

# Variable Temperature Ultra-High Vacuum Scanning Probe Microscopy System

## Description:

The Ultra-high Vacuum, Variable Temperature Scanning Probe Microscope (UHV-VT-SPM), is a state-of-the-art experimental system that can be used for surface-science research on the nanometer scale. It consists of an Atomic Force and Scanning Tunneling Microscopes capable of Atomic Resolution (AFM, STM), Low Energy Electron Diffraction (LEED) for surface characterization and ion beam set-up for surface sputtering. This system will let the user to explore the properties of various phenomena at clean environment at variable temperature on the nanometer scale.

## Specifications:

### Features & Info sheet:

*The SPM System:* Variable Temperature UHV SPM. With a temperature range from 25 K to 1500 K in STM mode the VT SPM covers virtually all possible applications involving dynamic processes on surfaces, such as molecule adsorption and diffusion, chemical reactions, phase transitions, etc. For AFM from 25 K to 900 K the needle sensor replaces the STM tip, and makes high-resolution structural investigations of temperature-dependent phenomena on non-conducting surfaces possible for the first time.

- Atomic Resolution STM and AFM
- LHe and LN2 cooling
- Direct current and indirect heating
- Drift compensated design
- Continuous imaging during T-change

*The Vacuum System:* The MULTIPROBE series is a family of multi-technique surface science UHV systems, designed to provide the performance and flexibility demanded by today's research environment. The MULTIPROBE S is a single chamber surface science UHV system with large multi-technique analysis chamber for electron spectroscopy, UHV scanning probe microscopy and sample preparation. A sample transfer system facilitates the sample transfer between SPM, analysis chamber, and fast entry sample load lock (FEL).

### Additional instruments:

- Low Energy Electron Diffraction (LEED) - for surface analysis
- Ion Gun for sputtering
- Special design for combined SPM and electrical measurements.