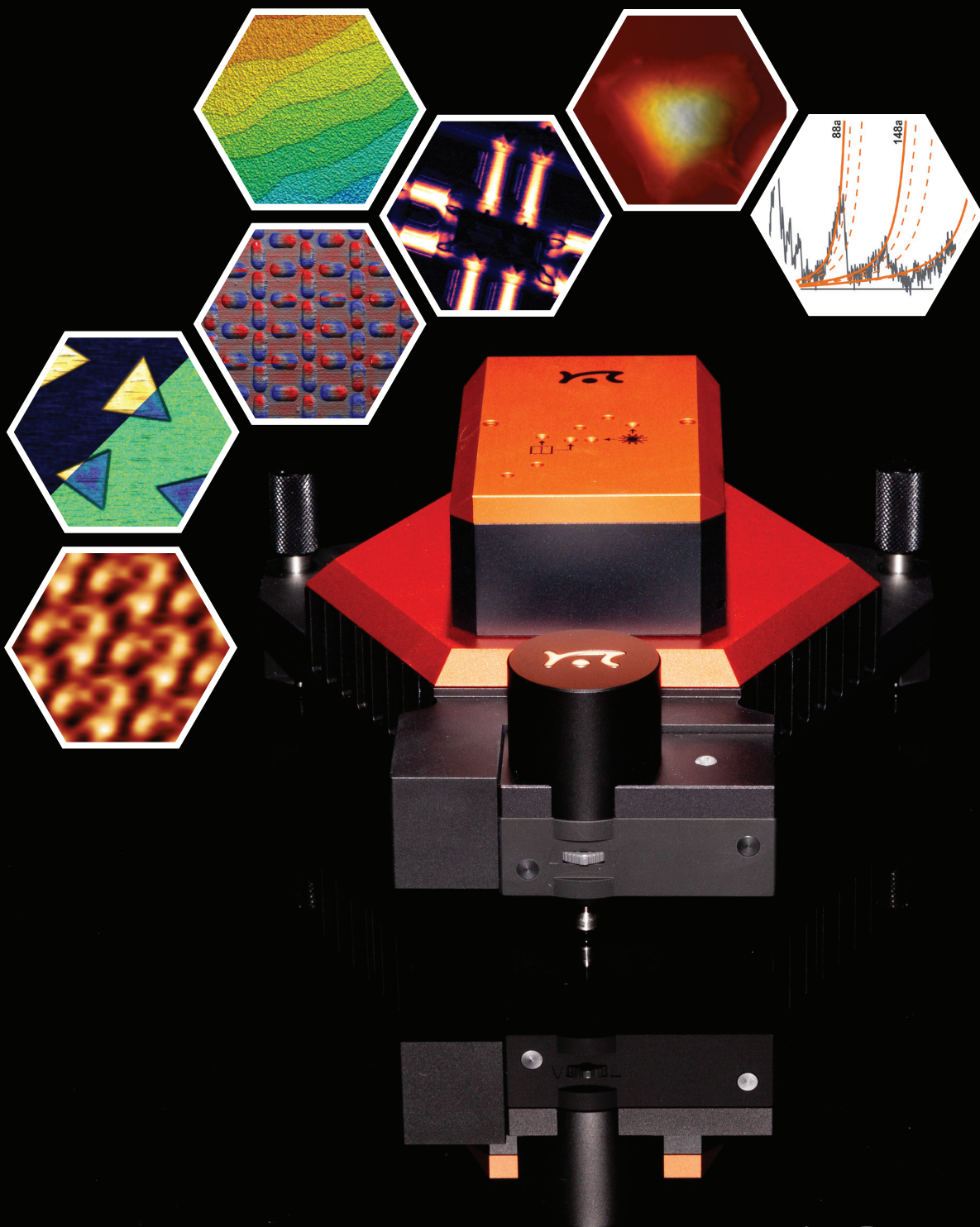


# FlexAFM

The Flexible Research AFM

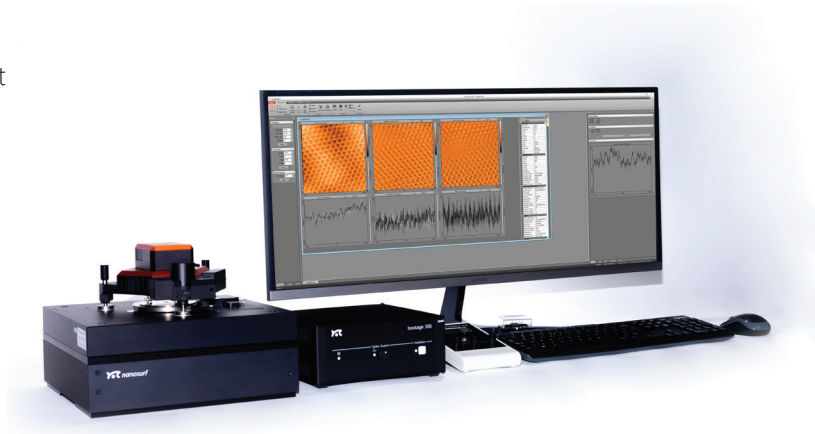


## The Flexible Research AFM

The FlexAFM has been the instrument of choice for hundreds of researchers in need of a reliable and versatile atomic force microscope system. Built with ease of use and configurability in mind, the capabilities of the FlexAFM cover most research needs: Configure your FlexAFM for 2D materials research in a glovebox, or integrate it with your inverted optical microscope for biological applications - no matter what your research goals are, the Nanosurf FlexAFM provides you with an affordable mid-range instrument that you can expand and upgrade as your requirements evolve.

### Why FlexAFM?

- Reliable and robust: flexure-based scanner provides flat and linear scanning
- Versatile: flexible sample size and weight thanks to tip-scanning technology
- Configurable to your needs: from basic research to advanced experiments
  - Electrical modes
  - Spectroscopy
  - Motorization and automation
  - Inverted optical microscope integration for bio-research setup and FluidFM
  - Turnkey Glovebox solution available
- Choice of C3000i or CX Controller for additional user input/output channels
- Future-proof: shared accessories universe with DriveAFM for easy upgrade to high-end AFM
- User-friendly handling, light and robust design



### Individual Configuration

A large selection of accessories and functional add-on options are available to expand your FlexAFM's capabilities. Choose from a variety of sample holders and stages to tailor suit your needs: whether you are performing biological research on an inverted optical microscope setup or engaged in materials science with the need for the stringent environmental control of a glovebox, the FlexAFM covers all bases.

### From Electrical Modes to Live Cell Research

Functional sample holders and add-ons pave the road for experiments using electrical modes, including scanning microwave microscopy, sample heating or cooling, electrochemistry, even a live cell incubator. You have all the application flexibility you need.

### Budget Effectiveness

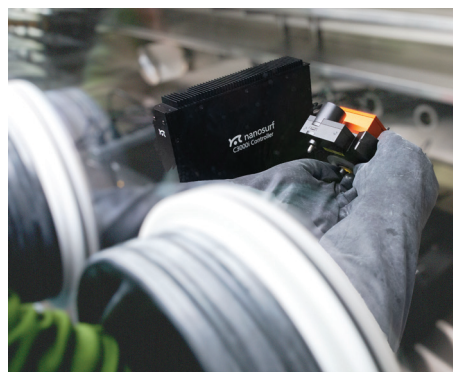
Thanks to the highly flexible design, you will get the most out of your available budget: our technical sales team has helped hundreds of customers configure their FlexAFM to fulfil all their needs despite limited budgets.

