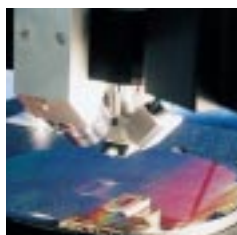


*MOVING SCANNING PROBE MICROSCOPY INTO THE
NEW MILLENNIUM*



Triple-0
Microscopy

NanoLyser 300 AFM

EASY-TO-USE. STATE-OF-THE-ART. THE AFM TECHNOLOGY BREAKTHROUGH FOR 300 MM WAFER INSPECTION

NanoLyser Reaches All Required Goals

To achieve the unprecedented levels of investigation demanded in the development of 300 mm (12 inch) wafers, the semiconductor and data storage industries today require AFM, Atomic Force Microscopy, technology that's truly cutting-edge. However, this extraordinary inspection capability must be balanced with total automation and basic ease-of-use. The one system to provide all this, and more, including comprehensive robotics, is the unique NanoLyser 300 AFM from Triple-O Microscopy.

Nanolyser Bridges The Technical Gap

The NanoLyser 300 is the first microscope to successfully transition traditional AFM technology out of the exclusive and often difficult domain of scientific research, and into dynamic, realistic industrial environments. Now powerful 3D imaging and sophisticated measurement tools with nanometer resolving power can serve a broad array of developmental applications. This unique technical bridge is the result of Triple-O's ongoing collaboration with Europe's leading scientists in Scanning Probe Microscopy.

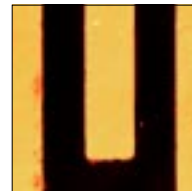
Everyone Gets Results With NanoLyser

Seasoned laboratory experts can use the NanoLyser 300 to make all critical adjustments and take all key

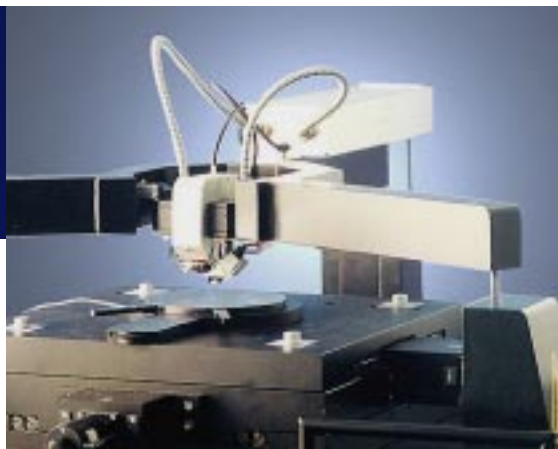
measurements. Equally important to the development process, technicians can routinely use this advanced instrument to get the highly precise dimensions they require. With NanoLyser, Triple-O creates a win/win situation throughout the entire 300 mm wafer manufacturing spectrum.

The Array Of Features Is Impressive

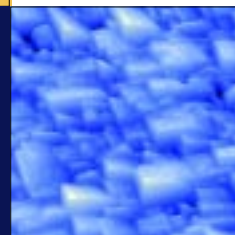
Standard in the NanoLyser 300 are cantilevers prealigned to the detector, so probe replacement is simply fit-and-forget. The stage system permits investigation of a complete 300 mm wafer, including coarse positioning with high precision. There's CCD color optical viewing at 90° and 45°. And the scan range is 100 μm in XY with linearization, enabling images to yield metrological measurements. NanoLyser also incorporates a large 15 μm Z range, so large steps, tilt and rough surfaces can be accommodated with ease.



Part of electronic filter, super-conductor for Yttrium-Barium-Copper Oxide



Nanolyser 300 AFM for wafer-inspection



Diamond sample (sample courtesy Dr. Mathias Schreck, University of Augsburg)

NanoLyser Configures To Your Needs

Triple-O designed the NanoLyser with an open modular architecture, making this remarkable instrument easy to expand or modify as your needs evolve. Full robotics and tip exchange can be added. NanoLyser can be combined with other SPM heads, such as STM or electrostatic imaging. And finally, the software is based on Windows NT, so microscope control and image processing can be customized easily for special tasks. The NanoLyser 300: Powerful enough for the most demanding industrial applications, yet simple enough for routine measurements. There's no other AFM like it in the world today.

TRIPLE-O

IS POSITIONING SCANNING PROBE MICROSCOPY ON THE CUTTING-EDGE

No One Is Meeting Your Needs As Well As We Are
With the use of Scanning Probe Microscopy spreading faster than ever throughout research labs in academia and industry, Triple-O Microscopy is ideally positioned now to bring a unique roster of user benefits to this exciting technology. Our approach is cutting-edge, flexible, multi-faceted, and easy to implement – helping you not only in your initial choices of tools and features, but in your overall performance, as well.

