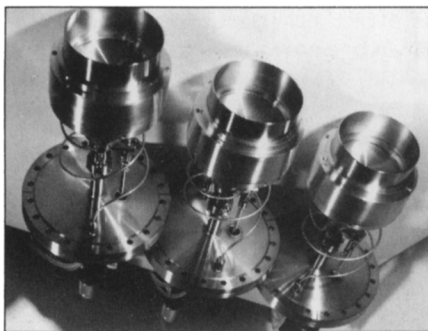


A summary of new products and services for materials research...



Magnetron Sputtering Sources: AJA International's A300 Series features a four-inch target sputtering source in addition to two- and three-inch versions. All units are UHV-compatible and include modular magnet arrays. In order to eliminate magnet deterioration and corrosion and allow multiple magnetic field configurations, the magnet arrays are not immersed in cooling water. Possible source options include *in-situ* tilt capability, integral gas ring, integral shielding chimney with disposable inserts, manual and automatic shutters, and rf and dc power supplies.

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Multichamber Sputtering System: The MC-2550 from Nordiko offers dual process chambers for isolation of materials without cross contamination. The unit combines sputtering systems with a central load-locked robotic wafer handling module for substrate distribution to either of two process chambers. Each chamber accommodates up to four 8-in. sputtering electrodes for sequential or co-deposition processing in rf or dc modes. Sputter-up, sputter-down, or side-sputter geometries are available, as well as substrate heating, cooling, bias, or etch. The MC-2550 is automated with data storage and retrieval facilities and remote modem interfaces.

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Protein Separation System: EM Separations' integrated system for protein separations features interchangeable cartridges prepacked with Tentacle Ion Exchange media and Superformance® glass columns. Tentacle Ion Exchangers provide large capacity with recovery, high resolution, and scale-up reproducibility. The media permit the dimethylaminoethyl groups to be attached in such a manner that shortens the diffusion path, resulting in greater selectivity. The Superformance® glass columns provide zero dead volume which results in

sharper peaks. Cross contamination in multiple separations is minimized.

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Microscope Autofocus System: The LaserTrac from Teletrac reduces microscope focusing time by continuously tracking best focus. Unlike conventional autofocus systems, LaserTrac's laser system eliminates the stop/search phase so that objects are already in focus when the microscope stage stops moving. LaserTrac can focus on zero-contrast, low-reflectivity surfaces such as glass and fits most modular microscopes. The system may be installed in the field in less than one hour.

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Silicon MBE System: Superior Vacuum Technology's Model 446 system provides silicon and silicon-compound epitaxial film growth in a "cluster tool" design. The system consists of three self-contained UHV chamber modules. The multisample introduction/load-lock module with two transfer rods accommodates up to 6-in. wafers, and the preparation chamber provides UHV storage for eight wafers in a high-temperature outgas chamber. The growth chamber includes shuttered viewports, thickness monitors, multipocket and dual e-beam evaporators, and six effusion cell ports. Additional ports are provided for analytical or processing equipment.

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Thin Film Monitor: The XTM/2 thin film monitor from Leybold Inficon provides a frequency resolution of 0.1 Hz in 250 ms and displays rate resolutions as small as 0.01 Å. The device may be operated in two modes and used for rate and thickness measurements for standard thin-film vacuum deposition monitoring and microbalance applications. ModeLock quartz crystal measurement technology provides crystal frequency information and eliminates mode-hopping instabilities. The XTM/2 offers a variety of setup configurations with numerous unit measurement options.

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Diamond and Carbon Newsletter: Business Communications' monthly newsletter covers high-performance carbon materials. *Diamond and Structural Carbon News* provides information on structural carbon materials, carbon fibers, industrial diamonds, diamond products, diamond and diamondlike films and coat-

ings, and materials such as cubic boron nitride. New subscribers also receive a free copy of the report, *Industrial Diamond and CBN: Materials, Films and Products — An Industry and Market Overview*.

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Programmable Multistep Filament Pyrolysis System: The Pyroprobe 2000 from CDS Analytical is suitable for preparing solid samples such as polymers, composites, and fibers for analysis using gas chromatography, mass spectroscopy, or FTIR. Users can program up to five steps per method and store nine methods for recall. The platinum filament and heated interface are independently programmable in steps containing initial temperature, heating rate, and final temperature. Pyrolysis rates vary from 0.01°C/min. to 20,000°C/sec., with final temperatures to 1,400°C. Separate clean and dry functions allow for evaporation of solvent from samples prior to pyrolysis and cleaning of the filament between runs.

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Thick Film Measuring Workstation: Carl Zeiss' Axiospeed FT Plus measures absolute thickness of thick transparent films on wafers and other substrates. The automated, noncontact Axiospeed FT Plus combines a diode array spectrometer, measurement software, and a transputer parallel process unit for increased speed. The workstation features a microscope equipped with autofocus, a three-axis wafer handling robot, and software with a graphic user interface. The Axiospeed FT Plus allows measurements from 0.1 to 140 μm optical thickness and evaluation of dual films using FFT and phase analysis. Pattern recognition may also be added, and the unit may be operated automatically or manually.