### Seamless Upgrade Path

As your research evolves, you have the option for a phased upgrade from FlexAFM to DriveAFM. Both systems share a common footprint, ensuring that your existing accessories, stages, and sample holders remain fully functional. Start by upgrading to the CX controller to give your FlexAFM a performance boost. When you're ready for even more advanced capabilities, proceed to upgrade the scan head to DriveAFM. This modular approach not only enhances performance but also offers significant cost savings.



Stand-alone Setup



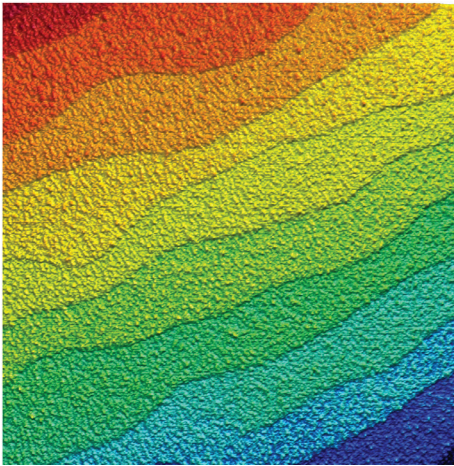
Glovebox-ready



Optical Microscope Setup

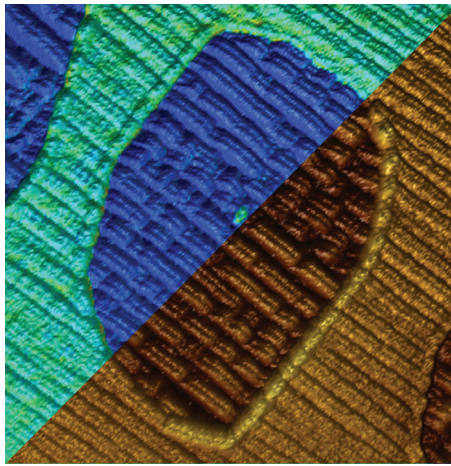


## Topography in Air



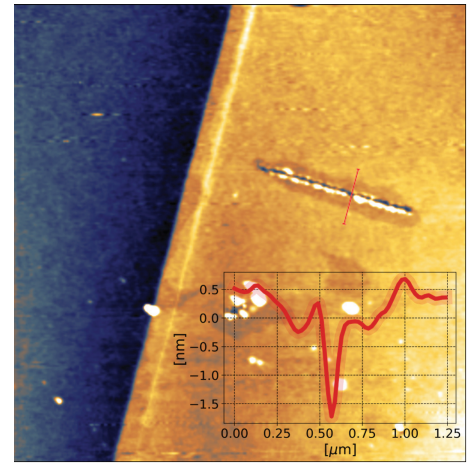
Topography of SrTiO<sub>3</sub> in dynamic mode. Scan size: 1 x 1 μm<sup>2</sup>.

## Graphene



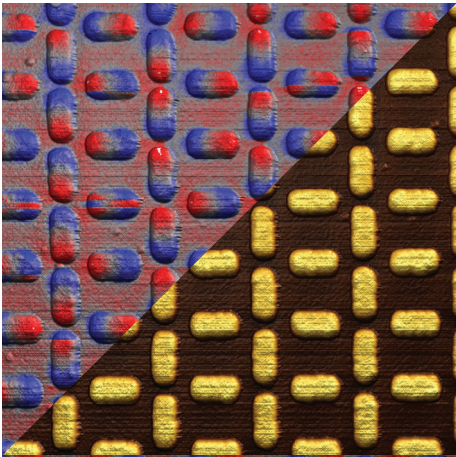
Quality control of CVD-grown graphene flakes on post-oxidized copper measured by friction (data courtesy: Newtec engineering A/S). Scan size: 10 x 10 μm<sup>2</sup>

## Graphene Cutting



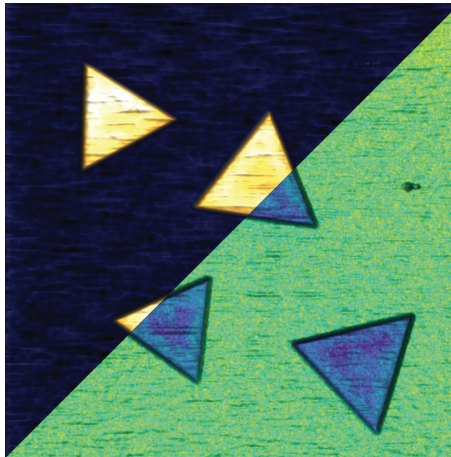
Cutting graphene by AFM lithography. Sample courtesy: Kim group, Harvard University, USA.

