OXFORD INSTRUMENTS

ASYLUM RESEARCH

ERGO

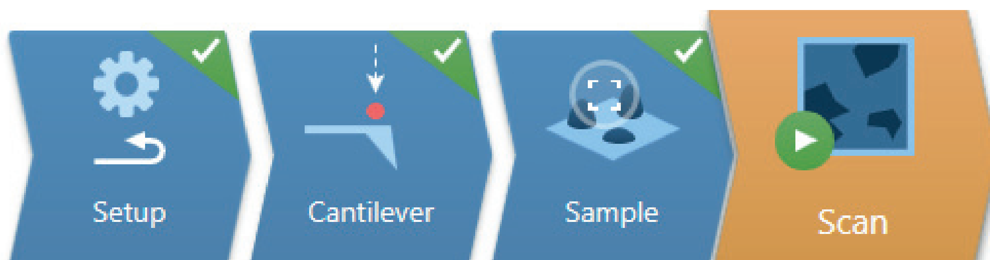
All-New AFM User Interface

Ergo: Repeatable Results in Minutes

Ergo is the all-new software interface for Asylum Research Cypher and Jupiter atomic force microscopes. Based on the powerful Oxford Instruments AZtec® software platform, it improves productivity for both infrequent users and experts. Ergo's streamlined workflow simplifies both AFM setup and acquisition of high-quality images. Ergo enables users to complete measurements and confidently draw meaningful conclusions, quickly and efficiently.

Auto AFM Calibration in Seconds

Ergo's workflow makes setting up the AFM quick and simple for anyone. Go from loading a new probe to aligning the laser with only a few clicks. In the background, Asylum's proprietary GetReal™ technology automatically calibrates the cantilever each time to help ensure the most consistent results from day-to-day. This makes it easy to quickly image multiple samples.

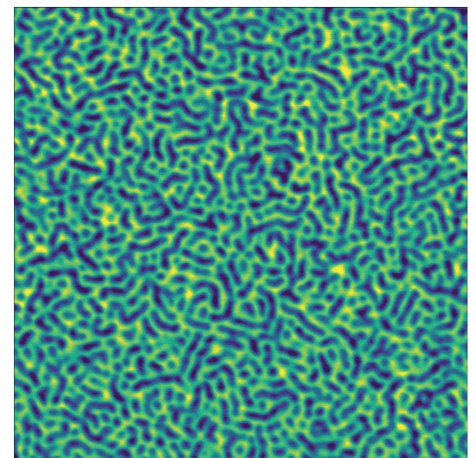


Rapid Generation of High-Quality Images

Ergo has embedded Asylum's proprietary AutoPilot™ algorithm, which automatically calculates the optimal imaging settings. AutoPilot™ works with all modes in Ergo and produces high-quality data from the first scan line.

Minimal Training Required

Ergo shares a common core and workflow concept with the Oxford Instruments AZtec software for SEM and TEM analyzers. This tried and tested platform allows users to focus on results and not on instrument set-up.



