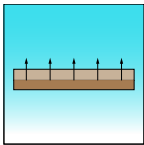


The Nanoscale Fabrication Center (NFC) at the University of Wisconsin-Madison provides a research center for nanofabrication technologies, products and innovations.

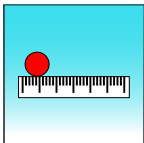
The Nanoscale Fabrication Center is equipped with approximately 70 instruments in a cleanroom environment that supports leading-edge research programs, gives students access to a state-of-the-art education facility and provides services to industrial clients. Access to the center and to all instrumentation is available to qualified users from the University of Wisconsin, other education institutions, or industry.

The center is located on the third floor of the Engineering Centers Building on the University of Wisconsin-Madison campus.

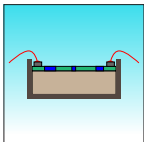
Techniques offered



Additive



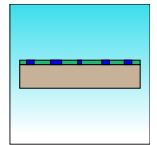
Metrology



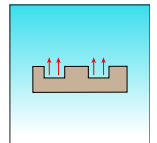
Assembly

- Additive Processes
 - ◇ Sputtering
 - ◇ Chemical Vapor Deposition
 - ◇ Evaporation
 - ◇ Spin Coating
- Metrology Processes
 - ◇ Electrical
 - ◇ Microscopy
 - ◇ Optical
 - ◇ Physical
- Packaging and Assembly Processes
 - ◇ Electrical connections
 - ◇ Assembly
 - ◇ Separation

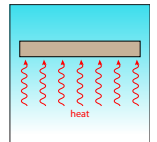
- Patterning Processes
 - ◇ Contact lithography
 - ◇ Electron Beam lithography
 - ◇ Projection lithography
- Subtractive Processes
 - ◇ Plasma etch
 - ◇ Wet chemical etch
 - ◇ Chemical vapor etch
- Thermal Processes
 - ◇ Annealing
 - ◇ Curing
 - ◇ Oxidation



Patterning



Subtractive



Thermal





Instrumentation Available

ADDITIVE PROCESS INSTRUMENTATION

- Angstrom Evaporator
- NFC Dielectric Evaporator
- NFC Indium Evaporator
- NFC Metal Evaporator
- CVC Sputter Deposition
- Denton Sputter Deposition
- PlasmaTherm PECVD/Dielectric RIE Etcher
- Non-Lithography spin coater
- Veeco Fiji G2 Atomic Layer Deposition

PACKAGING AND ASSEMBLY INSTRUMENTATION

- Suss Diamond Scribe station
- DISCO Automated Wafer Saw
- MEI Die Attacher
- EVG Wafer Bond Aligner
- EVG Wafer Bonder
- K&S Gold Ball Wire Bonder
- Westbond Wedge Aluminum Wire Bonder

PATTERNING PROCESS INSTRUMENTATION

- Elionix ELS G-100 E-beam Lithography
- Suss MJB3 Lithography Aligner 1
- Suss MJB3 Lithography Aligner 2
- Suss MA6 Lithography Aligner
- Nikon i-Line Stepper
- Solvent / Develop Bench for Photoresist
- Solvent Bench for SU-8
- Liftoff Photoresist Solvent Wet Bench
- Develop Wet Bench for Electron Beam Lithography
- Photoresist Spinner 1
- Photoresist Spinner 2-including SU8
- Photoresist Spinner 3
- Photoresist Spinner for Electron Beam Lithography
- Hotplate for SU-8 Photoresist
- HMDS Primer

METROLOGY INSTRUMENTATION

- Superior Electronics 4-pt Probe Station for sheet resistance measurement
- Tencor Alpha-step 200 Profilometer
- KLA-Tencor P7 Profilometer
- Filmetrics F20 Reflectometer
- Tencor FLX-2320 Thin Film Stress Measurement
- Several Nikon Optical Microscopes
- Nikon and Wild Image capture cameras

SUBTRACTIVE PROCESS INSTRUMENTATION

- PlasmaTherm ICP General Plasma Etcher
- PlasmaTherm ICP Metal Plasma Etcher
- PlasmaTherm PECVD/Dielectric RIE Etcher
- PlasmaTherm Apex ICP Compound Semi Etcher
- Yes Plasma Asher
- PlasmaTherm Reactive Ion Etcher
- NFC Ion Mill Sputter Removal
- STS Deep Reactive Ion Si Etcher
- Samco UV/Ozone Cleaner
- SPTS XeF2 Etcher
- Al Etch Wet Bench
- KOH Wet Bath 1
- KOH Wet Bath 2 – relaxed materials restrictions
- Nitride Etch Wet Bench
- Piranha Etch Wet Bench
- BOE / HF Wet Bench
- III-V Corrosives Wet Bench
- Corrosives Wet Bench
- Pre-Furnace Clean Wet Bench

THERMAL PROCESS INSTRUMENTATION

- MRL Tube 1 High Temp Anneal Furnace
- MRL Tube 2 High Temp Oxidation Furnace
- MRL Tube 3 Low Temp Oxidation Furnace
- MRL Tube 4 Low Temp Anneal Furnace
- MRL Tube 6 Unique Anneal Furnace
- Tystar High Temp Oxidation Furnace
- Tystar LPCVD Nitride furnace
- Tystar LPCVD Polysilicon furnace
- Thermtec Metal Anneal Furnace