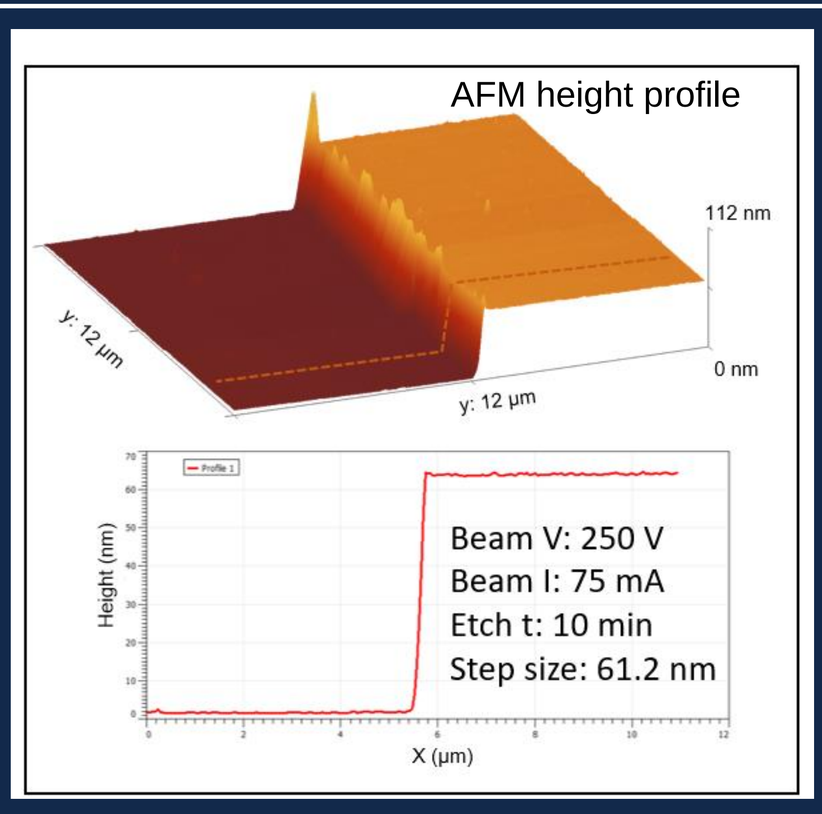
ILLINOIS
Materials Research Laboratory
GRAINGER COLLEGE OF ENGINEERING

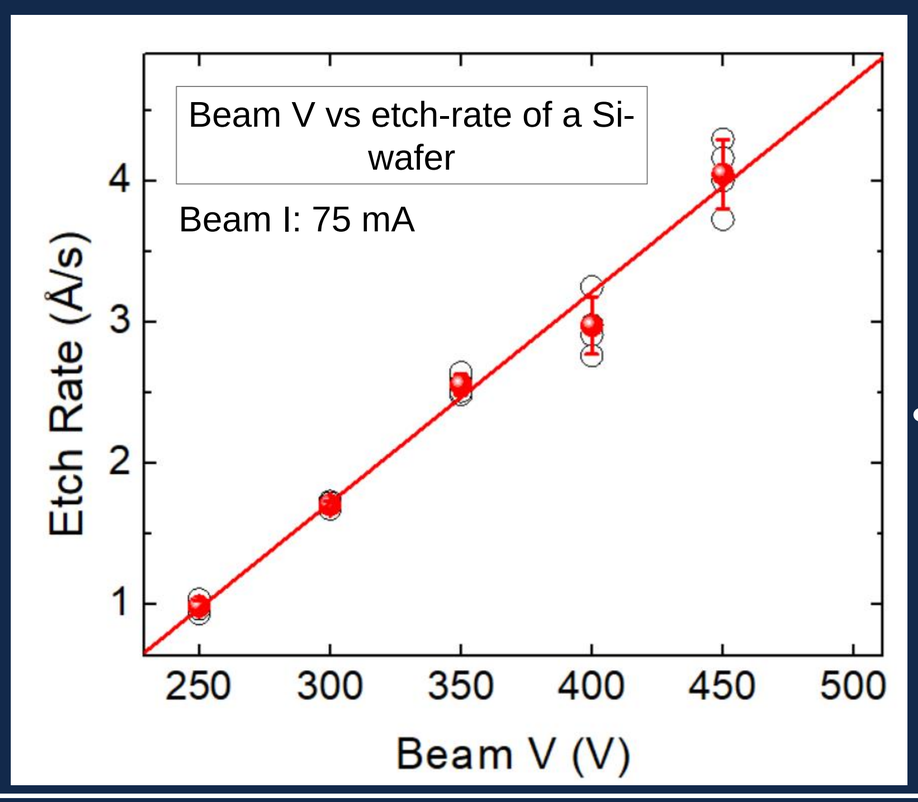
Commonwealth Ion Milling and Thermal Evaporator
MRL Microfabrication Lab
MRL 334