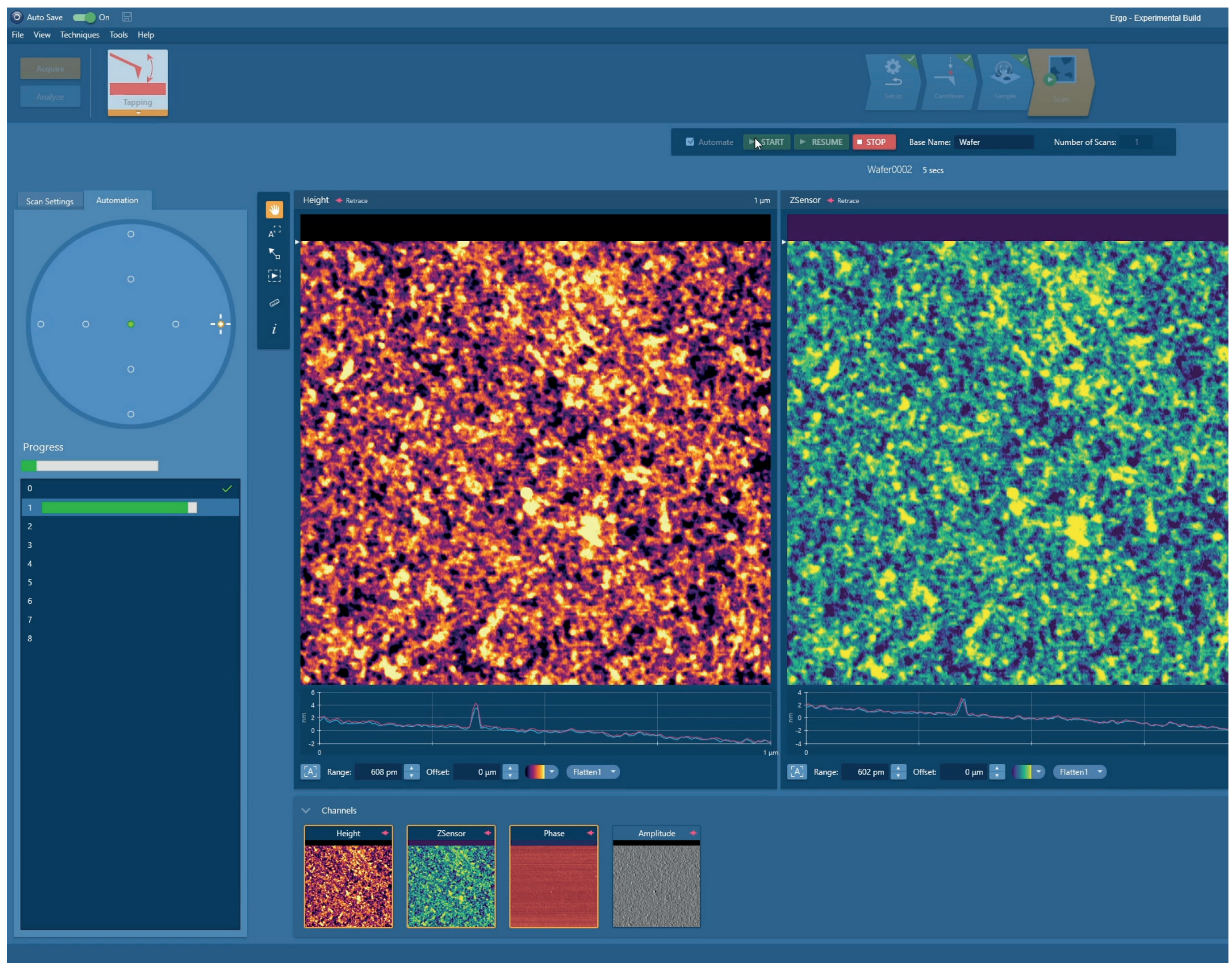
SEBS triblock copolymer
Tapping mode phase image of a triblock copolymer (SEBS) spuncoat onto a silicon wafer, 1 µm scan. The cover image shows the same sample but a 7 µm scan.

“Ergo has made the high performance of our Cypher AFM accessible to more users at our facility, including those who are newer and less experienced with AFM.”

Justin Jureller, PhD, MRSEC MPML Manager, University of Chicago

Multi-site Wafer Imaging

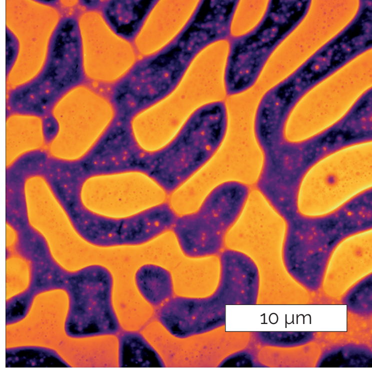
Ergo on the Jupiter XR AFM can automate imaging multiple sites on a wafer. Load a coordinate file, select “Start” and Ergo will automatically scan each site. Combined with Autopilot™, Ergo can take hundreds of images in a single automated run while preserving both sample and tip. Since Autopilot™ optimizes the scan settings for you, you are free to focus on other tasks while the automation run is in progress. Images from an automated run can then be batch processed to provide analyzed data quickly.



