

UHV STM Laboratory

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The laboratory is equipped with a complex setup for preparation and characterization of thin films and nanostructures in ultra-high vacuum with an integrated scanning probe microscope operating at ultra-high vacuum, ultra-low temperatures and high magnetic fields.

Basic characteristics:

The experimental setup from Specs co. consists of two interconnected vacuum chambers operating at a pressure below 10^{-10} mbar. The preparation chamber is equipped with:

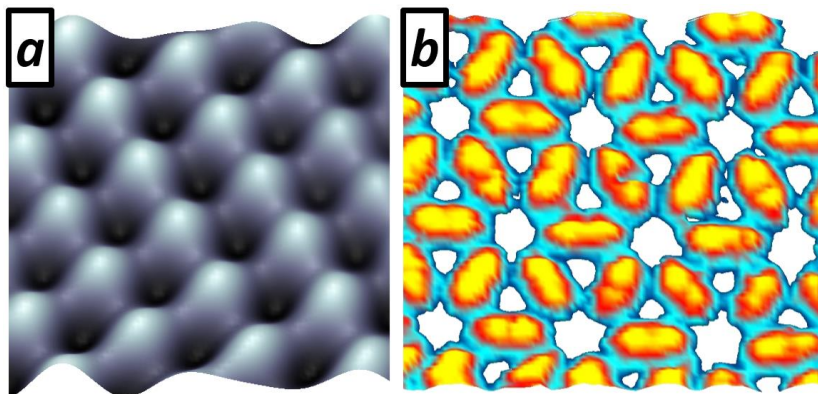
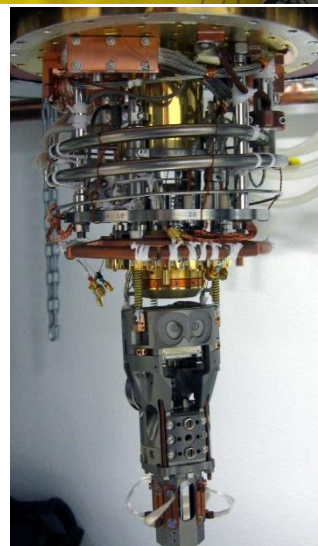
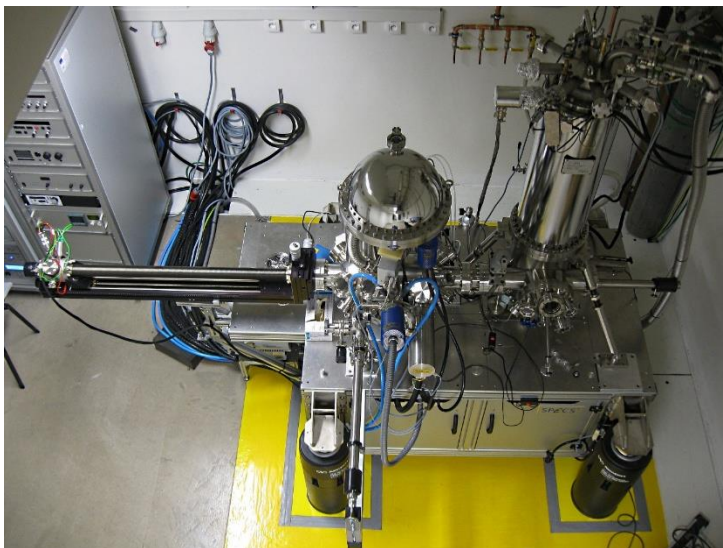
- Multi-Pocket E-beam Evaporator
- High Temperature Effusion Cell
- Quartz Crystal Microbalance
- extractor type ion source
- RHEED
- XPS
- Quadrupole Mass Spectrometer

The STM chamber is equipped with:

- Scanning Tunneling Microscope/Atomic Force Microscope
- Superconducting magnet up to 3T
- ^4He Cryostat down to 1K

Applications:

- High resolution topography
- High resolution tunneling spectroscopy
- in-situ preparation and characterization of thin films and nanostructures
- manipulation of individual atoms and molecules



(a) Carbon atoms (b) Superconducting vortices in NbSe_2