All of our precision instruments have been designed by leading scientists to be the highly flexible and extraordinarily dependable. Whether you are a published expert or relatively new to this field of research, Triple-O can help you with in-depth selection, acquisition, application, and technical support.

Triple-O has been built on a broad base of proven experience, infused with refreshing new ideas for the market place of the millennium. Today, we can offer you two totally new Atomic Force Microscopes (AFM) with powerful, new capabilities. In addition to these, we are introducing our revolutionary BioLyser system, a unique combination of SNOM (Scanning Near-field Optical Microscope), AFM, and a conventional inverted microscope.

Depend On Triple-O For Fast, Accurate Results

When you depend on Triple-O as your personal, technical resource, using your SPM to probe surfaces in three dimensions with nanometer precision is far from daunting. Highly accurate scans reveal critical details of surface morphology, as well as electronic, chemical, physical, and material characteristics – all readily achieved with unexpected ease.

We Have Our Sights Set On Your Success

No matter what your specific area of focus, Triple-O can be a positive partner in helping you reach your goals. Our SPMs are complementary to existing microscopy techniques, in addition to offering truly unique capabilities. In the natural sciences and engineering disciplines, the growing list of diverse areas in which SPM technology can be applied for measuring and imaging, includes:



*Detail of
BioLyser*

Semiconductors

Thin Films

Polymers

Coatings

Paper

Metals

Ceramics

Magnetic and Recording Materials

Exotic Materials

Ordered Molecules

Biological and Biomaterials

BerMad 2000 Scanning Probe Microscope

DESIGNED TO DELIVER GREATER VERSATILITY, HIGHER PERFORMANCE, AND MORE AFFORDABILITY

Your Laboratory Deserves This Superiority

Universities and research organizations the world over receive Triple-O Microscopy's greatest respect and closest attention. As a result, we are committed to producing innovative SPM products that meet your highest standards and strictest day-to-day requirements. Now, Triple-O is especially proud to introduce our new BerMad 2000 Scanning Probe Microscope, an easy-to-use stable package with a powerful DSP control system, open modular architecture, and economics that really make sense. For your special scientific world, the BerMad 2000 SPM represents the ideal combination of modest price and exceptional performance.

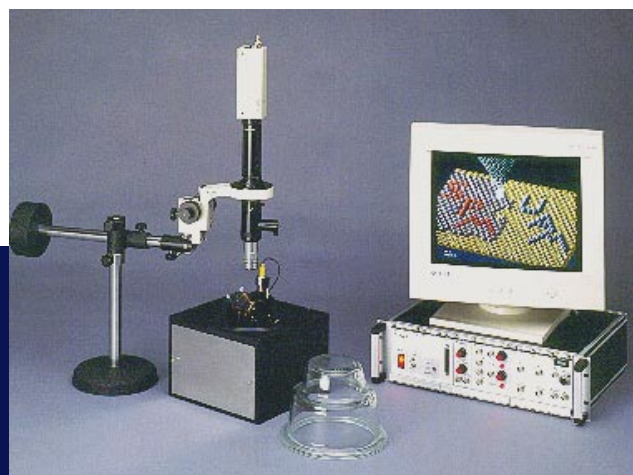
We've Bent Over Backwards To Achieve Flexibility

The BerMad 2000 has been precision engineered, by a team of Europe's most distinguished scientists, to offer you a variety of operating options. These include Contact and Non-Contact Mode AFM, as well as STM. As you are aware, Contact Mode will always yield the highest image resolution for normal samples. Whereas, Non-Contact and Intermittent Contact Modes are essential when softer surfaces and biological materials need to be imaged. There's more. With Triple-O's unique „Jump“ Intermittent Contact Mode, you can measure both the topography and physical properties of the surface at the same time. In addition to all these choices, Triple-O has implemented a unique Movie Mode that enables dynamic processes to be studied, with the drift compensation and correction safeguards triggered automatically.

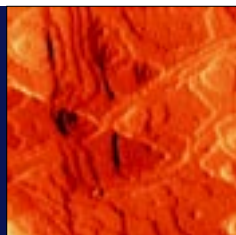
users to take simultaneous images of normal topography and lateral forces; force distance curves; tunneling spectroscopy (CITS); and Intermittent Contact Mode with adhesion mapping.

The BerMad Optical System Is Worth A Closer Look

The ever-expanding array of AFM cantilever geometries on the market today is easily accommodated by the BerMad optical system. Viewing of the scan region is accomplished through a cube beamsplitter, allowing for clear optical viewing of the sample, in addition to correlation studies. With a compact set of high precision microadjusters, fine-tuning the probe and detectors is fast and flexible. To permit both large scans as well as high-resolution imaging, the scanning mechanism incorporates two concentric piezo tubes. A scan size of 75 μm (XY) is standard with a Z vertical range of 15 μm . This is particularly important when imaging rougher surfaces and large steps. The high resolution scan tube facilitates an XY range of 5 μm with a Z range of 2 μm . Furthermore, the use of the two concentric PZTs minimizes thermal drift, so the BerMad's unique Movie Mode imaging can be utilized.



