

Electronics

Main Power Supply Input	220-240V AC/50 Hz, 9.0 W
Power Supply outputs	+5V DC, +/-15V DC, 110V DC, 110V AC
Computer Interface	USB 2.0 Port
Measurement Channels	Single Channel 16-bit A/D converter
Scan generator	4-channel 12-bit D/A converter
Scan speed	51ms/line (max) for 256 data-points in each line (Dual imaging mode)
Scan drive signals	+/-110V DC
Slope Compensation	Both Hardware and Software Horizontal & Vertical Slope Compensation
Tunnel Current Set Point Adj.	-5nA to +5nA in steps of 0.1nA (Option 1) -25nA to +25nA in steps of 0.5nA (Option 2) (Any one of the option is provided as per user requirement)
Servo Control	Analog Feedback Parameter (Gain, Time Constant, T.C. Setpoint) Adjustments
Bias Settings	-10,000mV to +10,000mV in steps of 5mV
I-V Spectroscopy	5mV bias resolution for 750 data points, I/V, dI/dV & Normalized dI/dV plots, Export to ASCII option available
I-V Spectroscopy Modes	Point mode, Line mode, Grid mode
I-Z Spectroscopy	Tunneling Current vs Distance plots, Conductance vs Distance plots (Normal & Semilog), Export to ASCII option available

STM Measurement

Sizes	Min. area	Max. area	X/Y Resolution
XL Area	20 x 20nm ²	2.0 x 2.0µm ²	500pm
Large Area	10 x 10nm ²	200 x 200nm ²	50pm
Small Area	20 x 20Å ²	40 x 40nm ²	10pm
Z resolution	Analog Mode : 0.008 - 0.01nm Digital : 0.025 - 0.05nm (Using 12-bit DAC)		
Scan orientation	Horizontal and Vertical		
Max Z Range	+/- 350nm to +/- 500nm (Full-Stretch and Full-Retract)		
Imaging modes	Constant Current, Constant Height and Conductance Imaging		

Software

Image Display	Dual Imaging Window for Scan and Retrace Image Display
CRO	In-built software CRO plotting imaging signal during scans
Sample Navigator	Graphical assistant for localized zooming w.r.t. a large area scan
3D	Colored 3D renderings, selection of color look-up tables
Data Export	Export to standard image file formats like jpg, png, ASCII, postscript format.
Analysis Functions	Line (Single line profile) Extraction, Localized Zooming, Roughness Display, Measure length & angles on the images, 2D Fast Fourier, Transformation
Calibration	X/Y/Z-Calibration Utility
Image Processing Tool	Spatial and Fourier Low-Pass Filtering, Background Subtraction, Histogram Equalization, Zooming, Contrast, Slope Correction etc.
Tip Locator Window	Displays current position of the tip over the sample
Nano-Lithography	In-situ tip cleaning & restructuring utility by applying voltage pulses to the sample (-10V to +10V)
Color Mode Selection	Customizable color modes for the images (both in 2D and 3D)

Vacuum Setup Features

Vacuum range	Ambient to 10 ⁻³ mbar
Vacuum Holding Time	2-3 hours with sorption pump
Spare ports	Two blanked-out KF-25 ports
Vibration Isolation	No further isolation required for the chamber
Chamber Dimensions	25cm (dia) x ~17cm (height)
Rotary Pump (not supplied)	For vacuum range 10 ⁻² to 10 ⁻³ mbar
Liquid Nitrogen Required (not supplied)	8 to 10 liters per experiment
Variac (not supplied)	0 - 220V /5A for heating tape

Computer Requirements (not supplied)

System configuration	RAM ≥1GB, Min. Resolution 1024x768, DVD Drive
Computer Interface	USB 2.0 Port
Operating system	Runs from UbiKewti© Linux Live DVD/USB (with installation option)

Other Features

Sample approach	Piezo-tube Walker, Illuminated tip-sample junction view
Sample size	Camera attachment for coarse approach assistance Sample disc dia. 10mm



nanoREV™
Vacuum Scanning Tunneling Microscope
Amazing revelations of the nano-world

Effortless Sample Loading
Advanced Software
Robust & Portable

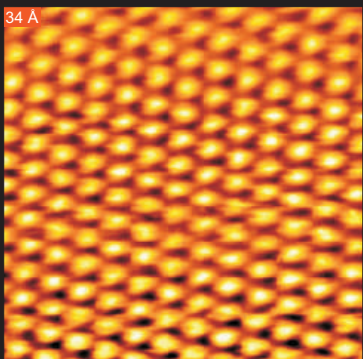
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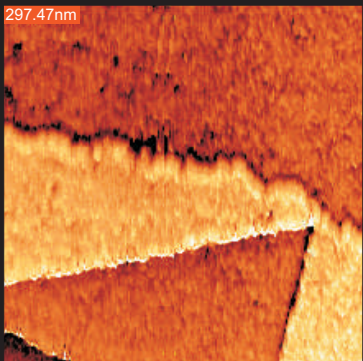
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stmsupport@quazartech.com

