



hpAFM

High Performance AFM

System Parameters

Scanner

- 24 bit and 5, 10, 40, 100 μm XY scan range
- 24 bit 2,4,6,8,12,15 μm Z scan range,
- 0.01 nm resolution
- Linearized scanning on all axes with optical sensors
- Vacuum sample holder for up to 8"
- Decoupled Z scanner
- Can hold samples up to 500 gr max.

Z Motorized Stage

- 50mm range, 250nm resolution

XY Motorized Stage

- 76 mm range, 50nm resolution

AFM Module

- RF modulated low noise 635nm laser
- 25 fm/Hz (max.) noise floor
- <14 nm magnetic resolution with super sharp cantilevers

Video Microscope

- 10MP CMOS camera
- Recording and imaging with color CMOS camera
- Optical zoom
- 0.7 μm optical resolution

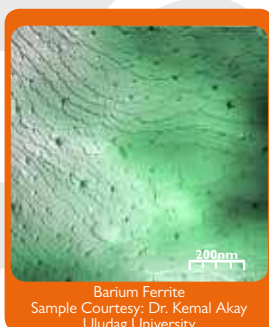
Acoustic and Vibration Isolation

- Acoustic, thermal and vibration isolation cabinet
- Atmosphere controlled isolation cabinet (optional)
- 0.3 Hz vibration isolation table
- Optional heating and cooling between -30 $^{\circ}\text{C}$ and +350 $^{\circ}\text{C}$

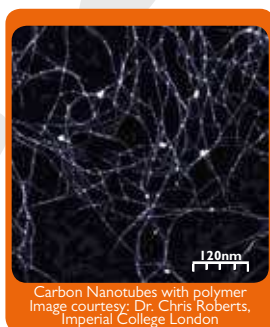


Standard Modes

- Contact Mode AFM
- Dynamic Mode AFM
- Lateral Force Microscope
- Phase Imaging
- Magnetic Force Microscope, MFM
- F-d Curves and Spectroscopy
- Electrostatic Force Microscope, EFM
- Non-contact AFM with 5 mHz Resolution Digital PLL



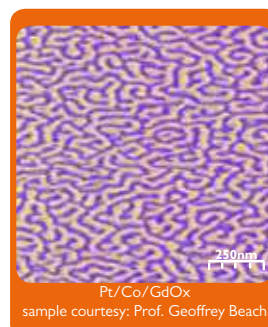
Barium Ferrite
Sample Courtesy: Dr. Kemal Akay
Uludag University



Carbon Nanotubes with polymer
Image courtesy: Dr. Chris Roberts,
Imperial College London



Human hair



Pt/Co/GdOx
sample courtesy: Prof. Geoffrey Beach



Optional Microscopy Modes

- Current Sensing AFM (Spreading Resistance AFM)
- Nanolithography
- Viscoelasticity Measurements
- Adhesion Force Imaging
- Conductive AFM
- Scanning Kelvin Probe Microscopy
- Force Modulation Microscopy, FMM
- Electrochemical AFM
- Piezo Response Force Microscopy, PRFM
- Closed Liquid Cell AFM
- Nanoindentation and Scratch Testing
- Scanning Tunneling Microscopy

(Please contact us for unspecified modes)



SPM Control Electronics and Software

- 3D imaging
- Image processing, analysis, and recording functions
- Simultaneous data gathering
- Up to 8,192 X 8,192 pixels imaging
- Automatic cantilever frequency determination
- Multi-user license
- Lifetime free software updates
- 24 bit Scan DAC's
- 24 bit Z- DAC resolution
- FPGA based digital feedback
- STM and AFM feedbacks
- 24 bit 200 kHz, 16 channel ADC
- +/-10 V, 16 bit bias voltage output
- 0.030 nm RMS noise ratio
- 5 mHz resolution digital PLL

Note: Specifications are subject to change without notice.

