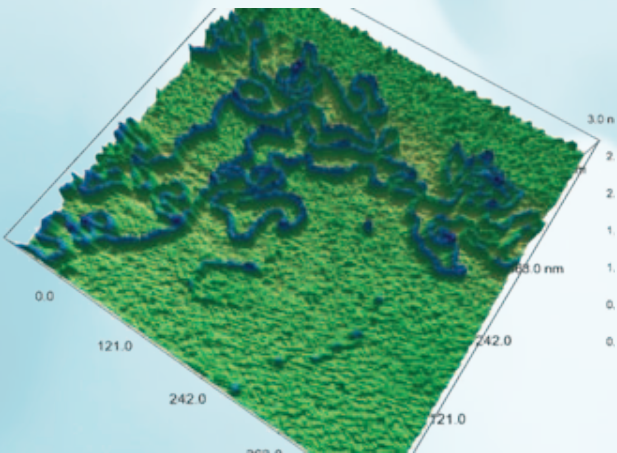




**Find us at 33rd and Walnut
on the Penn campus**



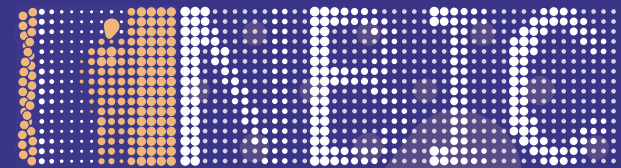
Mitochondrial DNA imaged with
NBIC atomic force microscope



Contact the NBIC

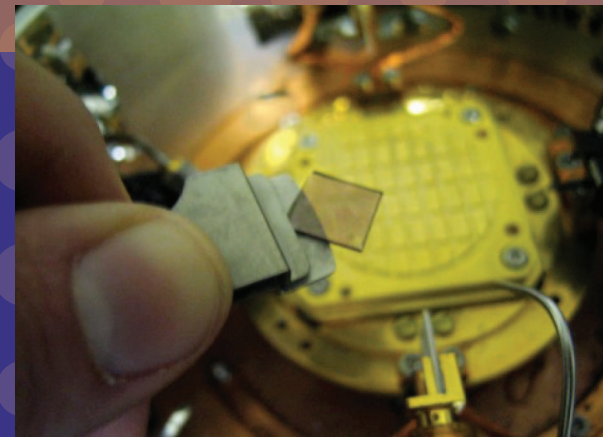
Facilities Manager
3231 Walnut Street, Room 112
The Laboratory for Research
on the Structure of Matter
Philadelphia, PA 19104

tel: 215-746-3210
fax: 215-746-3204
facilities@nanotech.upenn.edu
www.nanotech.upenn.edu

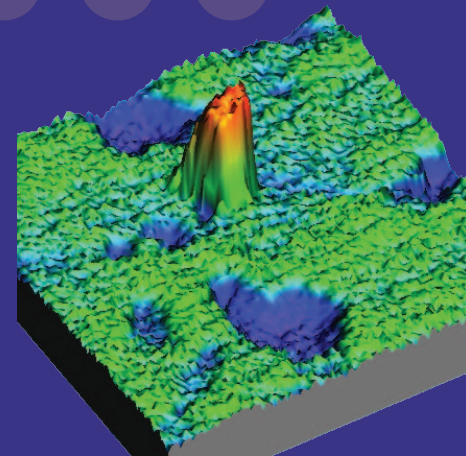


NANO / BIO INTERFACE CENTER

The University of Pennsylvania



**A nano-probe facility for
researchers in academia,
industry, and non-profits**



Nano-Bio Interface Facilities at Penn

The Nano-Bio Interface Center user facilities have ten instrumentation platforms to enable fundamental research, proof-of-concept testing, and materials characterization at the nano- and micro-scale. The available instrumentation has capabilities including electrical and mechanical sensing with femtoamp and piconewton sensitivities in atmospheric and controlled environments, as well as Raman spectroscopy and scanning optical microscopy.

