

A100-SGS AFM Atomic Force Microscope

A.P.E. Research s.r.l. produces two versions of Atomic Force Microscope (AFM).

The A100-AFM is equipped with a closed loop sample positioning system.

It guarantees absolute positioning with an accuracy of 10 nm (up to ten times better than closed loop AFM in the market).

This particular feature, together with the specific A.P.E.

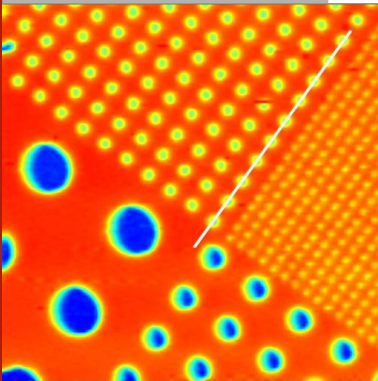
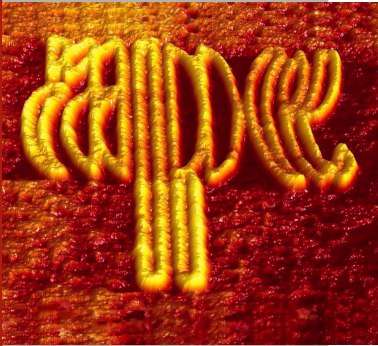
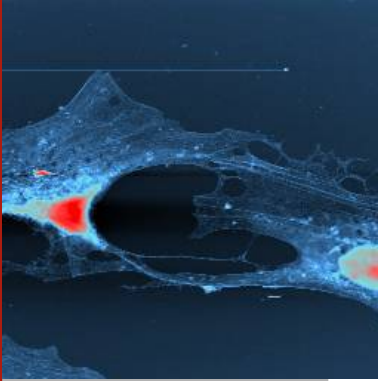
Research software tool, makes the instrument suitable for nano-lithography.

The A100-AFM SGS is equipped with a flexure scanning stage that guarantees high planarity for customers interested in large area AFM measurements (up to 100 μm).

A.P.E. Research has developed additional AFM tools for specific measurements modes (EFM, MFM, Liquid Cell).

Other tools are developed upon customer requests or in a joint collaboration with Italian research institutions.

A100-SGS AFM



A100-SGS SPM Stage

Scanning stage with absolute positioning system with strain gauge sensors.

Scanner technical data:

X-Y scan size: 100 x 100 μm (high voltage mode);
10 x 10 μm (low voltage mode)
Resolution high voltage mode: Closed loop: 2 nm,
Open loop: 0.2 nm
Closed loop linearity: 0.1%.
Z scan size: 10 μm (high voltage mode)
1 μm (low voltage mode)
Resolution: 0.16 nm (high voltage mode),
0.02 nm (low voltage mode).

AFM Head

AFM Head is suitable for Contact Mode, Non Contact Mode, Semi-Contact Mode and Lateral Force.

AFM Head with holder for commercial cantilevers. The holder can be removed to easy mount cantilevers. The head also houses laser, photodiode sensor with preamplifier.

SPMCU2-PI

SPM Control Unit

SPM Control Unit and PC (equipped with a multi input-output board) drives the scanner, data acquisition and sample motion. Tip to sample distance is controlled by ultra-low noise analog feedback, digitally driven by PC. High speed and temporal precision are provided by hardware timing.

HVA3-PI Unit

High Voltage Amplifier

HVA is an amplifier module projected to drive A-100 SGS scanning Stage

Computer and Acq. Board

Windows XP operating system; Pentium IV, 512 MB DDR SDRAM, 80 GB HDD, CD R/W, mouse, keyboard; 17 inch LCD monitor. Acquisition board and interface.

Acquisition software

Software runs under Windows XP and is composed of a multi-window applications for instrument control and data acquisition. The software comes equipped with simple filters for immediate analysis of acquired images. The software controls all the parameters of the instrument.

A.P.E. Research instruments are equipped with Image Metrology SPIP™ data analysis software Basic Module. 14 optional add-ons could be acquired separately.

Accessories

Lithography Tool

STM Tool

MFM Tool

EFM Tool

CAFM Tool

Liquid Cell

Acoustic Box with floating marble Table

Characteristics and technical specifications subject to change

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