

## NUFAB Facility

# NUFAB

## NORTHWESTERN UNIVERSITY MICRO/NANO FABRICATION FACILITY

NUFAB is a central micro/nano fabrication facility at Northwestern University. It provides the whole range of nanofabrication equipment and technical expertise to Northwestern as well as other academic and industrial researchers. We support research in all areas of science, engineering, medicine, and interdisciplinary fields

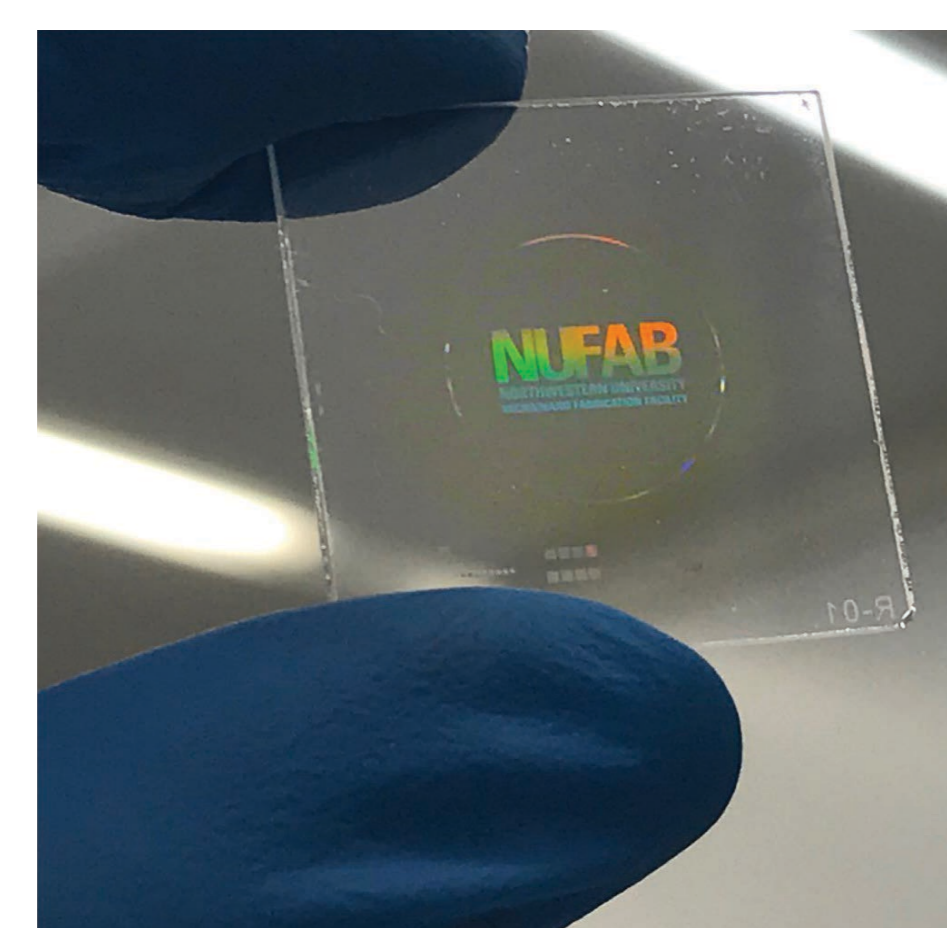
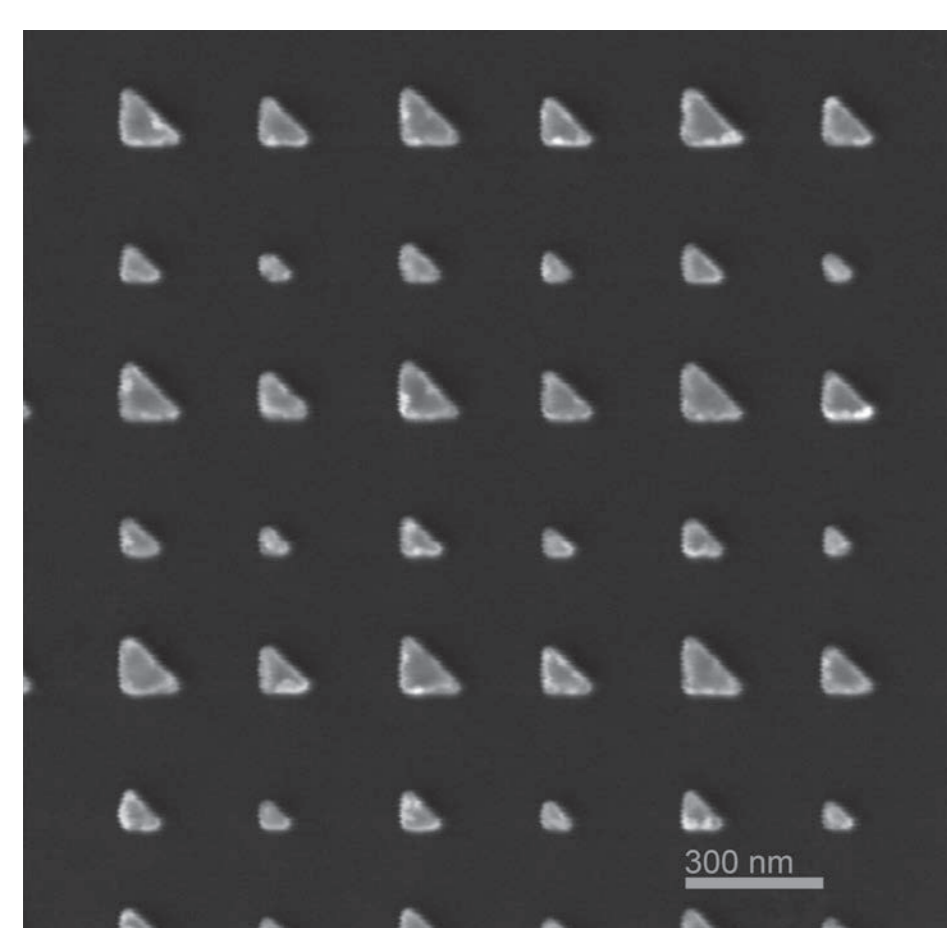
A video tour of our facility is available here. If you would like physical tour or have any questions, send us an email at [nufab@northwestern.edu](mailto:nufab@northwestern.edu)