*SFM Image
of (111) Gold
Terraces*



*BerMad 2000
Research SPM*

Open Modular Architecture Provides Room For Expansion

BerMad 2000 has been designed not to restrict your capabilities or creativity. This is readily seen in BerMad's open modular architecture. The BerMad 2000 control system accommodates a variety of commercial and custom-made heads, operating stepper motors, inertial motors, and piezomotors. Also, it is compatible with other commercial SPM systems for both ambient and UHV operation. A fast DSP control unit handles four input and four output channels. This enables BerMad

In No Time You Master Real-Time Control

Software in the BerMad 2000 is complete and powerful. And yet it is almost effortless to operate. BerMad runs on Windows NT and, this combined with the DSP control system, gives you easy, real-time control of each of BerMad 2000's many functions. BerMad 2000 is the epitome of high performance and flexibility made eminently functional.

BioLyser SNOM

A UNIQUE MODULAR SYSTEM FOR FAST, FLEXIBLE RESEARCH

World's Only Triple Function Microscope

Triple-O Microscopy is proud to introduce our revolutionary new BioLyser SNOM. This innovative three-in-one modular microscope combines all the features of a Scanning Near-Field Optical Microscope (SNOM), with an Atomic Force Microscope (AFM), and a conventional inverted optical microscope.

Clearly, You Get The Results You Seek

BioLyser represents Triple-O's unique cutting-edge technology skillfully aligned with unprecedented ease-of-use, to give you the fastest, most readily obtained, highest quality images you have ever experienced. Since BioLyser combines traditional far-field techniques with the near-field, the resulting images are eminently clear and clearly recognizable.

Samples Viewed in a Different Light

Triple-O designed the BioLyser SNOM to overcome the diffraction limit of conventional optical microscopes. As a result, images can be obtained from the light transmitted

Modularity Means Versatility And More

The large Z range of the scanner built into the BioLyser by Triple-O allows rough samples or large vertical scales to be easily measured. A liquid cell is also available. To obtain high resolution topographic images of the same area, the AFM head can be quickly switched into place. BioLyser's complete modular design offers a variety of options. This allows laser wavelengths, filters, and detector systems to be rapidly replaced, expanding the system to give you the fullest flexibility.

Nothing Hard About The Software

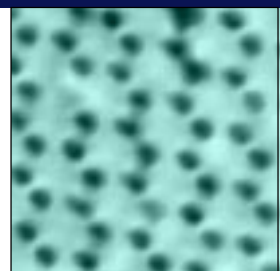
To get you up and running quickly, and to keep you moving along without unexpected operating delays or software problems, Triple-O's developers have based BioLyser on the best. The software runs on highly dependable and familiar Windows NT. What's more, no special environmental set-up or vibration isolation is required in normal operation. The BioLyser from Triple-O. No other microscope system can beat its versatile, precision performance.



*BioLyser for AFM
and SNOM in
biological research*

from the samples with <100 nm resolution. Furthermore, it is even possible to carry out fluorescence, polarization, and spectroscopic studies at this scale! When the tiny fiber probe is brought close to the sample, the transmitted light is detected, producing a high resolution optical image. The sample may be scanned orthogonally to the probe or at a shallow angle, yielding results similar to the intermittent contact mode in an AFM.

*AI projection pattern
on glass*



MOVING SCANNING PROBE MICROSCOPY INTO THE NEW MILLENNIUM

The founding of Triple-O Microscopy GmbH by Dr. Frank J. Reineke is yet another significant milestone in his long and distinguished career as one of Europe's leading technical marketing and management experts in the field of advanced scientific instruments.

Born in Berlin, Dr. Reineke carried out his undergraduate and PhD studies in analytical chemistry at the Technical University of Darmstadt. Rising to the post of worldwide sales manager and VP of European operations for TopoMetrix Corporation, he saw the growing need for one critically focused company to offer a full range of instruments to Scanning Probe Microscope users of all disciplines. Building upon this unique vision, Dr. Reineke established Triple-O's headquarters in 1998 at Neu Fahrland, Brandenburg, in Germany's booming Berlin/Potsdam economic region.

Today, Dr. Reineke and his staff of experienced engineers and marketing specialists, work in close collaboration with highly respected scientists in the European academic community. Together, they are developing the cutting edge technology and innovative products needed to support Triple-O's growing roster of SPM customers.

As Dr. Reineke sees it: "No one is probing the versatility, possibilities, and ease-of-use of SPMs the way Triple-O is. We are moving into very new territory."



„No one is probing the versatility, possibilities, and ease-of-use of SPMs the way Triple-O is. We are moving into very new territory.“

Triple-o

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