

NaioSTM

The best-selling tabletop STM



Your easy entry into the world of atoms

The NaoSTM is a scanning tunneling microscope that brings together scan head and controller in a single instrument for even simpler installation, maximized ease of use, and straightforward transportability. The setup is robust against vibrations and can be used to achieve atomic resolution on HOPG in standard classroom situations. With its 204 × 204 mm footprint it hardly takes up any workbench space.

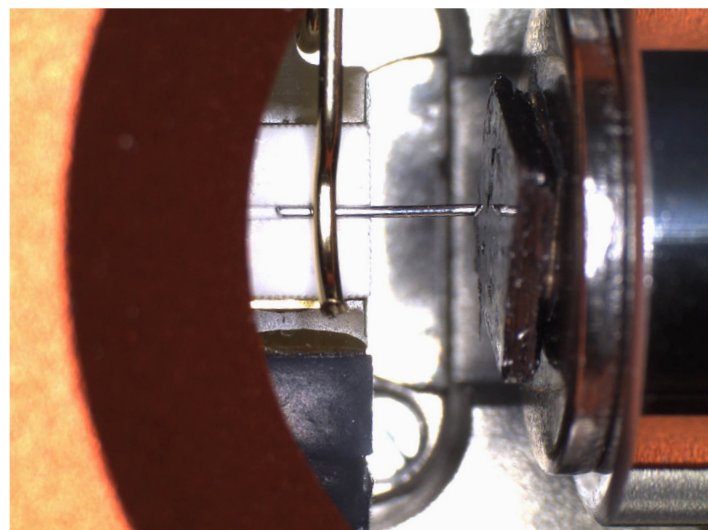


Over more than 20 years and three development generations, Nanosurf's scanning tunneling microscope has become the number one STM solution in the field. Because of its clever composition, it is widely regarded as the logical choice for performing scanning tunneling microscopy in all kinds of educational settings and basic research, with almost 1500 instruments in operation around the world (including the NaoSTM's predecessor, the Easyscan STM).

The smart and purposeful design is perfectly suited to the needs of educational institutions: the system integrates scan head, controller, air-flow shielding with a magnifying glass to aid the initial approach, and vibration isolation on a heavy stone table. The additional passive vibration isolation feet further protect measurements against disturbances, making the system very robust during operation. The system functions without high voltage, making it safe in unexperienced hands.

<10 mm mechanical loop

The very small mechanical loop of <10 mm provides the stability to achieve atomic resolution on a coffee table or in a class room.



See atoms in 5 minutes

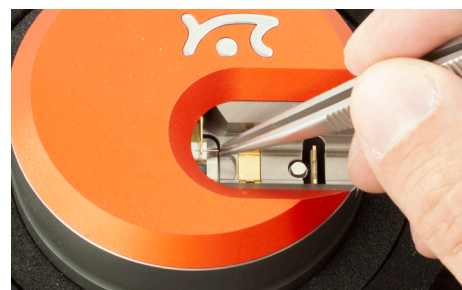
From unboxing to seeing atoms, only four simple steps are required: after connecting the NaoSTM to the laptop on your workbench, prepare the probe by cutting off a piece of Pt/Ir wire. This will be the measuring tip. Place this newly cut probe in the scan head.

To get the sample ready, place it on the magnetic sample holder, and insert it carefully into the instrument, close to the STM tip.

And 5 minutes after opening the transport case, you are ready to approach the sample and start the scan.



Cut a tip from Pt/Ir wire



Insert probe into the scan head



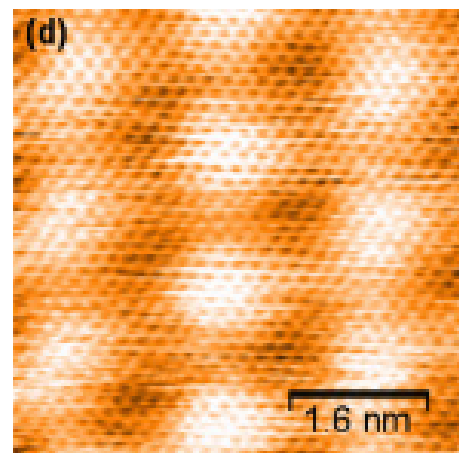
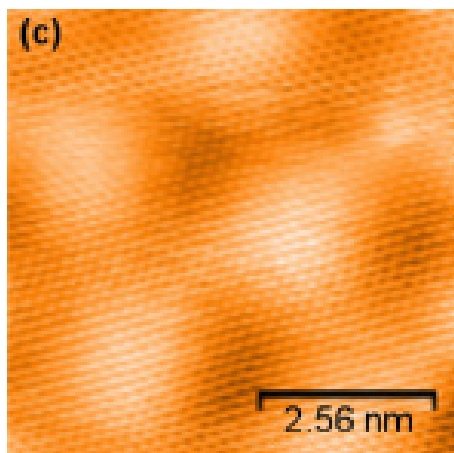
Place your sample



