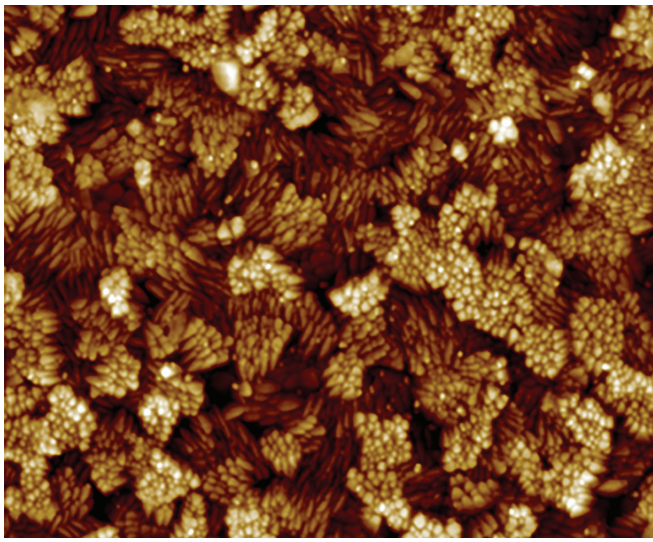
ATOMIC FORCE MICROSCOPY

ScanAsyst Plus

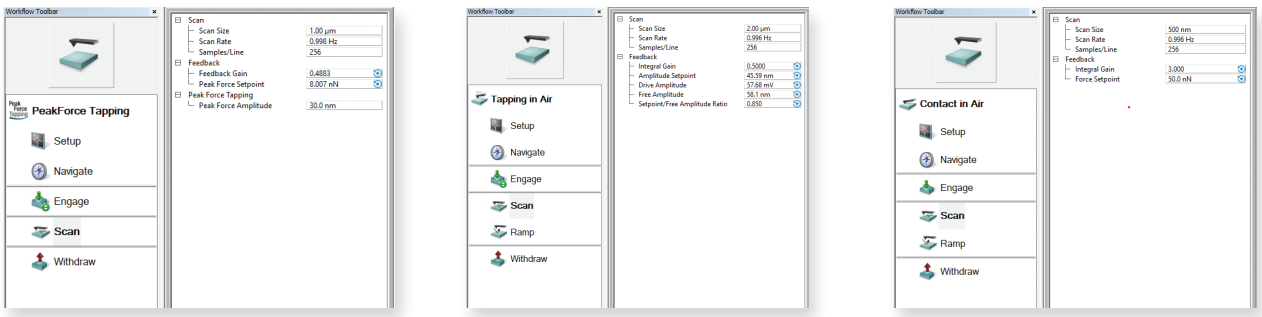
Enhanced Adaptive Imaging

ScanAsyst Plus is a self-optimizing imaging software for atomic force microscopy (AFM). It continually monitors image quality, enabling automatic optimization of designated imaging parameters throughout scanning—a capability that is unique within the industry. ScanAsyst Plus comes standard with select NanoScope® 6 systems and, when using compatible probes, extends Bruker's original ScanAsyst® technology to all topography modes, including PeakForce Tapping®, TappingMode, and contact mode.

ScanAsyst Plus is simple to use and easy to customize. Users can choose to allow the software to fully self-optimize or retain manual control over specific parameters. The streamlined user interface features a simplified parameter list, individual parameter on/off buttons, and an image tracking score (T-R correlation score).



Nanoscale grain structure of indium tin oxide (ITO) film imaged with ScanAsyst Plus in PeakForce Tapping Mode, using a ScanAsyst-Air-HPI probe. Image size 2 µm.



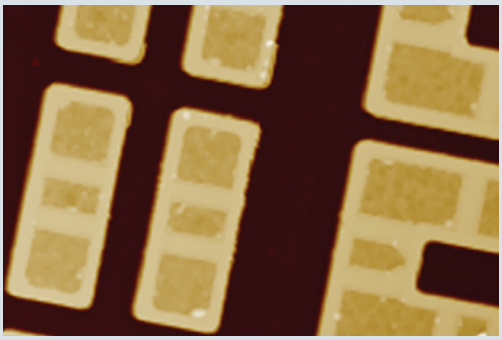
ScanAsyst Plus is available in all topography mode workspaces, including PeakForce Tapping, TappingMode, and contact mode. Parameter list UI in each workspace shows optimization indicator/toggle icons and parameter categorization.

Benefits for All Users

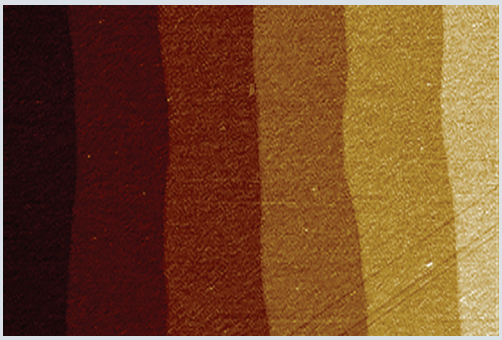
ScanAsyst Plus offers immense value for a diverse range of AFM users, from beginners to experts and multi-user laboratories to high-throughput semiconductor R&D facilities:

- **Novice users**— Novice users will greatly benefit from fully automatic parameter optimization. Not only can high-quality, consistent results be guaranteed, these users can gain a more intuitive sense for parameter optimization, since the software displays its chosen parameter values.
- **Experienced users**— For experienced users who already have an intuitive knowledge of parameter optimization, the value of the software is in its adaptability. It offers any level of control needed, so that the expert user can choose to only tune parameters of interest while letting the system automatically determine any others.
- **Big-data researchers**— Researchers conducting machine learning and combinatorial studies require large, robust datasets. They can use ScanAsyst Plus functionality to rapidly perform automated acquisition of complete image datasets.
- **Multi-user laboratories**— In multi-user laboratories, the software can both accelerate training times and minimize the probability of user error during imaging parameter selection. Now that the software is compatible with all topography modes, all of the most common modes needed by users are supported.
- **Semiconductor R&D facilities**— In semiconductor R&D, high throughput, accuracy, and precision are essential. With minimal operator intervention, ScanAsyst Plus enables fast setup and repeatable measurements for wafer applications, such as surface roughness and defect characterization.

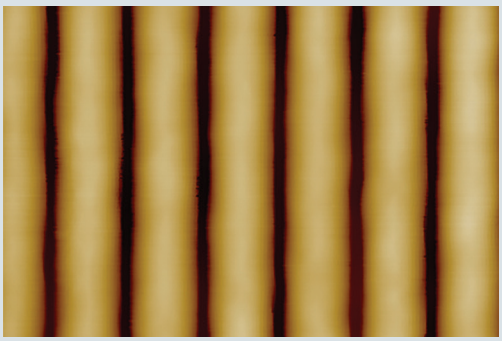
Through its innovative approach to automated parameter optimization, ScanAsyst Plus enhances the precision and efficiency of both high-resolution and large-area AFM imaging for all samples, whether they are extremely flat or have significant height variation. The integration of this technology into various research applications can facilitate more accurate and reproducible measurements, as well as more confident and efficient users.



Surface structure of an SRAM sample imaged with ScanAsyst Plus in TappingMode. TESPA-V2 probe (RTESPA-300 analog), image width 20 µm.



Terraced nanostructure of sapphire showing atomic steps imaged with ScanAsyst Plus in contact mode. ScanAsyst-Air-HPI probe, image width 5 µm.



Grating imaged in ScanAsyst Plus TappingMode. OTESPA-R4 probe, image width 1 µm.

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