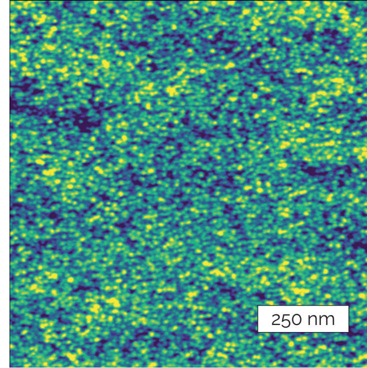
Automated run imaging a wafer along a cross pattern.

Automated Image Optimization Works on a Wide Variety of Sample Types

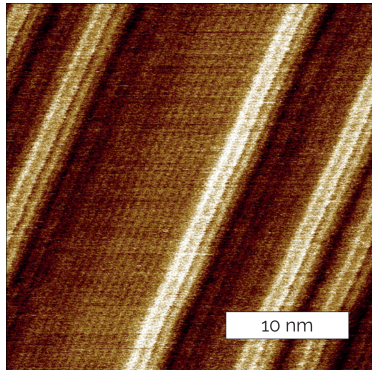
Asylum's AUTOPILOT™ algorithm has been developed to work on all sample types commonly found in academic and industrial research, even very challenging samples like those that are very rough or exhibit high tip-sample adhesion. Here are just a few examples:



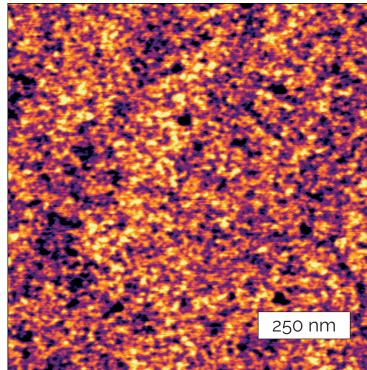
Polymer blend
AFM is a powerful tool for visualizing the microstructure of polymers, here a polystyrene polycaprolactone blend.



PMR disk drive media
Roughness and defects are key quality control metrics on disk drive media that affect data storage density.