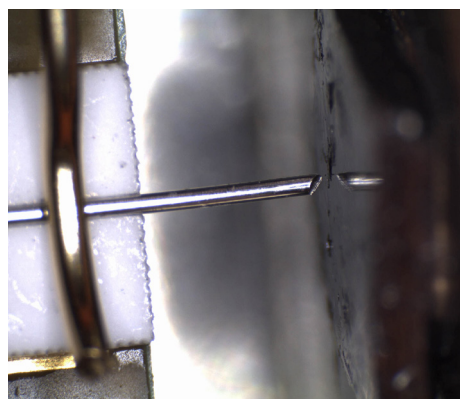
Place sample holder

NaioSTM in research

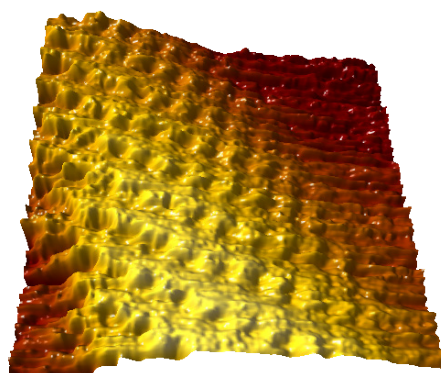
The NaioSTM is not exclusively an instrument for education - it is also established in research circles, having provided the measurement results for several noteworthy publications, e.g. in Dilek Yildiz' paper *Apparent corrugation variations in moiré patterns of dislocated graphene on Highly Oriented Pyrolytic Graphite and the origin of the van Hove singularities of the moiré system*, published in *Condensed Matter*, 2015.



STM images of different moiré patterns on HOPG, as published in *Condensed Matter* (2015)



STM tip approaching HOPG sample



STM image of nanotube, 3 nm

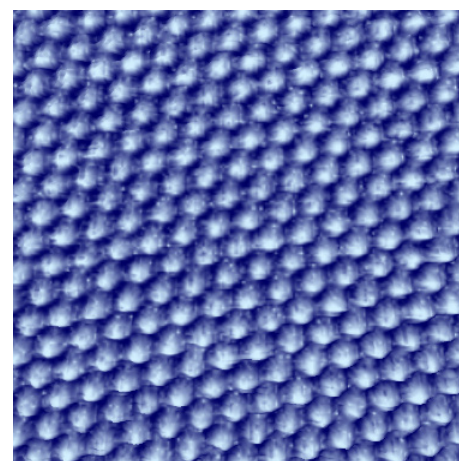


STM sample kit containing HOPG sample, gold sample, and sample supports

NaioSTM for teaching

The NaioSTM is the optimal instrument for education. Its ease of use and safe and easy handling are relied upon by universities around the globe. Among the universities maintaining nanotechnology labs using NaioSTMs for teaching or research are well-known institutions such as Humboldt University Berlin, ETH Zurich and University College London.

For an easy entry into STM, Nanosurf provides sample kits containing pre-mounted samples. With these students can experience how easy it is to produce atomic resolution with the NaioSTM.



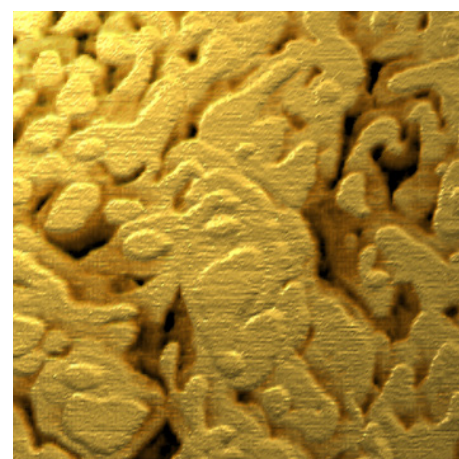
Atomic lattice of graphite (HOPG), scan size 2 nm

NaioSTM specifications

Scan range (XYZ) ⁽¹⁾	500 nm × 500 nm × 200 nm
Scan resolution (XYZ) ⁽²⁾	7.6 μm × 7.6 μm × 3.1 μm
Current amplifier	0.1–100 nA in 25 pA steps
Imaging modes	Const. current (topography), Const. height (current)
Spectroscopy modes	Current–Voltage, Current–Distance
Lithography modes	Patterning, Modification
Sample approach	Stick-slip motor
Sample size	Max. 10 mm diameter, Max. 3 mm thickness
Data points	Imaging: up to 2048×2048, Spectroscopy: up to 65.535
Imaging speed	Up to 10 Hz
PC requirements	USB 2.0, Windows 7 or higher (32- or 64-bit)
Power supply	90–240 V AC, 50/60 Hz, 30 W
Size (WDH), Weight	204 × 204 × 104 mm, 3.45 kg

(1) Typical values

(2) Calculated by dividing the maximum range by 16 bits



Step heights on gold, scan size 500 nm



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