

Self-assembly of Microsystems

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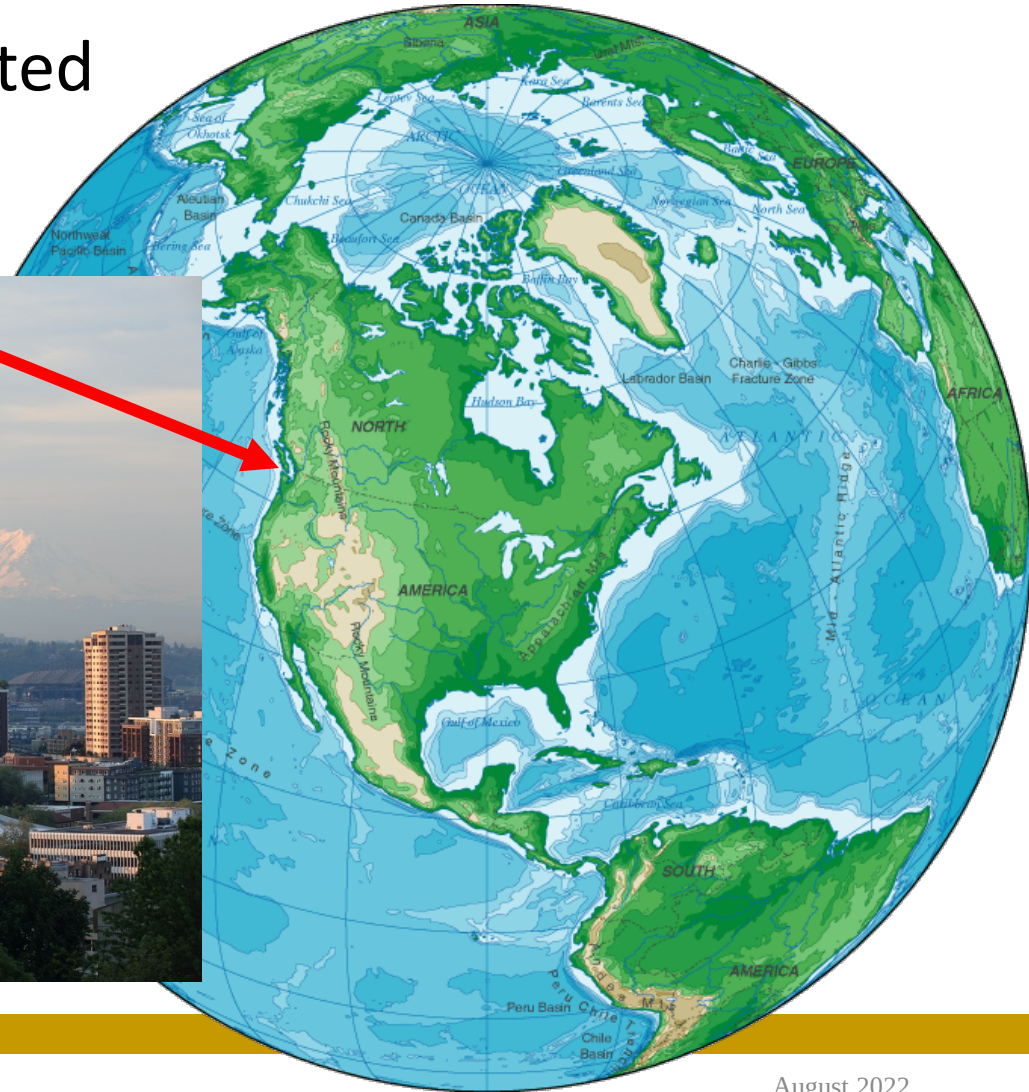
University of Washington

Seattle, WA, USA



University of Washington

The main campus is located
in Seattle, WA



University of Washington

- Founded November 4, 1861
- Public research university:
 - Campuses in Seattle, Tacoma, Bothell
- University community:
 - Instructional faculty: 5,800
 - Faculty and staff: 35,000
 - Student enrollment:
 - 60,000 (49,000 on Seattle campus)
 - Undergraduate: 42,500
 - Graduate and professional: 17,500
 - International: 8,400
- Research
 - Budget: \$1.89B grants and contracts (total UW budget \$8.3B)
 - Since 1969, among top 5 US institutions in research funding
 - Since 1989, 7 Nobel Prize winners
 - U.S. News & World Report 2022: #7 world, #6 U.S., #2 U.S. public





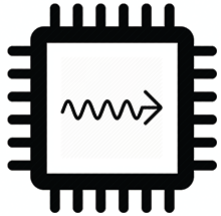
INSTITUTE FOR NANO-ENGINEERED SYSTEMS

- **Vision:** Catalyzing innovative, interdisciplinary, and industry-relevant research in the design, fabrication, and integration of scalable nano-engineered devices and systems at the University of Washington
- **Mission:** Developing solutions to grand challenges in nano science and engineering: the scalable, high-yield manufacture of nano-engineered systems in information processing, energy, health, and interconnected life.
- nano.uw.edu





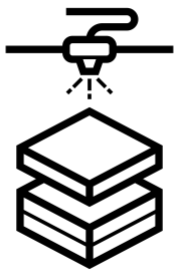
Focus Areas



Photonic & Quantum Devices – from single sensors to large-scale integrated networks of photonic devices for cutting-edge optical communication, quantum computing and biosensing.