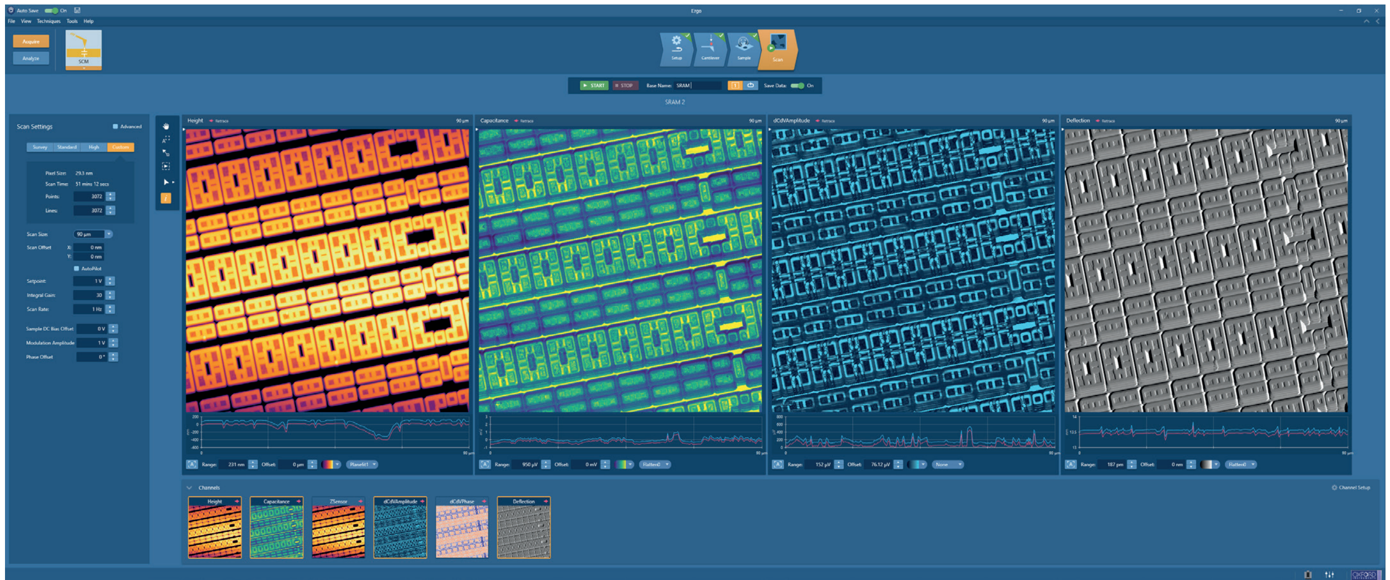


PTFE membrane
Ergo easily achieves high resolution using AUTOPILOT, here resolving the individual PTFE molecule chains.



Silicon wafer
Substrate roughness is one of the most common AFM measurements. Ergo makes it simple and repeatable.

