

Scanning Probe Microscopy

- Atomic Force Microscopy
- Scanning Tunneling Microscopy

Equipment:

1. JSPM-5400 (JEOL, TOKYO)
2. MFP-3D Atomic Force Microscope (Asylum Research, Santa Barbara, CA)

Category:

C. Particle Characterisation in and ex-situ and/or

Institute:

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Short technology description/Overview:

Atomic Force Microscopy (AFM) measures the topography of a surface by using a sharp probe scanning over the sample while maintaining a very close spacing to the surface. AFM can be performed on conducting and nonconducting surfaces.

Scanning Tunneling Microscopy (STM) measures topography of surface using a tunneling current that is dependent on the separation between the probe tip and a sample surface. STM is typically performed on conductive and semiconductive surfaces.

Main Features (Equipment Capabilities):

- **The JSPM-5400** is a powerful scanning probe microscope. The microscope can be configured as either an atomic force microscope (AFM) or scanning tunneling microscope (STM). Standard AFM modes include contact, friction force microscopy, current image, non-contact AFM (constant excitation amplitude FM detection method)

- ambient air, or vacuum (10^{-5} Pa)
- sample heated to 500° C (773K) or cooled to -143° C (130K)
- Airlock specimen exchange
- 25 μ m scanner

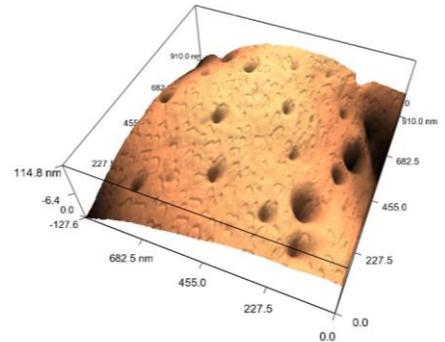
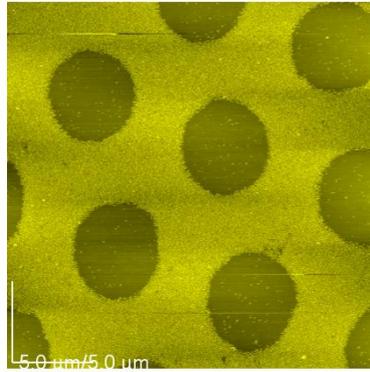
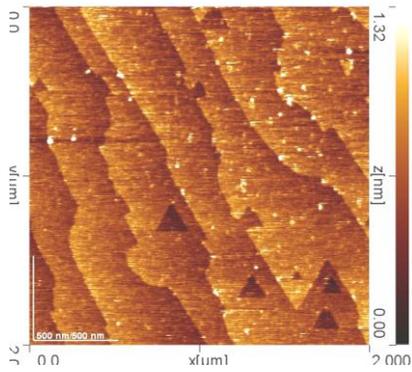


- The **MPF3D** has a 100 micron closed-loop XY-stage allows for AFM imaging as well as precise sample positioning. All standard AFM techniques are available through the IgorPro user interface that is open for customized routines.

- Imaging in ambient air and liquids
- 100 μ m closed loop flexured scanner
- The stage is compatible with different sample supports, including glass slides, coverslips, or petri dishes.



Typical Samples & Images:



Steps in Si(111) after etching // microcontact printing
particle

// Holes in a micron sized

Any further Information: