

*A summary of new products and services
for materials research...*

Portable Nuclear Spectroscopy System:

Quantrad Sensor's Scout™, a hand-held multichannel analyzer for *in situ* characterization and identification of radioisotopes, uses a 256-channel pulse-height analyzer that operates with a pocket-sized Hewlett-Packard 100LX or 200LX Palmtop PC. Up to 244 spectra can be stored, each with date and time stamp. A bar code reader is optional. The system can be configured with a 1-, 2-, or 3-in. NaI probe for gamma spectroscopy; an x-ray probe for fluorescent studies; and a sensor for alpha and beta spectroscopy. An internal rechargeable battery is included.

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Residual Gas Analysis Software:

SPECTRA Instruments' Version 2.0 RGA for Windows™ for residual gas analyzers features multi-analyzer operation, process integration and control, library and background routines, and dynamic data exchange with other software. Users may configure the RGA to match a specific process and to transfer data to spreadsheets or databases. The systems are suitable for advanced cluster systems and multi-station in-line chambers used for semiconductor, hard disk, and flat panel processes. Options include closed ion sources, automated process inlets, and more.

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Scanning Probe Microscopy Newsletter:

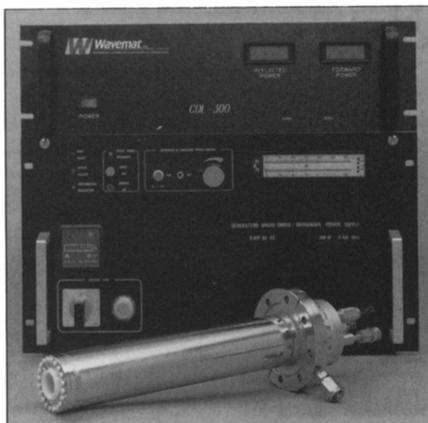
Quarterly newsletter from TopoMetrix highlights advances and application developments in scanning probe microscopy. Recent issues have included articles on power spectral density curves, thermal microscopy, the use of layered imaging for magnetic force microscopy, and more.

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Neo-Magnets for 410°F:

Vacuumschmelze's VACODYM® 411 WZ rare-earth permanent magnet on a neodymium-iron-boron base is useful in applications previously requiring samarium cobalt magnets. Designed for use in highly dynamic servomotors, the magnet has an operating temperature up to 410°F with a coercivity of $H_{cj} = 41$ kOe at room temperature and $H_{cj} = 17$ kOe at 302°F. The magnet features linear demagnetizing curves under strong opposing fields, and die-pressing production reduces costs for large quantities.

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Microwave Plasma Source for MBE:

Wavemat's MPDR 610i Electron Cyclotron Resonance microwave plasma source generates a stream of ions, atomic neutrals, and activated species for use in MBE and UHV thin film processes. The device uses a computer-designed permanent magnet array that maximizes electron confinement inside the source's plasma chamber. Ion current densities may be achieved in the 0.1–5 mA/cm² range on any gas and without use of grids, filaments, or electrodes. The operating range is 10⁻⁵–10⁻² torr, and ion energy ranges from 10–30 eV.

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Magnetron Sputtering Source:

The Mighty MAK from US Thin Film Products is designed to eliminate problems with direct water cooling. Capable of RF or DC operation, the MAK series has a pressure range of 0.5–500 millitorr. Features include cathode and magnets isolated from water; no target bonding or mechanical clamping; anode below plane of target; no O-ring seals; and UHV or quick coupler mount.

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Manual Slide Mechanisms:

Velmex's 36-page 1995 UniSlide® catalog describes more than 960 manually operated UniSlide assemblies. UniSlides are dovetail slides and rotary tables suitable for use in fixturing or gauging. Modular design enables users to construct coordinate axis systems. Base widths range from 1.5–9 in.; maximum travel ranges from 27–90 in. Maximum load capacity is 400 lbs. Styles are offered from basic linear bearings to lead screw driven slides. Rotary tables and rack-and-pinion drive units also are listed.