The Future of AFM Control

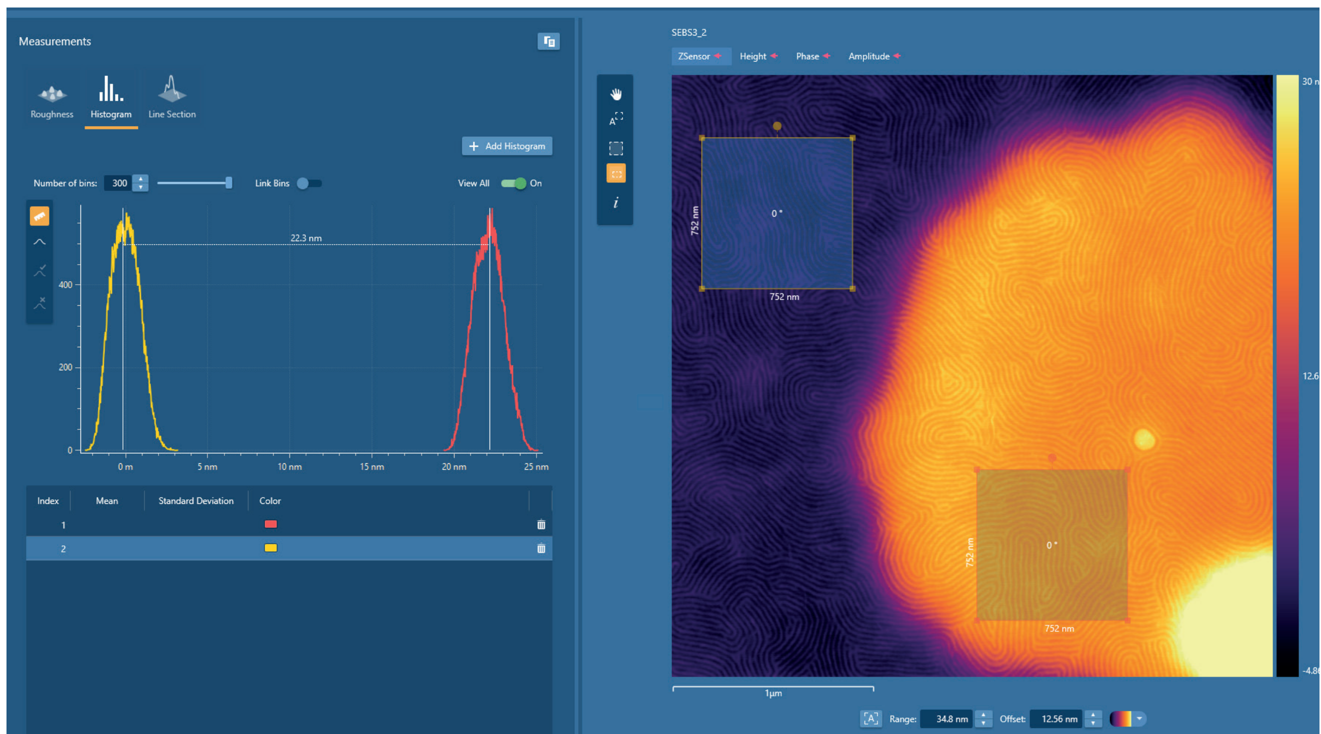


Ergo user interface is simple and uncluttered
A clear workflow guides users through setup and allows them to start imaging quickly. Only a few key parameters are shown by default.

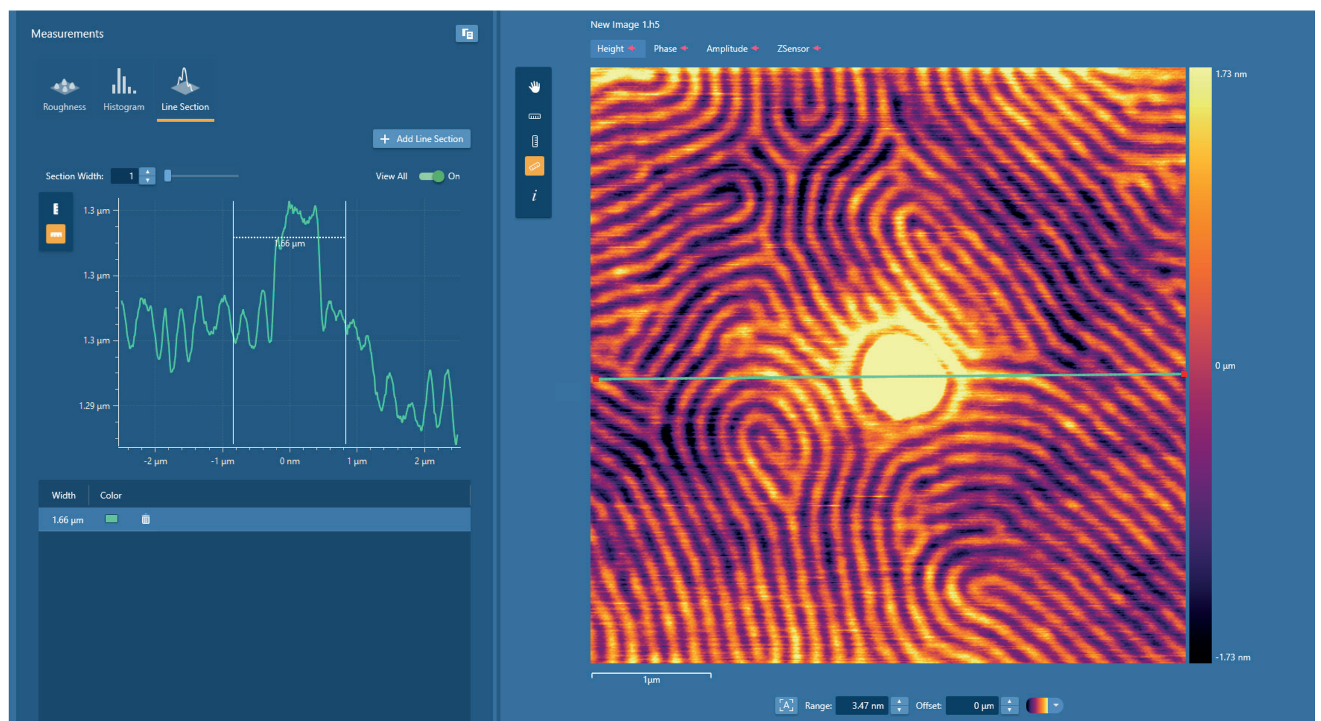
Watch a video introduction at:
AFM.oxinst.com/Ergo

Easily Analyze and Present AFM Images

AFM images can be analyzed directly in Ergo without the need for other software. A workflow guides the user to sort, process, and analyze AFM data. Results are stored directly with the images so they cannot be lost, and the raw data is never altered.



