attocube
WITTENSTEIN group

Nanonis Mimea attocube edition

your companion for efficient cryogenic SPM

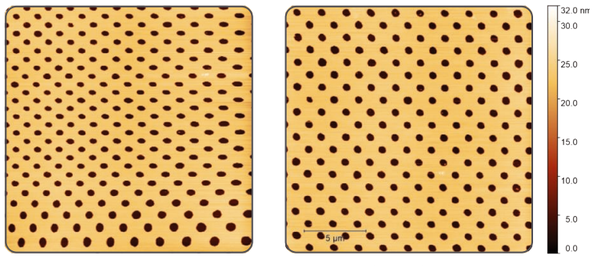
CRYOGENIC INSTRUMENTS
cool tools for cold science

World-class scanning probe microscopy

championing versatility and user-friendliness

Integrated *B* & *T* Control

Nanonis Mimea attocube edition comes with integrated control of the sample temperature and magnetic field of attocube cryostat via Nanonis software. Such automation enables the users faster time-to-result as they can dedicate their focus to the sample under study.



Open loop Closed loop

Closed-loop Scanning

Closed-loop scanning corrects for intrinsic nonlinearities of piezo scanners down to the nm-scale, owing to its ultra-sensitive interferometry-based feedback. In case of attocube microscopes, our patented IDS sensor (a fiber-based interferometer) measures the position and (re)adjusts it via the feedback to the Nanonis Mimea for the easy retrieval of the region of interest (ROI).

Presets for Jump-Starting your SPM Experiments

Nanonis Mimea attocube edition comes with presets of key scanning parameters for standard SPM techniques. Thus you can jump start your experiments and you can focus on the physics of your sample rather than on the physics of your instrument. Of course, all parameters are freely adjustable at any time, so you do not have to abide to the presets.

Nanonis Mimea attocube edition

your companion for efficient cryogenic SPM

attocube and SPECS Zurich combine forces and bring to the market a novel edition of Nanonis Mimea controller which features seamless integration with attocube cryostats and scanning microscopes, while inheriting all previous Nanonis functionalites. The attocube and Nanonis benchmarking equipment enables users to efficiently perform SPM even with challenging samples and with various measurement techniques (e.g., MFM, KPFM, PFM, MIM, ct-AFM).

- control of temperature and magnetic field via Nanonis software
  → full integration and automation
- closed-loop scanning
  → true distances and angles + easy retrieval of ROI
- synchronized feedback loops + presets for jump start of scanning
  → advanced user-friendliness for advanced SPM

Superior technical features combined with novel user-friendliness

Nanonis Mimea attocube edition

technical specifications

attocube
WITTENSTEIN group

Output Signals	
frequency range	DC - 40 kHz (SC5), 100 Hz - 5 MHz (OC4)
Detection	
measurement bandwidth	DC - 100 kHz (SC5), 100 Hz - 5 MHz (OC4)
Interfaces	
analog ADC inputs	8x BNC -10..+10 V, 18 bit, 1 MS/s, 100 kHz. Can be extended to up to 24 inputs
analog DAC outputs	8x BNC -10..+10 V, 20 bit (22 bit with hrDAC), 1 MS/s, 40 kHz (3 outputs used for xy and z). Can be extended to up to 48 outputs
Scan Generation	
pixel clock [kHz]	20 kHz for normal scan engine, 1 MHz for fast scan engine
resolution	up to 22 bits, depending on oversampling
scan speed	100 pm/s - 1.2 mm/s @ 30µm x 30µm (slow scan engine); 30 µm/s - 30 cm/s @ 30µm x 30µm (fast scan engine)
frame rate	max. 0.9 Hz @ 100 x 100 pixel (slow scan engine); 50 Hz @ 100 x 100 pixel (fast scan engine)
Phase Locked Loop (PLL)	
features (PLL)	2 P/I controllers (4 with dual-OC4) with graphical interface
frequency resolution [µHz]	<1 nHz
Spectral Performance	
spectroscopy modes	point/line/grid/subgrid/follow-me spectroscopy (up to 8192 x 8192 pixel for grid and subgrid)
Lock-In	
low frequency Lock-In	1 mHz - 50 kHz
high frequency Lock-In	100 Hz - 5 MHz

attocube systems GmbH | Eglfinger Weg 2 | 85540 Haar
Germany | info@attocube.com | www.attocube.com