## MFM



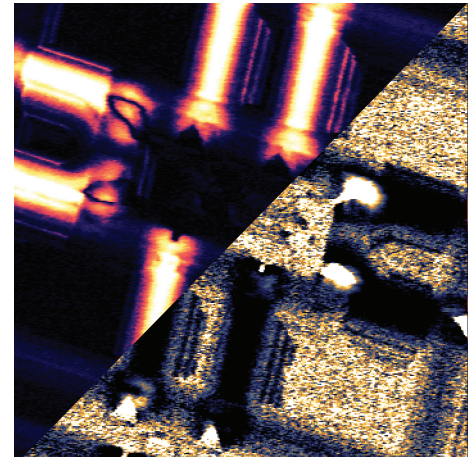
MFM and topography on artificial spin ice (data courtesy: Prof. S. Ferreira). Scan size: 4 x 4 μm<sup>2</sup>.

## KPFM



Topography (left) and KPFM signal (right) of CVD grown MoS<sub>2</sub> crystals. Scan size: 42 x 42 μm<sup>2</sup>; Z-range: 9 nm; KPFM range: 1.45 V.

## SMM



Amplitude (left) and phase (right) of dS/dV (dC/dV) measurement on SRAM sample. Scan size: 11 x 11 μm<sup>2</sup>.

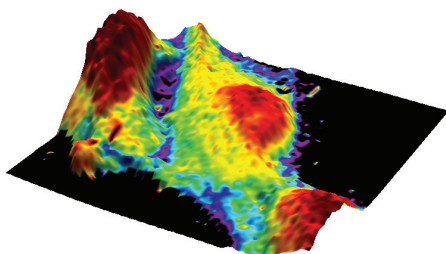
## Spectroscopy and Force Mapping

Designed to meet the demanding requirements of scientific research, the FlexAFM excels in force spectroscopy applications.

It is a powerful tool to record force curves, either with the internal z-piezo or with an external piezo that increases the z-range up to 150 μm.

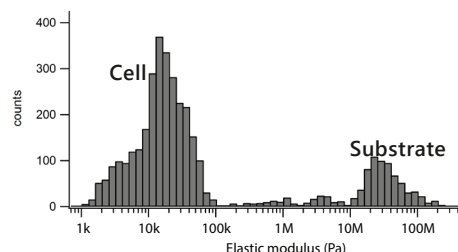
The FlexAFM also includes voltage spectroscopy functionality, adding another layer of analytical power to its feature set.

To facilitate comprehensive force curve analysis, we offer the ANA offline software, complete with histogram creation capabilities, at no additional cost.



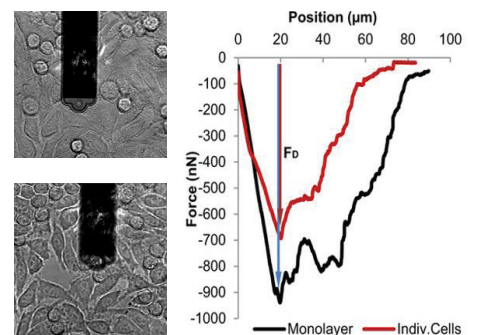
**Left:** Elastic modulus mapped onto 3D topography recorded on living breast epithelial cells immersed in cell culture medium.