Measuring the height differences between two regions on a polymer sample.



Measuring the height of a feature on a line section.

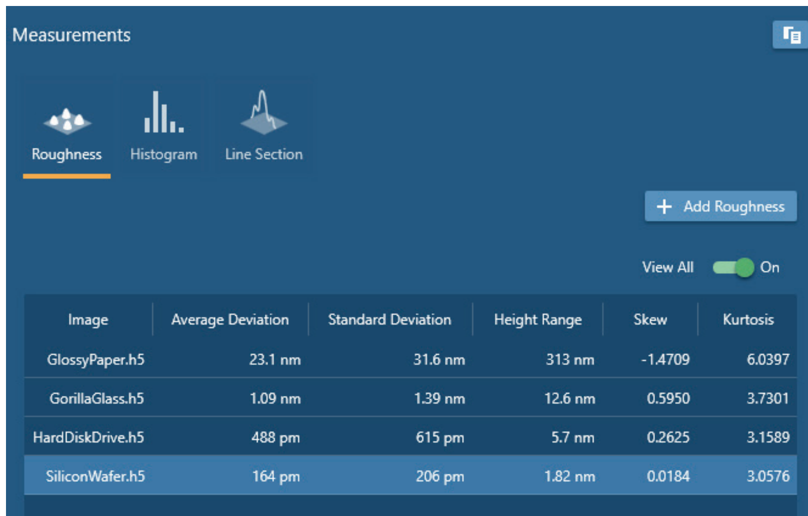
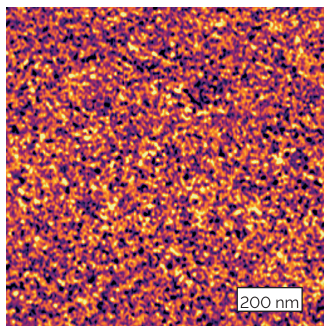
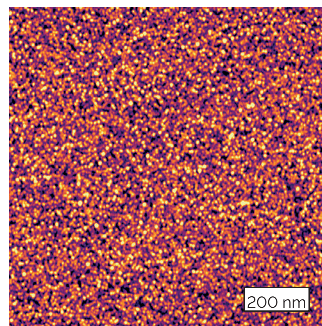


Image	Average Deviation	Standard Deviation	Height Range	Skew	Kurtosis
GlossyPaper.h5	23.1 nm	31.6 nm	313 nm	-1.4709	6.0397
GorillaGlass.h5	1.09 nm	1.39 nm	12.6 nm	0.5950	3.7301
HardDiskDrive.h5	488 pm	615 pm	5.7 nm	0.2625	3.1589
SiliconWafer.h5	164 pm	206 pm	1.82 nm	0.0184	3.0576

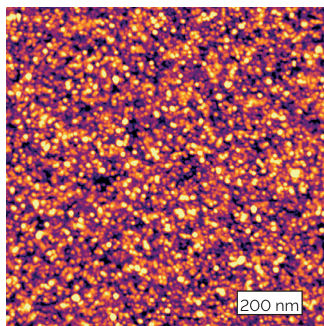
Measuring roughness parameters on several material types.



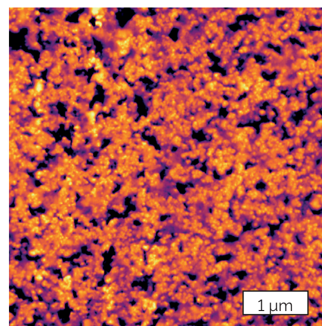
Polished silicon wafer



Glass disk drive media substrate



Chemically strengthened display glass



Coated photo paper

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Learn more about Ergo: **https://AFM.oxinst.com/Ergo**

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