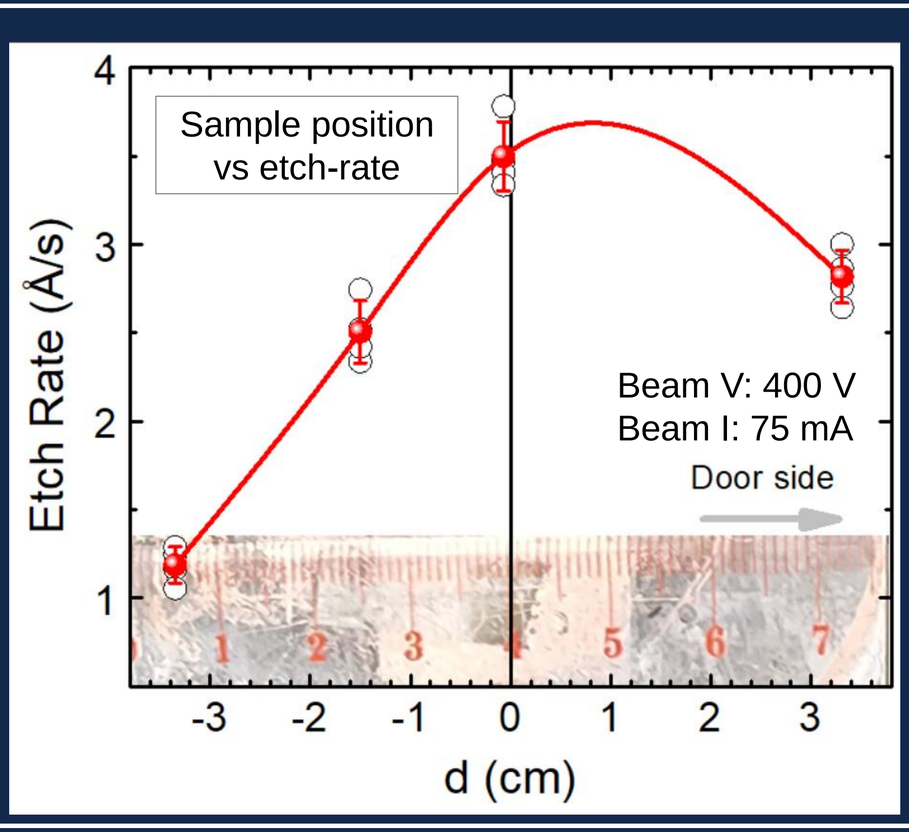
- A sharp step on the silicon surface etched using Commonwealth ion mill (up)