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Field-Emission Scanning Electron Microscope:

The DSM 982 GEMINI from Carl Zeiss features a magnetic/electrostatic objective lens suitable for imaging and resolution at low beam energies. The instrument features a Schottky FEG source; an analytical sample chamber with optimized detector placement for all imaging and analytical modes; an integrated beam booster, which maintains high beam energy from the source to the sample; and the resolution, speed, and storage capacity of a fully integrated image processor.

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Continuous-Tone Thermal Printer:

The 9315CTP from Alden Electronics features a 10.1 in. printing width; 256 gray shades; text mode for image captions; fiber, plastic, or transparent based recording media; and a GPIB/SCSI interface. Ink cartridges, toner, or ribbons are not required, and mean time between failure is more than 20,000 hours. The printer also is available with parallel and SEM slow scan interfaces and an optional SCSI/parallel dual interface. Applications include electron microscopy, medical imaging, high-speed camera output, and more.

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Vacuum Process Equipment:

UTI Instruments' 10-page brochure highlights vacuum process products. DetecTorr I and II residual gas analyzers may be used in system characterization at base pressure; equipment, process, and contamination monitoring; system maintenance; and leak detection. QualiTorr III measures process gases and contaminants at operating and base pressures. QualiTorr-Remote controls and monitors the critical process environment of semiconductor cluster tools and multiple chambers. SpectraSoft II and Process Monitor Software provide gas monitoring and analysis, calibration, and utilities.

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Scanning Electron Microscopes:

Leica's Stereoscan S400σ series, developed in cooperation with Fisons Kevex, integrates the Windows-based "Sigma" x-ray analysis system with the Stereoscan S400 series of SEMs. Users may choose either the Oxford ISIS or Kevex Sigma, fully integrated. The system utilizes the Stereoscan S400 PC and peripherals, and offers functional and mechanical integration.

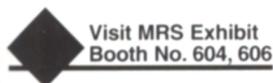
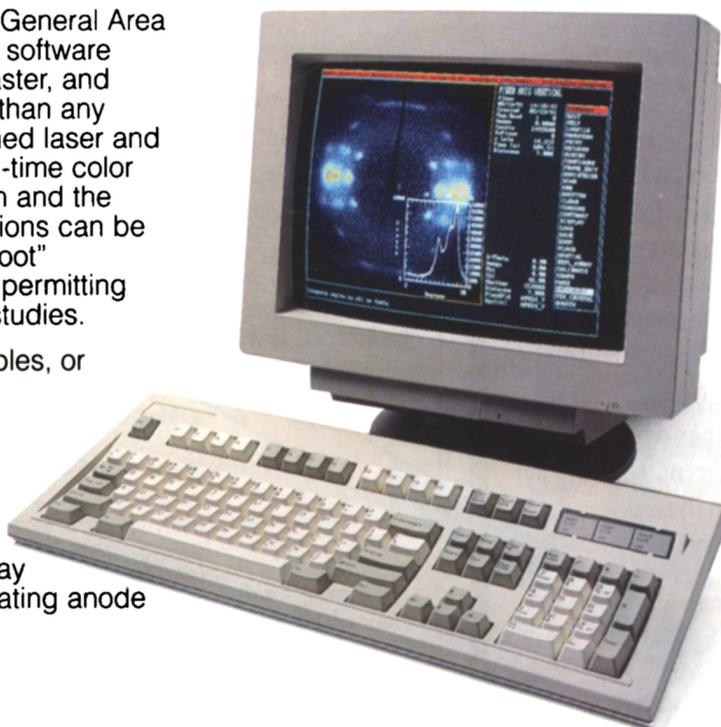
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SIEMENS

Finally – A powerful x-ray diffraction system for microanalysis that's flexible, too!

Siemens' HI-STAR area detector with General Area Detector Diffraction System (GADDS) software provides you with a more powerful, faster, and more flexible microdiffraction system than any other commercially available. Combined laser and video sample alignment provides real-time color displays of both the diffraction pattern and the region under investigation. These regions can be selected manually, with "point and shoot" capabilities, or in pre-defined arrays, permitting Diffraction Function Mapping (DFM) studies.

