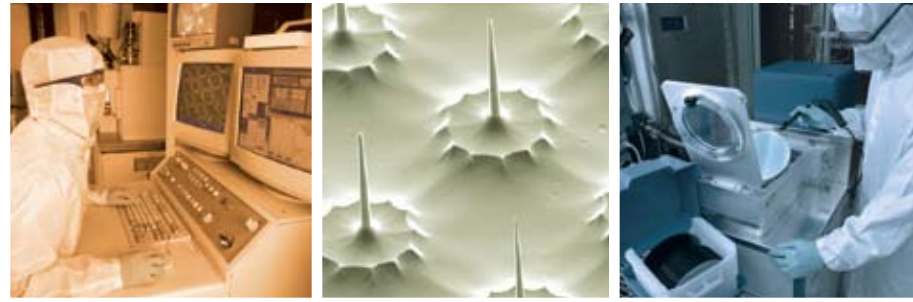


WASHINGTON  
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## MICROFABRICATION LABORATORY



access  
TO FACILITIES  
and equipment

CLEAN-ROOM SPACE / ON-SITE TRAINING / CONTRACT PROCESSING

ENCOURAGING INNOVATION TO DEVELOP WASHINGTON'S ECONOMIC STRENGTH



# MICROFABRICATION LABORATORY

## ACCESS TO FACILITIES

Take your R&D from start to finish with:

- 8,000 square feet of clean room space
- Equipment for photolithography, deposition, etching, metrology and back-end processing
- On-site training
- Contract processing for remote customers
- Intellectual property remains with the user



Washington Technology Center (WTC) is home to a remarkable resource for industrial and academic researchers—the Microfabrication Laboratory. Located in Seattle, the lab serves as a critical facility for research, technology development and prototyping. The 15,000-square-foot lab represents more than \$20 million in facilities and equipment, and is the largest public-access microfabrication facility in the Pacific Northwest.

The Microfabrication Laboratory offers advanced microfabrication and characterization capabilities in 8,000 square feet of class 10,000 clean-room space. The lab supports the processing of microelectromechanical systems (MEMS), microfluidic, microoptic, photonic and sensor devices with feature sizes down to one micron on 3" and 4" diameter substrates.

In addition, the lab provides on-site training, contract processing for remote customers, and the assurance that intellectual property rights remain with users.

The Microfabrication Laboratory is part of Washington Technology Center, a statewide economic development organization focused on technology and innovation. For more information or to register as a user, visit our Web site at [microfab.watechcenter.org](http://microfab.watechcenter.org).



# AVAILABLE PROCESSES

## PHOTOLITHOGRAPHY

- Contact Aligners with IR and Optical Backside Alignment
- Complete Photoresist Processing (Coat/Bake/Expose/Develop/Strip)
- Anodic and Thermal Compression Wafer Bonding

## NANOLITHOGRAPHY

- Dip-Pen Nanolithography
- Nanoimprint Lithography (Up to 3" Substrates)
- Electron-Beam Lithography (<10nm spot size). (Available in Q1 2010).

## DEPOSITION

- Low Pressure Chemical Vapor Deposition
  - Carbon Nanotube Deposition Using Metal Catalyst
  - Silicon Nitride (Low Stress and Stoichiometric)
  - Low Temperature Silicon Oxide
- Plasma-Enhanced Chemical Vapor Deposition
  - Silicon Oxide
  - Silicon Nitride
  - $\alpha$ -Silicon
- ICP-Assisted Plasma Deposition
  - Silicon Oxide at Room Temperature
  - Silicon Nitride at Room Temperature
- Atmospheric Furnace (Up to 1100°C)
  - Thermal Oxidation
  - Curing of Various Thin Films
- Metal Deposition
  - E-beam Evaporation (Most Pure Metals Available)
  - RF & DC Sputtering
- Electroplating
  - Gold
  - Copper

## ETCHING

- Plasma Etching
  - Deep Reactive Ion Etch (DRIE) Using BOSCH®
  - Deep Silicon Etch Using Cryo Process
  - Reactive Ion Etching of Silicon Dioxide, and Silicon Nitride
  - Etching of Glass Substrates (Quartz and Pyrex)
  - Etching of III-V Compound Semiconductors
  - Etching of Metal Thin Films
  - Barrel Plasma Etching
- Wet Etching
  - Dedicated Wet Benches for Common Wet Etchants (HF, BOE, Metal Etches)
  - KOH Etching
  - TMAH Etching

## WAFER CHARACTERIZATION

- Scanning Electron Microscopy
- Ellipsometry
- Profilometry
- Interferometry for Dielectric Film Measurement
- Film Stress Measurement

## BACKEND PROCESSING & OTHER CAPABILITIES

- 2" to 6" Wafer Dicing
- Screen Printing
- CO<sub>2</sub> Laser Cutting and Scribing
- Electrical Test Probe Station

## SUPPORT FACILITIES

- Liquid Nitrogen Storage on Site to Provide All N<sub>2</sub> on Site
- 300+ Gallon Deionized Water Plant on Site
- Acid Neutralization System for Proper Liquid Waste Disposal
- Fume Scrubber for Proper Emission Standards
- HAZMAT Detection Systems to Allow Use of Silane, Dichlorosilane, Ammonia, and Chlorine-Based Gases

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[microfab.watechcenter.org](http://microfab.watechcenter.org)

“The WTC microfabrication facility has played an essential role in enabling our research group to develop new photonic, electronic, and sensing devices. It is an invaluable resource not just for the University but for the entire Pacific Northwest region.”

—BABAK A. PARVIZ, PROFESSOR,  
UNIVERSITY OF WASHINGTON  
DEPARTMENT OF ELECTRICAL  
ENGINEERING

“We use WTC as an extension of our company to design, develop and prototype MEMS and other components used in our display applications. Our technology would not be where it is today without WTC.”

—JASON TAUSCHER, MANAGER, MEMS  
SUBSYSTEM, MICROVISION, INC.