

## RESOURCES

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

### **Advanced Wafer CD Metrology System:**

Optical Associates' SiScan™ 8325A features an 8-in. (20.32 cm) wafer capability. The system uses a UV confocal laser microscope to facilitate CD metrology without surface charging or damage to the substrate. The 8325A can measure critical dimensions on linewidths below 0.35 μm with precision <0.007 μm, 3 sigma. A sample throughput rate of more than 25 wafers per hour includes five measurement sites per wafer. Applications include overlay measurement, edge roughness, and z-axis measurements for step height measurements.

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### **Internet Reports:**

CERA Research offers three free resources available over the Internet. The first report identifies key Internet resources such as FTP sites, WWW sites, and Internet mailing lists for embedded systems programmers and design engineers. The second report identifies similar information for Windows programmers and points to archives of free shareware. The third report, geared to the Internet novice, explains how to find resources for searching, such as key FAQ reports and USENET groups.

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### **B.E.T. Surface Analyzer:**

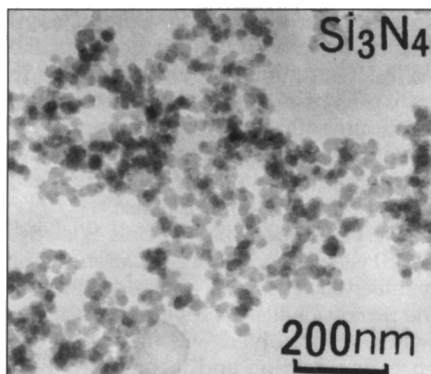
The NOVA 2000 from Quantachrome features two built-in sample preparation stations that can degas, by vacuum or flow, from two to six samples at the same time and at two different temperatures. Routine functions such as initialization and  $P_0$  determinations are done simultaneously for both samples. A floppy disk drive is included, along with a calibration feature that facilitates documentation of accuracy by providing three checks in less than four minutes.

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### **Scanning Probe Microscope:**

Quesant's Resolver™ offers SFM, LFM, and STM capabilities. The Pentium™-based computer has a screen resolution of 1,024 × 768 and a 15-in. (0.38 m) color monitor. The 3-D images are presented using raw image data, scan size, PID parameters, set point, color palette, and axes. Raw data can be processed with tilt removal, fast Fourier transforms, and similar operations. The image can be stored and displayed in top view or in a 3-D adjusted viewing angle in wire frame, line drawing, or Z-height color format. A horizontal or vertical slice of the image can be represented on a line graph showing height scaling. Point to point differences are displayed, and a histogram can be calculated.

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### **Nanophase Materials:**

Marketech offers ultrafine nanophase ceramic powders that include  $\text{Si}_3\text{N}_4$ , SiC, a composite of silicon/nitride/carbide,  $\text{SiO}_2$ , and  $\text{B}_4\text{C}$ . The materials, which have a typical diameter of 20 nm and surface area of 109 m<sup>2</sup> per gram, are produced using a 5 kW  $\text{CO}_2$  laser that bombards on a metal surface in a controlled atmosphere to form small particle clusters a few thousand atoms in diameter. Also available are nanophase  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{TiO}_2$ , HTSC materials, metals, and custom materials.

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### **Ozone Generators:**

The AX8000 Series from ASTeX features three generator models targeted to specific applications. The AX8100 is suited for wet bench applications requiring low concentrations and low volumes of ozone. The AX8200 is designed for ashing or cluster tool dielectric CVD (DCVD) processing, and the AX8300 is useful for large-scale TEOS-ozone generation for DCVD applications.

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### **Magnification Standard:**

Geller MicroAnalytical Laboratory's MRS-3 is designed for calibrating instruments from 2 to 8,000 μm. The standard, which is available with or without traceability, offers patterns for verifying particle size counting system measurements and chemical imaging. Six measurement patterns are incorporated for determining SEM imaging resolution across the photomicrograph, and individual patterns range from 1 to 5 μm on a side. The product is suitable for magnification and height calibration of atomic force, scanning tunneling, optical, confocal, and scanning electron microscopes.

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### **Microwave Power Generators:**

ASTeX/Gerling Laboratories' 915 MHz generators offer low per-watt operating cost as compared to 2,450 MHz systems and operate at power levels of 30, 60, and

75 kW. Designed for use in CVD diamond systems and industrial drying applications, the generators also are suitable in ceramic sintering and precision fluid heating. The high-voltage transformer is of a  $\Delta y$  configuration which, along with a 5 henry choke, guarantees maximum full-power RMS ripple of 5%.  
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### **Vacuum Products:**

Thermionic catalog covers a variety of vacuum systems, components, and hardware. Products include ion pumps and power supplies, manipulators and mechanical feedthroughs, valves, e-guns, electrical and fluid feedthroughs, instrumentation, flanges, ion-pumped TTS systems, custom chambers, evaporators, and fittings.

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### **Metallurgical Extrusion Services:**

Nuclear Metals offers custom extrusion services that feature consolidation of metals and alloys in presses up to 1,400 tons. The services include development of new metals and alloys such as superconducting materials and composites for aerospace applications. Capable of consolidating reactive and refractory metals, the company uses 100-, 300-, and 1,400-ton presses with furnace temperatures to 1204°C. Engineering assistance in determining optimum extrusion parameters for new metals and alloys is also available.

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### **Electron Multiplier Technology:**

Free quarterly newsletter from ETP Scientific highlights new products, technology overviews, special offers, and other items of interest to electron multiplier users. Topics in previous issues have included negative ion detectors, the firm's ion-optics design capabilities, and time-of-flight mass spectrometry.

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### **Materials Selection CAD Software:**

The Cambridge Materials Selector (CMS) Version 2.0 from Granta Design Limited offers a Windows™ interface and enables users to select and evaluate materials during engineering design. A main database containing 150 materials forms the core of the selection process. Beneath the main database is a portfolio of more detailed databases, each dealing with one class of materials. Individual databases of copper alloys, polymers, light alloys, and metal matrix composites are available, each with approximately 180 specific materials. Fifteen selection stages can be simultaneously displayed on screen.

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