## ELECTRON BEAM LITHOGRAPHY

### Raith Voyager 100

- <10 nm structures
- cm scale exposure
- High speed pattern generator
- 50 kV



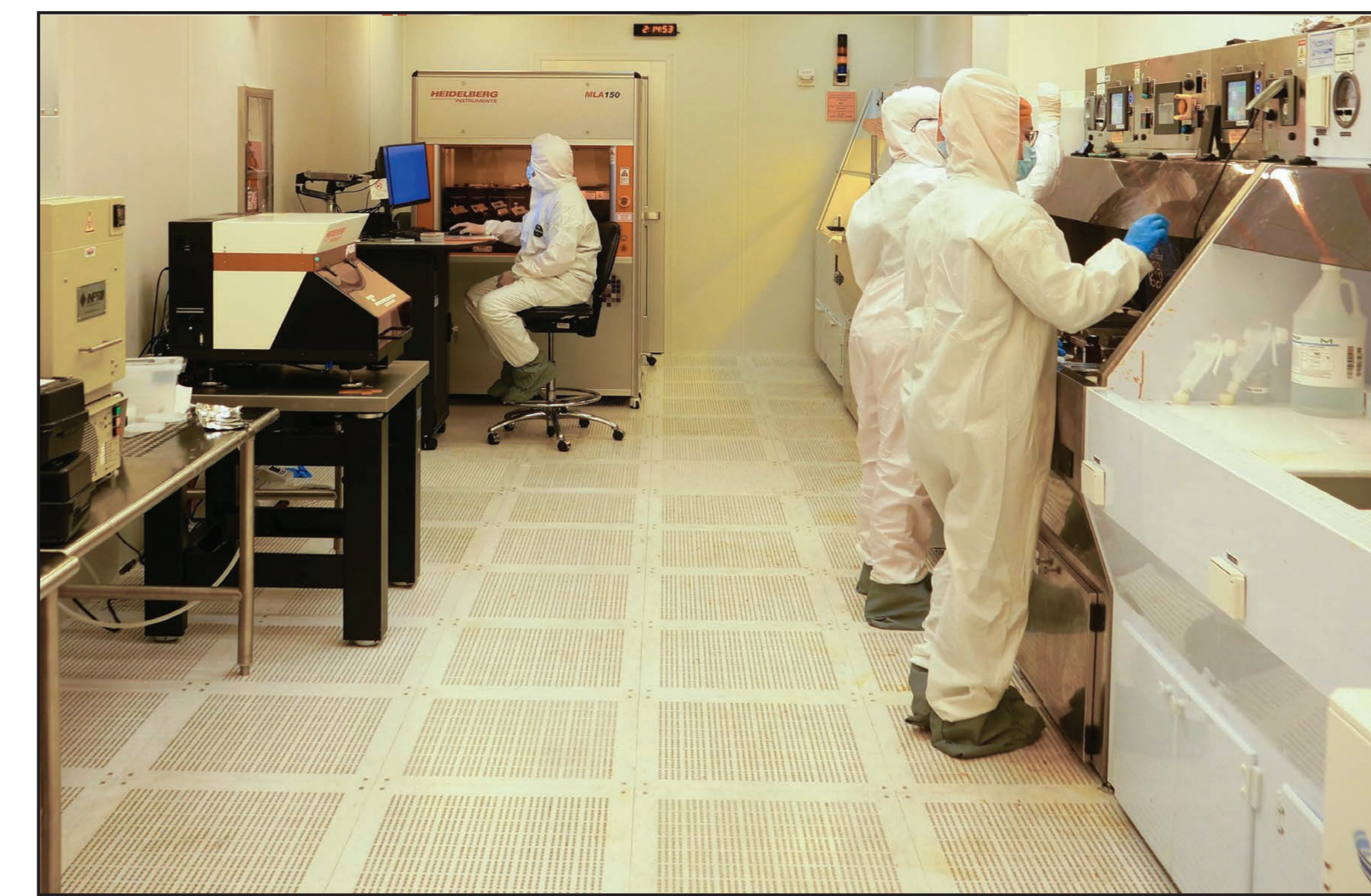
## CHARACTERIZATION



NUFAB's Characterization Bay allows for fine measurement of physical, electrical and optical properties of materials and devices.

- **Fluorescence/DIC Microscope**  
Nikon LV150
- **Reflectometer**  
Filmetrics F20
- **Stylus Profilometer**  
Veeco Dektak-8
- **3D Optical Profilometer**  
Zygo
- **IV/CV Probe Station Ellipsometer**  