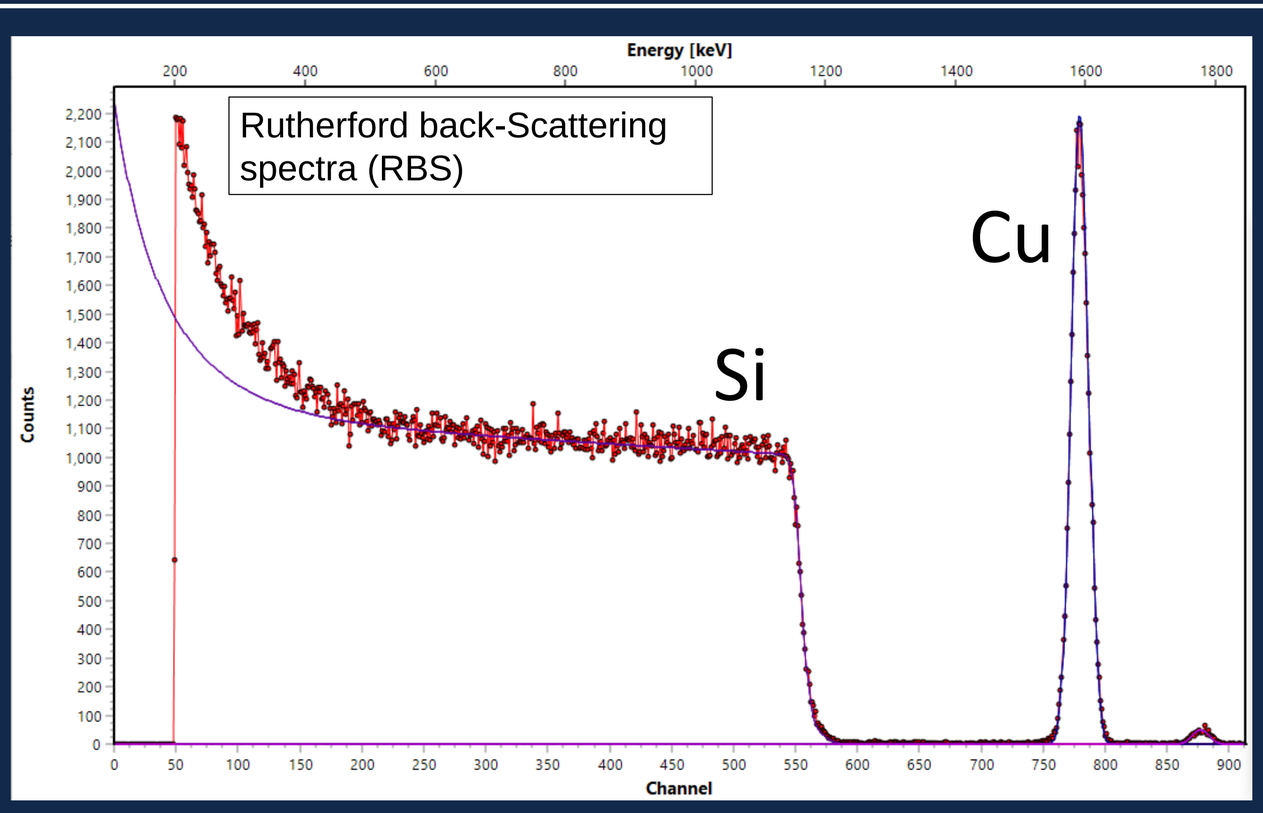
- Dedicated to the deposition of:
  - Cu
  - Pb
  - In
  - Au
  - Ag
  - Fe
  - MoO_3
  - Al
  - Sn
  - Sb
  - Cr
  - Ni
  - Ti