**Right:** Elastic modulus distribution.



## FluidFM

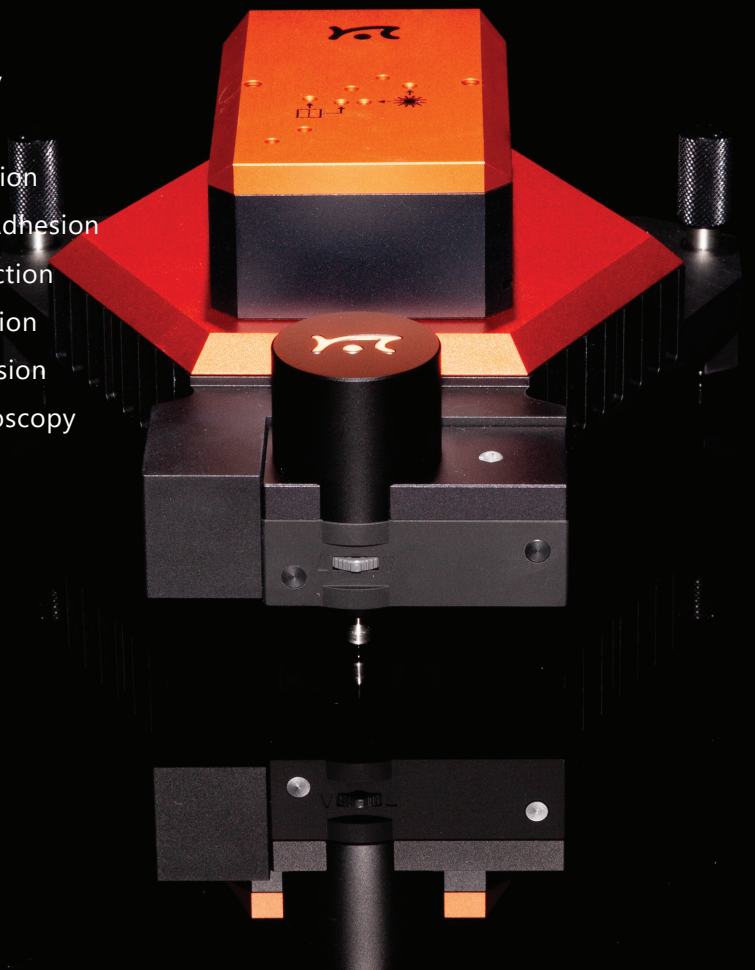
FluidFM brings microfluidics to the tip of an AFM cantilever. It combines microfluidics with the force sensitivity and positional accuracy of an AFM, paving the path for a range of exciting applications in single-cell biology and nanoscience.



**Left:** Optical guidance helps to select single cells that are isolated (top) or in a confluent layer (bottom).

**Right:** Single cell force curves depicting the increase in adhesion force by cell-cell interactions [Scientific Reports 7, 46152].

Sample Heating  
 Electrochemistry  
 Signal I/O  
 Scanning Thermal Microscopy  
 Environmental Control  
 Top & Side-View Camera  
 Relative Humidity  
 Inverted Microscope Stage  
 Motorized Inverted Microscope Stage  
 Petri Dish  
 Petri Dish Heating  
 100 µm Z-Stage  
 Digital Inverted Microscope  
 Coverslip Holder  
 Advanced Optics  
 FluidFM®  
     Spotting  
     Nanolithography  
     SICM  
     Single Cell Injection  
     Single Bacteria Adhesion  
     Single Cell Extraction  
     Single Cell Isolation  
     Single Cell Adhesion  
     Colloidal Spectroscopy  
 Advanced Spectroscopy  
 ANA Add-On  
 Automation  
 Motorized Translation Stage  
 Scripting Interface  
 Acoustic Enclosure  
 Variable Magnetic Field  
 Advanced Lithography  
 Contour Following Mode  
 Heater/Cooler  
 Conductive AFM  
 Advanced Conductive AFM  
 PFM Mode  
 EFM Mode  
 KPFM Mode



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