

TEMPERATURE VARIATION PACKAGE FOR POLAR, INFINITY AND STREAM SPMs

Expand Your Experimental Parameter Space by Fast Temperature Variation

Variable Temperatures in POLAR, INFINITY, STREAM:

- Work in low temperature instruments and benefit from their inherent advantages:
 - Ultimate stability at base temperature¹
 - Higher energy resolution in spectroscopy modes
 - Higher Q factors for tuning fork AFM (Qplus[®])
 - Cold probe tips allow picking up of CO-molecules for enhanced resolution
 - Inhibited diffusion of molecules on surfaces
- Run experiments with atomic resolution at arbitrary sample temperatures between base temperature and 300K
- Compatible with STM modes and Qplus[®] AFM modes
- Very low heat capacity of set up allows fast transitions between temperatures and ensures short settling times². Example shown in figure 1.
- Local heating and precise local temperature measurement for best control of experimental conditions
- Highly flexible: One TVS plate with heater and temperature sensor serves for multiple sample plates
- Local heating reduces degradation of vacuum caused by heating of instrument and/or environment
- No modification of instrument required

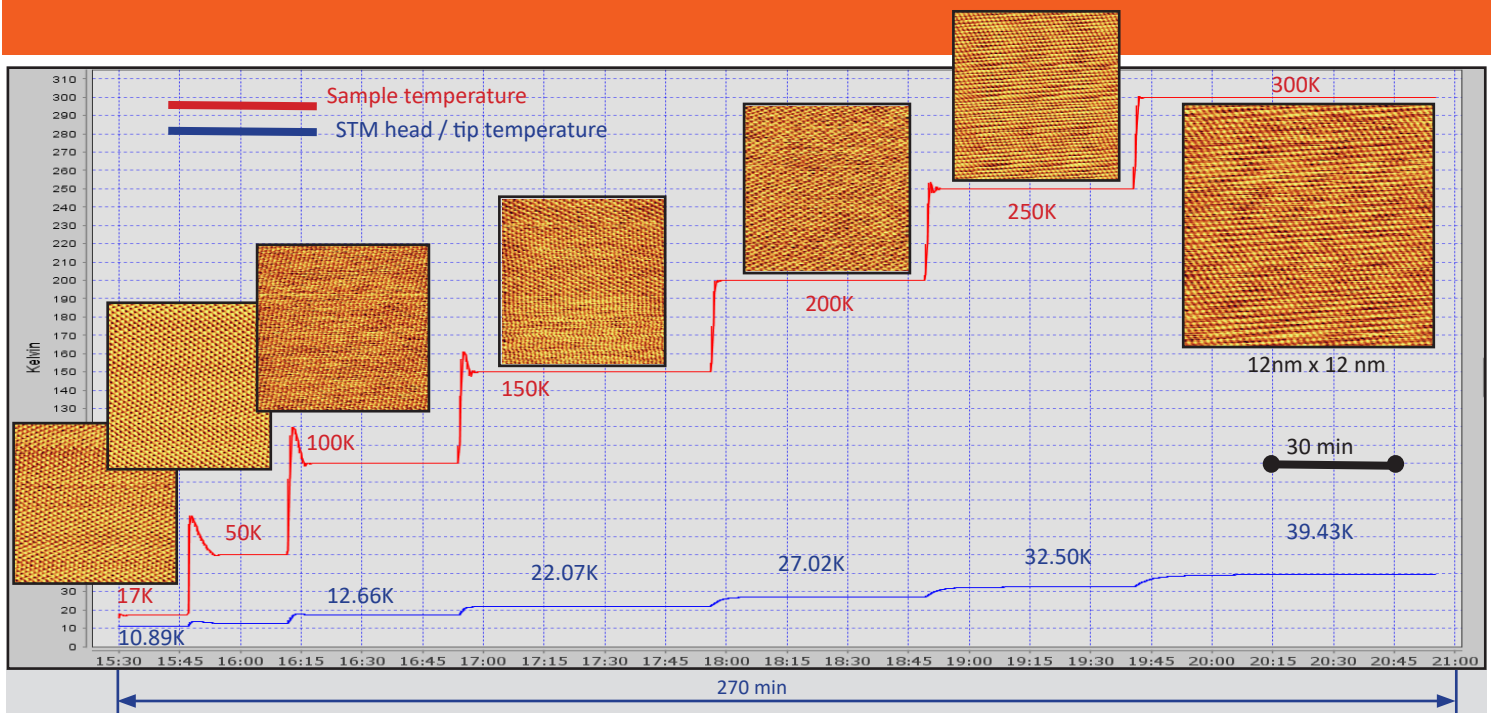
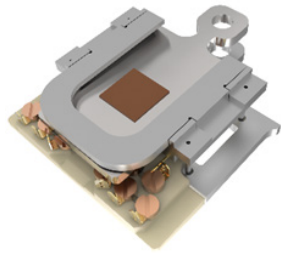


Figure 1: STM measurements on HOPG at different temperatures (scan size: 12nm x 12nm)
 Data have been measured with INFINITY with temperature variation sample plate. The same sample plate can also be used in STREAM and POLAR SPM for temperature variation.

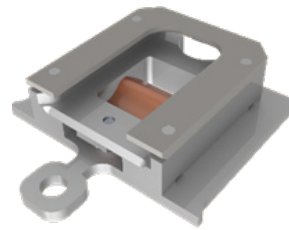
¹ According to instrument specifications

² The settling time depends on experimental details like initial and final temperature setpoint, heat capacity of sample, thermal connection of sample to sample plate, sample plate material, residual heat loads (e.g. windows), temperature controller settings

TVS with small sample plate mounted



Transfer plate for small sample plate, Molybdenum



Small sample plate various materials



Small Molybdenum Sample plate for metal crystals



Temperature Variation Sample Plate and Accessories

Summary

Part Number:

- PN07778-S Temperature Variation Sample Plate (TVS) Package

Upgrade Components:

- TVS plate with integrated temperature sensor and heater
- Set of small sample plates: tantalum, molybdenum, steel, holder for metal single crystal (special crystal geometry required)
- Transfer plate for small sample plate
- Impedance adaptor for temperature controller
- Cables

Requirements:

- POLAR, INFINITY, or STREAM SPM with 10 sample contacts option installed
- Temperature Controller

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