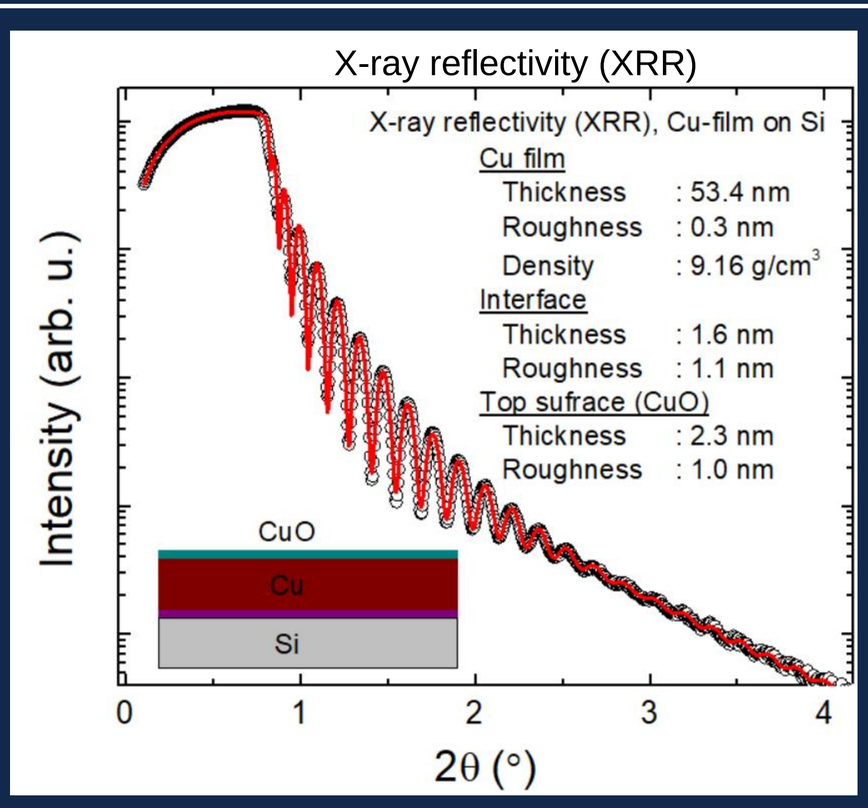
and more.



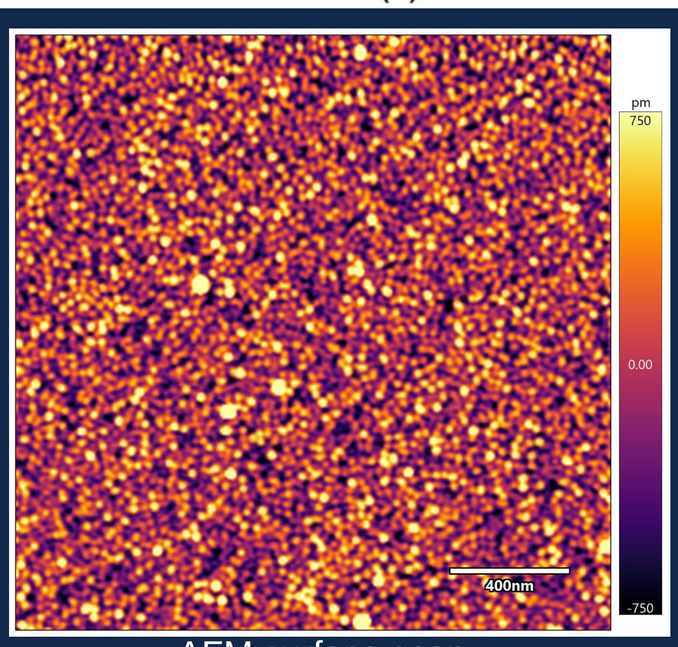
- Highly focused ion beam near the center of the sample stage
- Beam voltage (V) and/or beam current (I) can be varied to obtain the desired etch-rate







- Rutherford back-scattering (RBS) spectrum measured from a 15 nm Cu-film deposited on a Si wafer using the Commonwealth Thermal Evaporator (up)
- X-ray reflectivity (XRR) measured from a 53.4 nm Cu-film grown on Si wafer with a GenX simulation (top right)
- Atomic force microscopy (AFM) surface scan of an atomically flat Cu-film grown on Si-wafer (RMS roughness: 380 pm) (bottom right)



AFM surface scan

For more information, please visit *mrl.illinois.edu*.