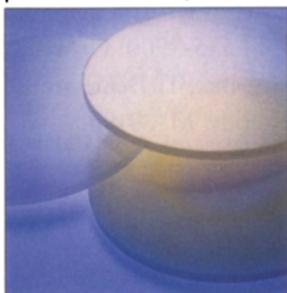
- Ideal for studying very small samples, or micro-defects on large samples.
- Fast data collection with HI-STAR, Siemens' unique 2-dimensional detector technology.
- An optional crossed Göbel mirror system can provide increased x-ray flux, eliminating the need for a rotating anode x-ray source.



Samples

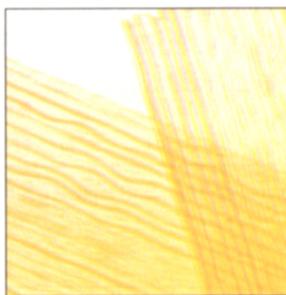
Ranging in size from 10 μ m to 100mm.

Suitable for investigating plastics, metals, ceramics, geological and forensic samples, semiconductors, superconductors, and more.



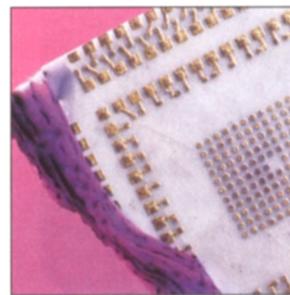
Versatility

Measures scattering from amorphous, polycrystalline, and single-crystal materials.

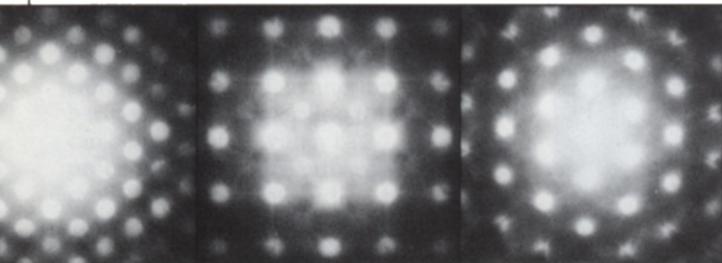


XRD Microprobe

Analysis of single or multi-layer systems, including interfaces.



THE BEST WAY TO GET AN ANGLE ON CRYSTALS.



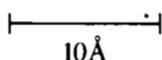
High resolution, electron microdiffraction analysis may require several tilt angles.

If you need to determine elemental composition and molecular or atomic structure of crystals in minerals, metals, ceramics or polymers, our JEM-2010 is the best high resolution, analytical microscope for the job.

The JEM-2010 is a 200 kV TEM with superior optics and high probe current. It is optimized for analytical performance

not only in the analytical configuration, but also in the ultra-high resolution configuration as well.

With the EDS accessory, elemental analyses may be performed using probes as small as 10Å.

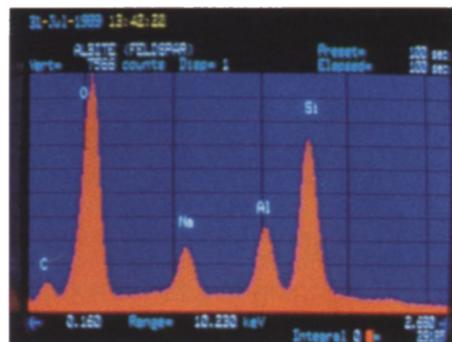


Equipped with EDS, the JEM-2010 is capable of high sensitivity elemental analyses using probes as small as 10Å in diameter.

With its analytical pole piece, it offers 2.3Å resolution over 30° of tilt and an x-ray collection angle of 0.13 steradians. That is the best combination of analytical features of any instrument in the 200 kV class.

But the JEM-2010 is more than an analytical microscope.

Equipped with the interchangeable, high resolution pole piece, the JEM-2010 is also an ultra-high resolution microscope with 1.9Å resolution over 20° of tilt and an x-ray collection angle of 0.12 steradians.



High sensitivity elemental analysis is possible with the addition of an EDS system.

For purposes of analyzing obliquely oriented crystalline material in metal, mineral, ceramic or polymer matrices, the JEM-2010 offers 2.3Å resolution with a tilt angle of ± 30 degrees.

Let us tell you more. Call (508) 535-5900. Or write JEOL USA, Inc., 11 Dearborn Road, Peabody, MA 01960.



JEM-2010 Transmission Electron Microscope



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