J.A. Woollam alpha-SE
- **Ball Bonder and Wedge Bonder**
- **Contact Angle Measurement**  
VCA Optima XE
- **Thin Film Stress Measurement**  
Toho FLX-2320S

## PHOTOLITHOGRAPHY



NUFAB's Photolithography Bay is configured for both mask and maskless lithography processes, including single micron scale optical lithography.

## DEPOSITION & ETCH

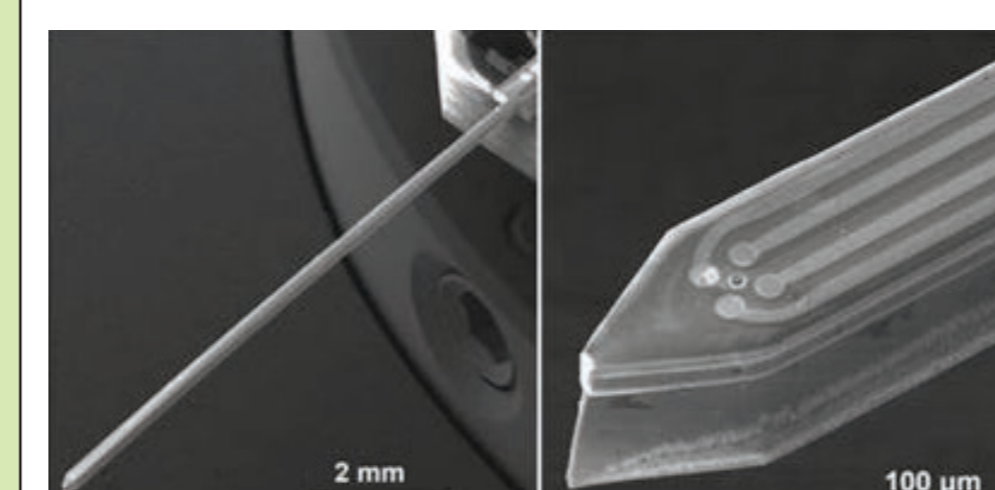


NUFAB's Deposition Bay is suitable for a wide variety of deposition techniques, including both PVD and CVD methods.