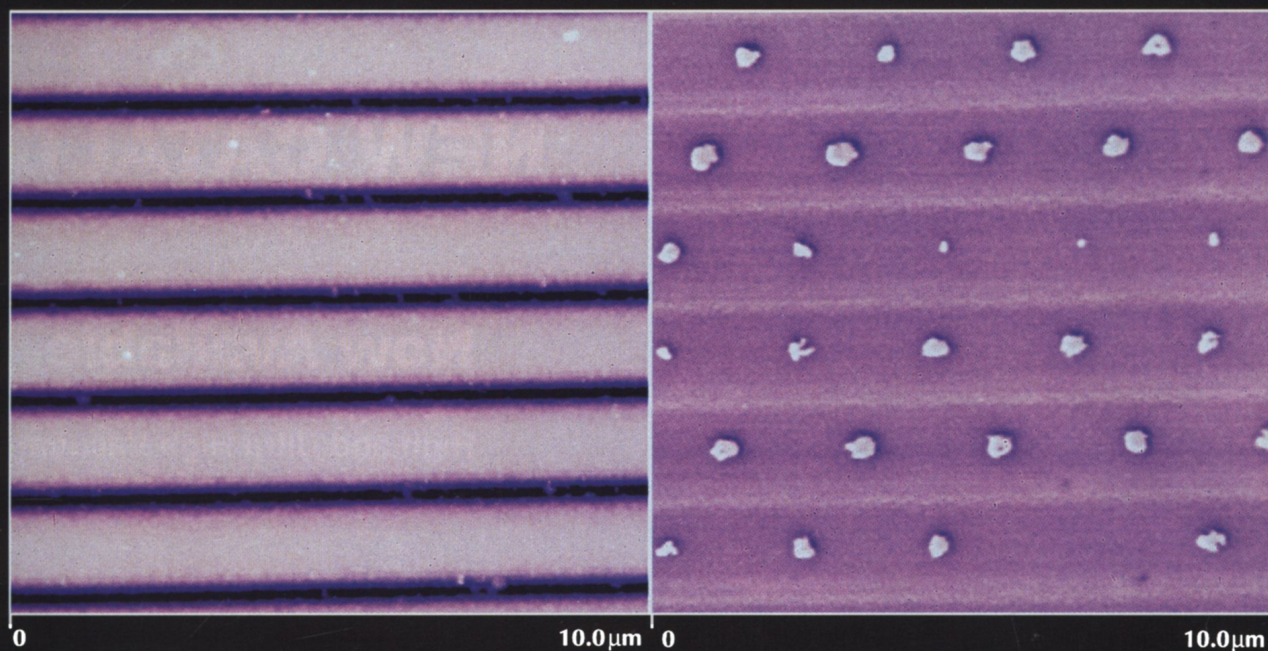
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High-Contrast TEM: The CM10-BioTWIN from Philips Analytical uses an objective lens design that incorporates a large pole-piece gap to provide high image contrast with increased focal length. Specimens can be tilted to about 80°, and the high coherence of the lens prefield results in a sharp image. Users can also obtain small focused beams for microanalysis. The high-tilt goniometer's positional reproducibility allows specimen locations to be stored and recalled with about 200 nm accuracy. The CM10-BioTWIN requires no realignment when the high tension is changed, and switching between modes is instantaneous.

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The power of the laser (blue light) was varied during the bit-writing process, resulting in magnetic bits of various sizes. The smallest bit shown here is less than 100nm across.

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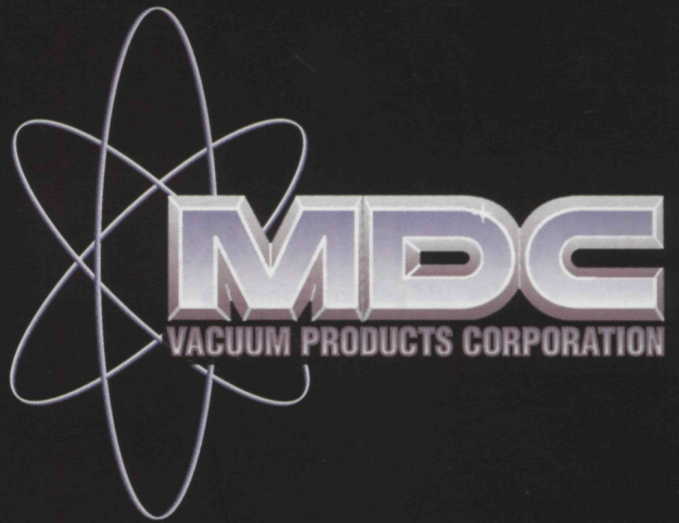
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