Augmented Humanity – portable, wearable, implantable and networked technology for personalized medical care or a more efficient interconnected life.



Scalable Nanomanufacturing – development of low-cost, high-volume nanomanufacturing solutions and bio-3D-printing for cells, tissues and scaffolds.

NNCI



National Nanotechnology Coordinated Infrastructure

- NSF network of leading nanofabrication and characterization facilities
- 16 sites plus partner sites, funded at \$84M until 2025
- Major NSF program for more than 25 years
- More than 1M user hours per year
- nnci.net

NNCI



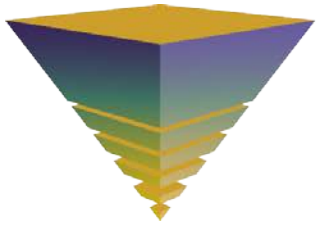
National Nanotechnology Coordinated Infrastructure

Molecular Analysis Facility (MAF)

- Fully staffed instrumentation facility for microscopy, spectroscopy, and surface science
- Housed on MoES/NanoES ground floor
- moles.washington.edu/facilities/molecular-analysis-facility

Washington Nanofabrication Facility (WNF)

- Full-service nanotechnology user facility focused on enabling basic and applied research, advanced R&D, and prototype production
- Housed in Fluke Hall
- wnf.uw.edu



UW NNCI WASHINGTON NANOFABRICATION FACILITY

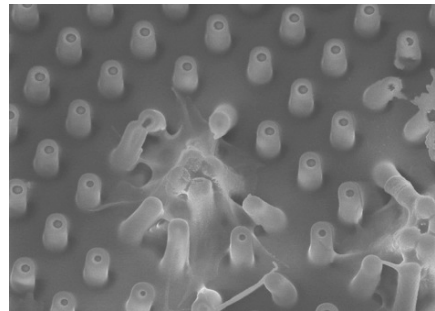
- Located at the University of Washington, Seattle
- Largest publicly accessible cleanroom facility in the Pacific Northwest of the US
- Foundry capabilities
 - Si photonics
 - JEOL JBX 6300FS (8 nm e-beam litho)
 - Packaging
 - General MEMS fab



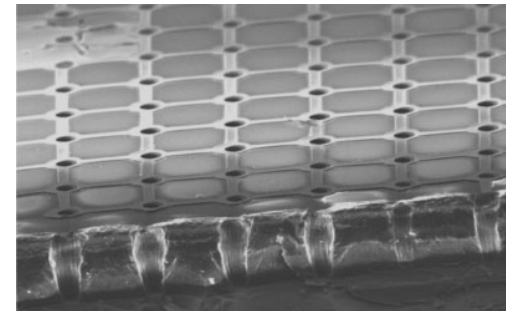
Seattle, WA



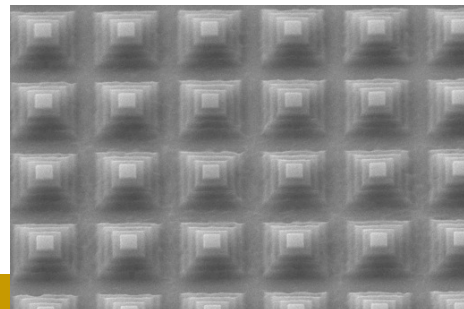
Si photonics foundry multi project die



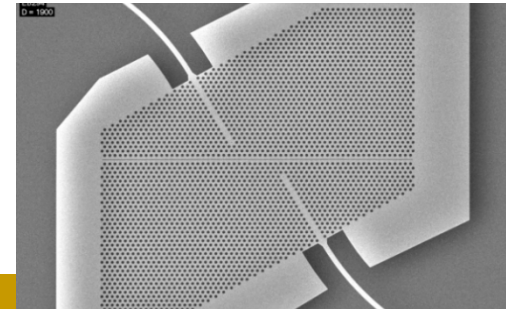
Nano-posts for cell study
N. Sniadecki, UW ME



Electrochemical nano-pores
North Shore Bio



Grayscale EBL holography
R. Bojko, UW WNF



Photonic crystal
J. Young, UBC

August 2022