## RESEARCH at NUFAB



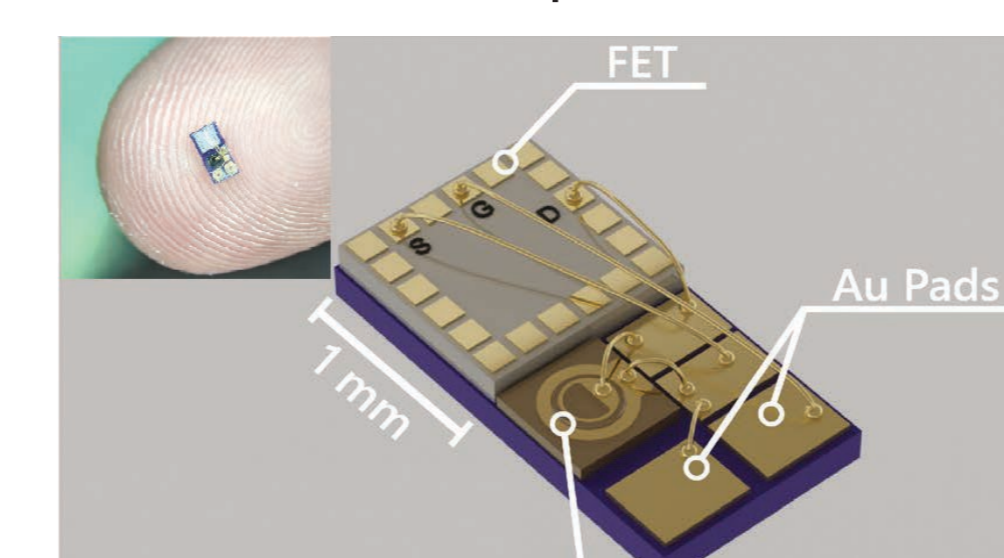
**Above:** Optofluidic micro-Systems for optogenetics and photopharmacology  
- Rogers Group, Northwestern



**Above:** Brain-Implantable Multifunctional Probe for Simultaneous Detection of Glutamate and GABA Neurotransmitters  
- N. Moldovan, Alcorix Co

**Below:**

A 3 pJ/bit free space optical interlink platform for self-powered sensing & opto-spintronic RF-to-optical transduction  
- Mohseni Group, Northwestern



**Above:** Ambipolar inverters based on cofacial vertical organic electrochemical transistor pairs for biosignal amplification  
- Rivnay Group, Northwestern

- **Mask Aligners**  
Suss MABA6, Suss MJB4
- **Laser Writer**  
Heidelberg MLA150, uPG 501
- **Convection Ovens**  
Blue M DCC-146-C-ST350
- **Microscope**  
Nikon LV150
- **Spinner Hood**
- **Automatic Develop Hood**  
Osiris UNIXX
- **Ultraviolet Flood Exposure System**  
Inpro Technologies F300S
- **Ultrasonic & Megasonic Cleaners**
- **Vacuum Oven (YES)**

- **Automatic Acid Etcher**
- **Annealing Tube Furnace**  
Lindberg/Blue M
- **Plasma Enhanced Chemical Vapor Deposition**  
STS LpX CVD
- **AJA E-Beam Evaporator**
- **Thermal Evaporator**  
Denton Vacuum Explorer 14
- **Parylene Coater**  
SCS Labcoater2 Parylene Deposition System
- **Sputters**  
AJA Orion Sputter I & II
- **Deep Reactive Ion Etcher (DRIE)**  
STS LpX Pegasus
- **Reactive Ion Etcher (RIE)**  
Samco RIE-10NR
- **Xenon Difluoride Etcher**  
Xactix
- **Rapid Thermal Processor (RTP)**  
AW-610
- **P/N Doping Furnaces**
- **Tystar Low Pressure CVD**
- **Critical Point Dryer**  
Tousimis Automegasamdri - 915B, Series C

## Contact Information

NUANCE Center - NUFAB  
Technological Institute - F-Wing  
[nufab.northwestern.edu](http://nufab.northwestern.edu)

Dr. Vinayak P. Dravid



Abraham Harris  
Professor, Materials  
Science & Engineering  
NUANCE Center  
Founding Director

Dr. Nasir Basit  
NUFAB Managing Director



Dr. Serkan Butun  
Equipment Manager



Dr. Anil Dhote  
Equipment Manager



Dr. Nathan Dvorak  
Postdoctoral Scholar



Dr. Ying Jia  
Equipment Manager



Dr. Shaoning Lu  
Equipment Manager



Diego Santiago De La Vega  
Equipment Engineer

