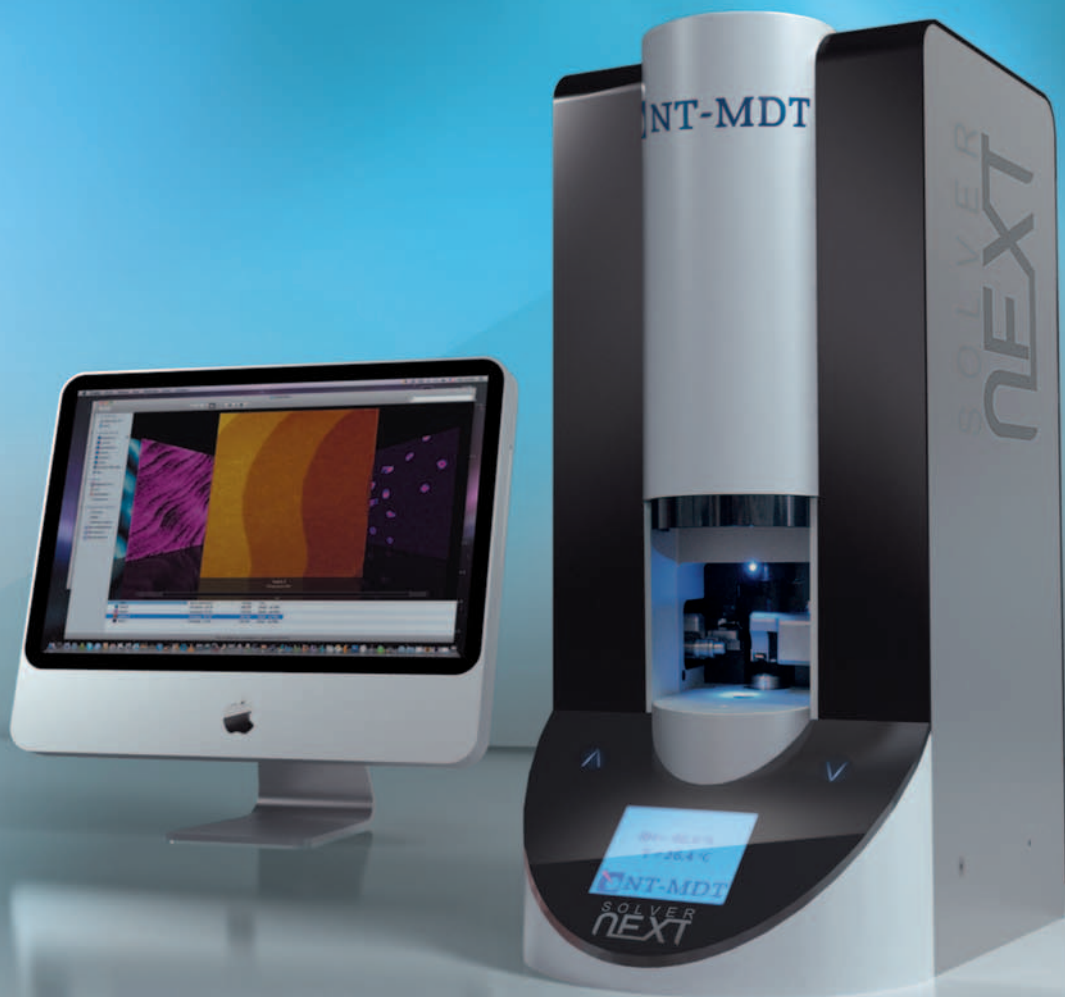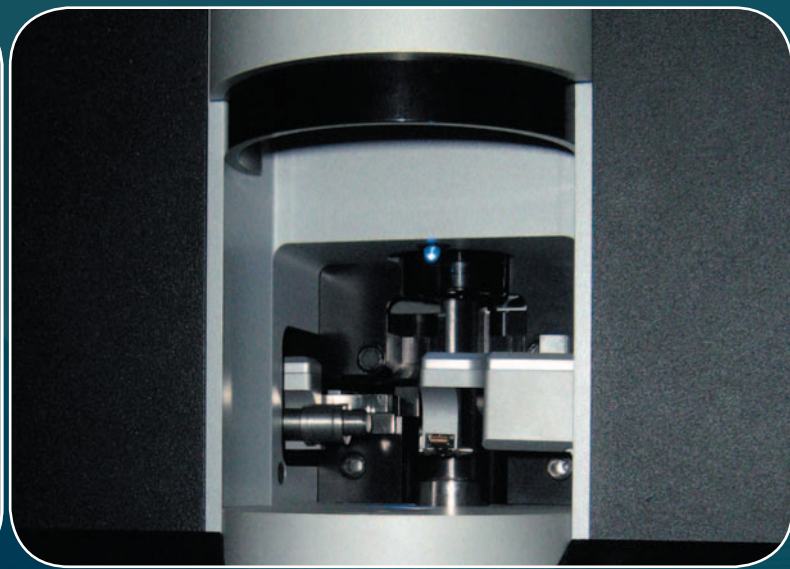# SOLVER NEXT™

Ease of performance!