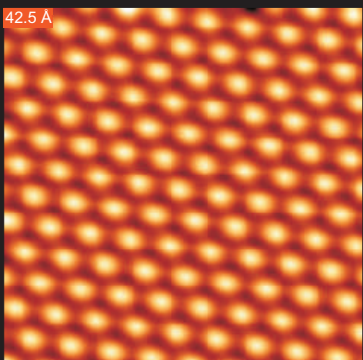




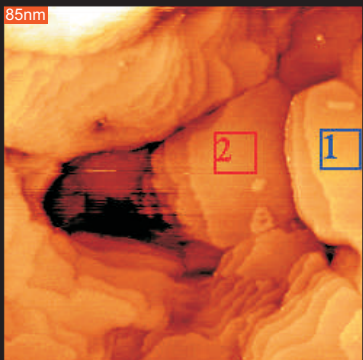
Atomic resolution on HOPG (Graphite)



Bismuth Telluride layers



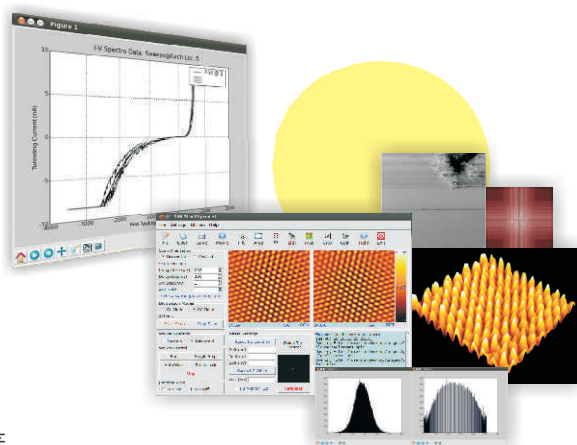
Atomic resolution on Bismuth Telluride



Mono-atomic gold terraces on mica

Swift Sample And Tip Changes

Sample plates and tips can be changed very easily with the help of sample key and tip-tweezers.



The images shown here are taken with nanoREV STM

Table-Top Vacuum STM

Chamber footprint size 25 cm. Vacuum range down to 10^{-3} mbar, Vacuum Holding Time 2-3 hours @ min pressure with Pirani Gauge & Heating Tape.



nanoETCH: The Tip Etching Unit

Very easy and quick preparation of tungsten tips using chemical etching technique, makes very sharp tips fit for STM operation. (Optional accessory)



Powerful Software Interface

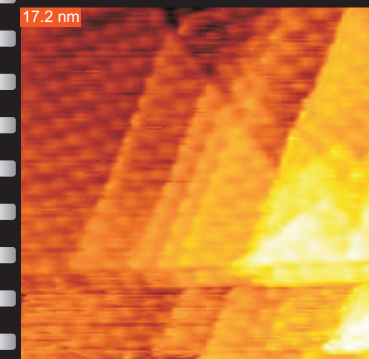
Intuitive, SPM specific spatial and Fourier filtering, Line Profile Extraction, Export and Import different file formats, Nano-Lithography Tool, 3D-Rendering of Image Data, Software CRO, I-V Spectroscopy...



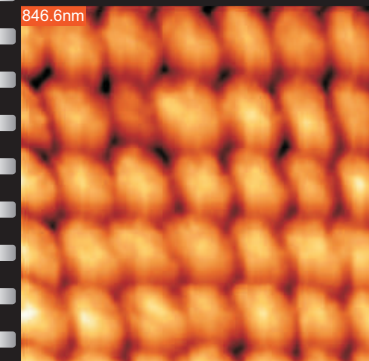
The images shown here are taken with nanoREV STM

Tips, Sample Kits, Toolbox and much more...

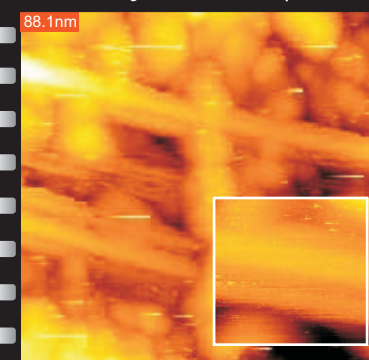
Collaboration STM samples, spare sample plates, Tip holding tweezer set, Tungsten and Pt/Ir and tip wires, Silver probe and Tip cutters etc...



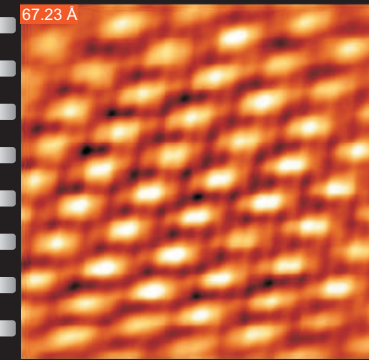
Super-lattice structure on HOPG



Nano-grid with 160nm pitch



Carbon nano-tubes



Charge density waves on 1T-TaS₂