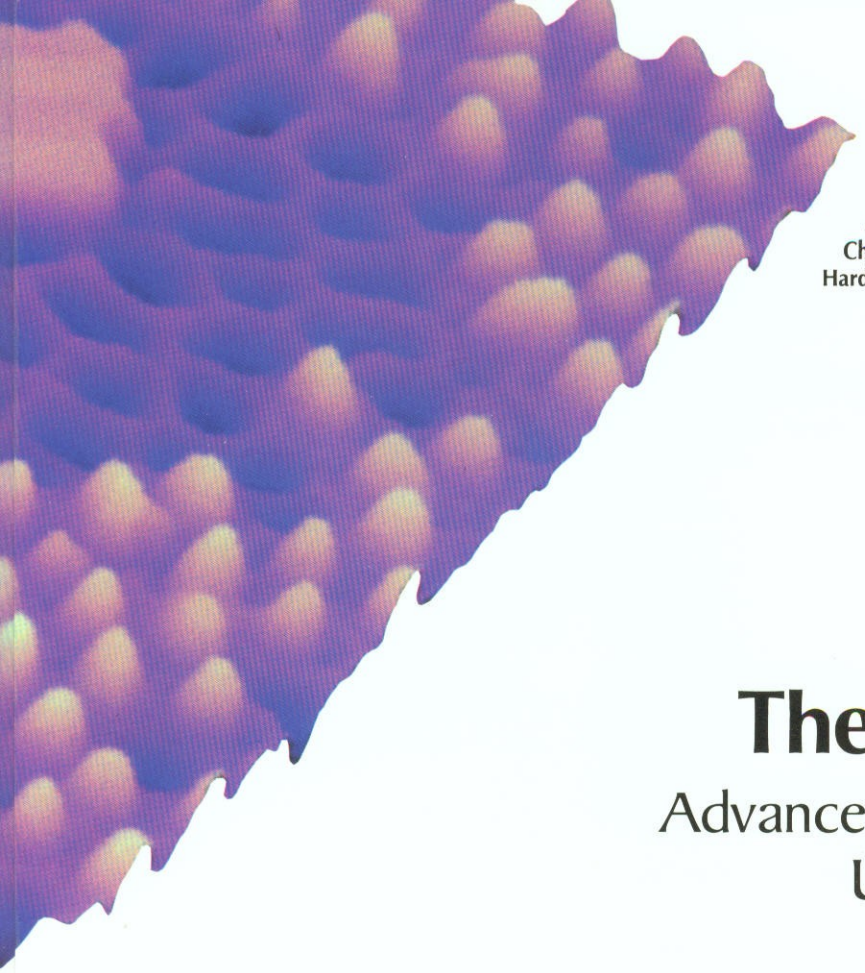

◀ AFM Scan of a Chemically-Textured Hard Disk

The NanoScope® III

Advanced Technology backed by Unparalleled Experience

▲ **The NanoScope III SPM System**: Designed using the experience gained by building hundreds of SPMs

NanoScope III Specifications

Computer:

- 33MHz '486 computer with 8 megabytes RAM, 140 megabyte hard disk, 5.25in and 3.5in floppy drives.
- Digital Signal Processor with 20MHz peak rate for arithmetic operations and 3 megabytes of RAM.
- 1024 x 768-pixel graphics display with 256 colors from a palette of 16 million on a 16in monitor (larger monitors are available as options). VGA text display is on a 14in color monitor.
- Several color and black & white printers are available.

Controller Electronics:

- X and Y scanner drives with both positive and inverted output, each output with a ±220V range, three independent 16-bit digital-to-analog converters for scan pattern, scan scaling, and scan offset. Z scanner drives are identical to X and Y except the digital-to-analog converter for scaling the Z scan has 12 bits.
- Three ±10 volt analog outputs, one ±220V output, all with 16-bit resolution. Six outputs for digital and motor-control signals.
- Two ±10 volt analog inputs with 14-bit resolution and selectable antialiasing filters. One input has four-way input multiplexing. Multiple inputs are useful for such applications as quadrature detectors for AFMs, and independent inputs for electrochemistry.

Software:

- Control software for STM and AFM including imaging, I/V and I/Z spectroscopy, electrochemical SPMs, AFM force calibration, automatic sample approach, large sample stages, stand-alone SPMs*, automatic multi-image capture with translation between image sites, dual-trace digital oscilloscope, and scanner calibration.
- SPM imaging controls include: integral, proportional and two-dimensional* feedback gains, log, linear, and boost-mode* feedback input processing, scan rotation and translation, scan rate, number of pixels per line, vertical scale magnification, planefit disable, Y-axis scan disable, selection of either height data, feedback input, or auxiliary input channels, selection of right-to-left or left-to-right scan display and scan rounding.
- Image presentation software includes: surface, line-plot, and topview presentations, data and illumination source rotation, color table generation, selection of height, illumination, or equal-area shading, contour plots, simultaneous display of up to 24 data files for quick image review, and various printer output formats.
- Image analysis and processing software includes: image cross-sections, ASME-compatible surface roughness calculations, bearing ratio and autocorrelation image cross-sections, low-pass, highpass, and median filters, line-deletion, flatten filter, plane and polynomial fits, two-dimensional fourier transform with spectrum editor, zoom, and various image feature measurement tools.
- NanoScope II images are compatible with the NanoScope III. The image of spiral grains in a superconductor was acquired on the NanoScope II.

Facilities Requirements:

- Space: 30in x 60in (75cm by 150cm) table
- Power: 1500W
- Weight: 180lb (36Kg)

All specifications are subject to change without notice.

*Patented

▲

The Most Extensive Family of SPM Accessories Available:

NanoScope III options include AFM, STM, Electrochemical AFM and STM, LFM (Lateral Force Microscope), Large Sample Stages, and others.