Desktop SPM with full automation
Intuitive software for ease of operation
Ergonomic design
Best-in-class SPM (features, resolution and price)

NT-MDT
Molecular Devices and Tools for NanoTechnology

From START to image

In the past, you had to spend considerable time to become skilled enough to operate an SPM and get quality results.

The need for intense and lengthy training is virtually eliminated with the SOLVER NEXT™. Now anyone can image in

several minutes!

The SOLVER NEXT™ is the first to offer a new concept in general purpose SPM. This new design offers "on-board expertise" opening the way for all user levels to acquire quality SPM images in a short amount of time.

The hassle of manual setup has been eliminated. Intuitive automation guides you through the setup, adjustment and sample measurements. The system incorporates smart software, automated head exchange, motorized sample positioning under video monitored control, ergonomic design at a reasonable price — all of this makes SPM operation suitable for even a novice.

Experienced users will quickly recognize the benefits of the design and be amazed with the SOLVER NEXT 's simplicity, ease-of-use, high capabilities and quality of images.

The system has closed-loop sensors to compensate for inherent piezoelectric imperfections such as scan nonlinearity, creep and hysteresis.

With two built-in automatically interchangeable AFM and STM heads, and two additional removable heads for operating in liquid environments and nanoindentation you now have the freedom to work with a variety of samples, measuring modes and conditions.

The SOLVER NEXT™ has an advanced controller with library of scripts and MAC OS compatibility for versatility to meet the many challenges of scientific research.

Ease-of-use meets performance with the SOLVER NEXT™! Finally you don't have to be an expert to get research quality data!

RESULT

just a few mouse clicks

▶▶ **Key features:**

- Automated exchange of AFM and STM heads
- Automated alignment of optical feedback geometry (cantilever–laser–photodiode)
- Motorized software driven sample positioning
- Motorized focus and zoom of the optical view
- Motorized positioning of the optical sample view
- Motorized enclosure door for improved isolation
- Automated software driven control of measurement modes

▶▶ **Performance capabilities:**

- All basic Atomic Force Microscopy techniques — topography, phase imaging, measurement of electric properties, nanolithography and more
- Scanning Tunneling Microscopy
- Wide range of operating conditions for experimentation — in air or liquid
- Low-noise capacitive closed-loop feedback in all three directions (XYZ) provides precision Nanometrology
- Atomic resolution

Measuring modes:

Ambient modes: STM/ AFM (contact + semicontact + non-contact)/ Lateral Force Microscopy/ Phase Imaging/ Force Modulation/Force Spectroscopy/Adhesion Force Imaging, MFM/ EFM/ SCM / Kelvin Probe Microscopy/ Spreading Resistance Imaging/Nanoindentation/Lithography: AFM (Voltage + Force)

Ambient and liquid modes: AFM (contact + semicontact + non-contact) / Lateral Force Microscopy/ Phase Imaging/ Force Modulation/ Adhesion Force Imaging/ Force Spectroscopy Lithography: AFM (Force)

Scanner type	Scan by Sample
Measuring heads	AFM and STM (built-in, automatically interchangeable). Optional liquid AFM and nanoindentation head removable with manual insertion
Sample dimensions	Up to 20 mm in diameter; up to 10 mm in height
Sample weight	Up to 40 g
XY sample positioning	5x5 mm, motorized, video monitored
Minimum XY sample positioner step	0.3 μm
Scanning field	100x100x10 μm with closed-loop sensors; 3x3x2 μm in the low voltage mode
Nonlinearity, XY	⩽0.1 % (with closed-loop sensors)
Noise level Z (RMS in the bandwidth of 10…1000 Hz)	0.03 nm (typically), 0.04 nm (maximum) „ with closed-loop sensors; 0.02 nm in the low voltage mode
Optical system for cantilever deviation registration	Motorized, automated system alignment
Video monitoring system	Motorized continuous zooming, focusing, sample location positioning, resolution 2 μm
Temperature control of the sample	Room temperature up to 150°C
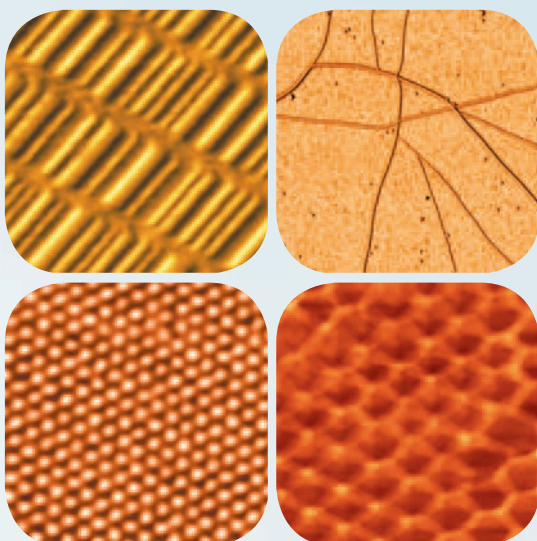
SOLVER NEXT™ is the perfect solution for multi-user laboratories with a diverse range of users and samples.

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Integrated SPM solutions for Nanotechnology