Shared NBIC Instrumentation

Veeco Dimension 3100 + Nanoscope IV

Ambient AFM configured for electrical and piezoelectric sensing with 100 μm range. Closed loop scanner available.

Asylum Research MFP-3D

Ambient and fluid AFM with high-precision stage. Integrated microwave frequency impedance measurement capability.

Desert Cryogenics Probe Station

Opto-electronic transport in controlled environment from 77 to 350K.

SemiProbe probe station.

Agilent PicoPlus 5500 AFM with 10 μm open loop and 100 μm closed loop scanners, fluid cell, heated stage, and environmental chamber. Witek pulsed-force imaging controller.

Near-field scanning optical microscopy and Raman spectroscopy with turnkey tunable laser source.

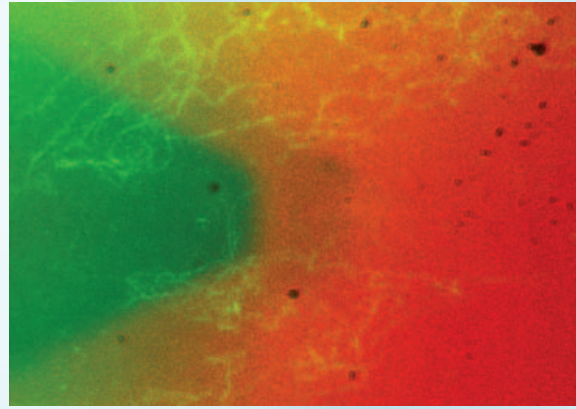
Interfacial force microscope enabling precise displacement-control measurements of surface forces

Variable Temperature UHV AFM-STM with LEED and Auger spectroscopy.

VT Omicron STM with RHK controller.

Asylum MFP-3D + TIRF AFM

Inverted microscope and total internal fluorescence for tagging and imaging biological specimens. Four laser wavelengths available.



Optical + AFM image of actin filaments.

Capabilities

On-site expertise for customization of instruments and measurement techniques.

In-situ electronic device characterization.

Optical stimulation and imaging with array of laser sources and filters.

Contact and tapping mode of atomic force microscopy for nanometer-scale imaging of surfaces and material properties.

Fluid cells and heated stages for biological specimens. Sealed enclosures permit atmospheric control.

Broadband electrical excitation and detection of circuits and resonators.

Applications

Real space imaging of nano-scale wires, particles, and structures.

Characterization of ferroelectric and piezoelectric thin films.

Observation of local charge / capacitance.

Frequency response of mechanical and electrical resonators or circuits.

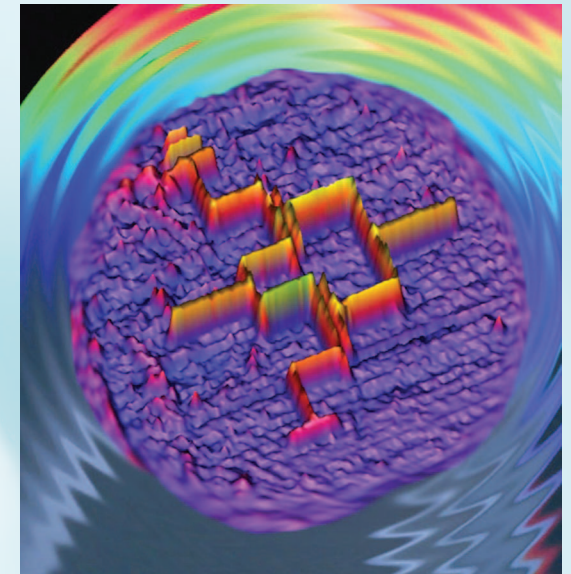
Probing stiffness and friction with nanometer resolution.

Measurement of dopant concentration and leakage current.

Characterization of biological specimens via fluid cell AFM.

Local surface potential mapping and piezoelectric microlithography.

Electrochemical analysis.



Surface potential image of pattern written via piezoelectric lithography with Dimension AFM