

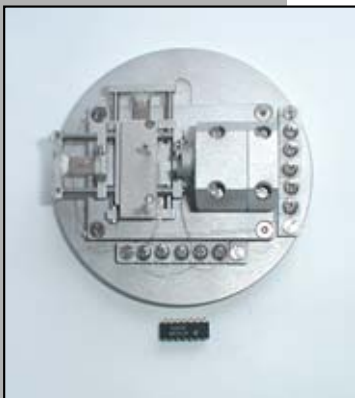
UHV STM Systems

A.P.E. Research developed several UHV STM systems for Universities and research centers. The systems have been designed to evaporate (e.g. metals, organic molecules) in UHV directly on the sample mounted on the STM head.

The systems allow to perform measurements of the same region of the surface at different stages

of growth. In this way it is possible to make a “movie” of the same scanned area as deposition time proceeds.

The STM head, designed and crafted by A.P.E. Research, features an innovative inertial stage for coarse approach which allows STM tip to reposition on a spot with a resolution better than a few tens of nm.



STM characteristics

- UHV STM microscope.
- Scanning system: piezoelectric tube.
- Automatic tip sample approach.
- 2 coarse positioning inertial motors with piezoelectric drive.
- Double passive damping system.
- Maximum sample size 2 cm².
- Minimum scan area: 1 nm x 1 nm.
- Maximum scan area: 3000 nm x 3000 nm.
- Lateral resolution: better than 0.1 nm.
- Vertical resolution: better than 0.05 nm.
- Tunneling current range: 0.05-20 nA.
- Bias voltage: ± 10 V.
- Works in constant height mode and in constant current mode.
- Spectroscopy mode.
- SPM Control System is composed by a digitally controlled analog feedback that combines the flexibility of computer controlled parameters with the high resolution and low noise of an analogue implementation. The electronics supports STM, AFM and SNOM heads, performs different kinds of spectroscopy and can acquire several user-defined auxiliary channels.
- Software runs under Windows and is composed of a multi-window application to control the instrument and do the data acquisition. The software controls all the parameters of the instrument.

Key features:

- Ease of Use
- Versatility
- Easily interchangeable Samples

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