

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. PHYSICS TODAY can assume no responsibility for their accuracy. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Langmuir-Blodgett Thin Films

Oriel has joined with KSV Chemical Corporation of Finland to market a fully automated system for producing monomolecular thin films by Langmuir-Blodgett techniques. (See the article by Vijendra K. Agarwal on page 40.) The new system, called the LB 5000 Center, uses IBM PC-compatible hardware and software, permitting unsupervised operation. Its software and the precision trough and barrier control can produce compression-relaxation isotherms, accurate surface-area measurements, constant pressure and kinetic reactions. Real-time, on-line programs monitor and record system status. With the film deposition system, monolayer, multilayer or alternate-layer films can be produced with up to 200 consecutive depositions.

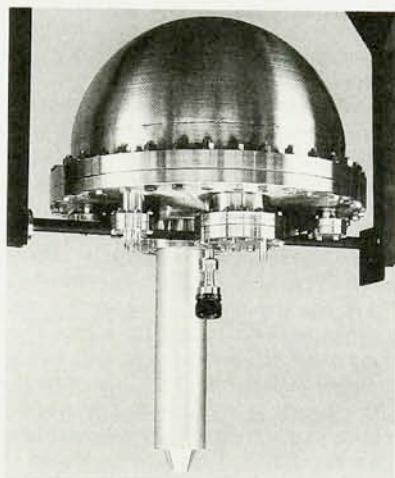
Optional modular components give this Langmuir-Blodgett system considerable versatility. A pH meter, a temperature controller and a spectral analyzer allow the user to monitor a variety of conditions. To minimize outside disturbances, one can mount the LB 5000 on an Oriel vibration-isolation base. *Oriel, 250 Long Beach Boulevard, Stratford, Connecticut 06497*

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Electrostatic Energy Analyzer for Ions and Electrons

The HA 100 hemispherical electrostatic analyzer from VSW Scientific Instruments is designed for ion and electron energy analysis in the energy range 0–5 kV. Its mechanical design makes it particularly suitable for mounting on existing ultrahigh-vacuum chambers.

The analyzer has a mean radius of 10 cm. It employs a new lens designed to provide high sensitivity and resolu-



tion by means of a variable retard ratio. The HA 100 is suitable for energy analysis of ions or electrons in such surface techniques as Auger spectroscopy, ion scattering spectroscopy and photoelectron spectroscopy with x-ray, ultraviolet and synchrotron sources.

The analyzer mounts onto the analysis chamber by means of a 4½" conflat flange. The body of the analyzer is contained within its ultrahigh-vacuum housing lined with mu metal. The HA 100 is supplied with externally variable slits, electronics, vacuum housing and adapter nipple to fit the analyzer to any existing ultrahigh-vacuum chamber. *Micro-science, 41 Accord Park Drive, North Massachusetts 02061*

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Electron-Cyclotron-Resonance Source for Plasma Processing

Applied Science and Technology offers a new electron-cyclotron-resonance source for plasma processing. This source is claimed to offer superior plasma uniformity by means of proprietary microwave technology. Mi-

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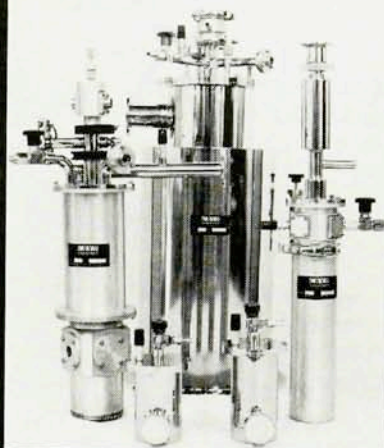
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crowave excitation by the firm's Astex symmetric plasma microwave coupler provides plasma beams of good uniformity over large areas. The source chamber uses ultrahigh-vacuum technology and a selection of liners for clean plasma production. The double-walled, electropolished stainless steel chamber is said to handle maximum heat loads without outgassing problems. The Astex electron-cyclotron-resonance source operates from 3×10^{-5} to 10^{-2} torr. Low pressure and efficient ionization yield cleaner operation and higher rates than non-cyclotron-resonance sources, we are told. Because the plasma is heated by electron cyclotron resonance, without the need for filaments, the source is compatible with any gas.

The system provides high beam-current densities, up to 30 mA/cm² depending on the gas species, for a total source current exceeding 2 A. The ion energy is 10–25 eV, below the threshold for radiation damage. This makes the source particularly useful for etching GaAs. High-energy ions are easily generated for etching and sputtering with substrate bias. The plasma source operates at full beam current, independent of ion energy. The electron-cyclotron-resonance source yields higher current densities than Kaufman sources, we are told.

The source is powered by the Astex S-1000 microwave power source with remote power head. The S-1000 series is specifically designed for plasma production. It employs a highly regulated switching supply to provide up to 1.5 kW at 2.45 GHz. The price of the electron-cyclotron-resonance plasma source with a 1-kW power supply is \$64 500. *Applied Science and Technology, 40 Allston Street, Cambridge, Massachusetts 02139*

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Q-Switched, Mode-Locked Nd:YAG Laser

Coherent has introduced a new Q-switched, mode-locked Nd:YAG laser intended for scientific applications. The new Model 7800 Q-switch is designed to augment the Antares line of lasers introduced by Coherent last year. Based on the Antares 76-s, a powerful cw Nd:YAG laser, the new Q-switched and mode-locked Antares 7800 delivers the greatest pulse energy and the highest repetition frequency of any commercial system available today, we are told.

Q-switched at a wavelength of 1064 nm, it provides a 4-millijoule pulse.



When it is also mode-locked, the pulse energy is 3 mJ at this wavelength and 1 mJ at 532 nm in the visible. In Q-switched cw operation, the Model 7800 provides flexibility, with pulse repetition rates selectable from 10 Hz to 20 kHz. The laser can also be synchronized to any external source.

In Q-switched and mode-locked operation, the Antares 7800 minimizes the repetition-frequency limitations that result from relaxation oscillations encountered in pre-lasing the cavity. Coherent guarantees 1200 Hz with minimal energy loss. This is achieved by progressive damping accomplished through the relaxation control capability possessed by all Antares laser systems. *Coherent, 3210 Porter Drive, P. O. Box 10321, Palo Alto, California 94303*

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Magnetic and Gravity Compilation for North American Geology

The National Geophysical Data Center is distributing the digital compilations of magnetic and gravity data used to produce the Magnetic Anomaly Map of North America and the Gravity Anomaly Map of North America in connection with the Decade of North American Geology. These continental potential field compilations represent some of the largest sets of anomaly data ever assembled. The digital compilations serve as quantitative companions to other digital geophysical data available from the National Geophysical Data Center and to the DNAG color maps available from the Geological Society of America.

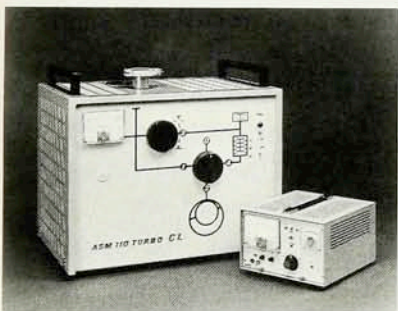
The magnetic anomaly data were gridded at a 2-kilometer spacing. The data set contains 22 million grid values, covering an area from the North Pole to northern South America, plus considerable marine magnet-

ic data. The gravity anomaly data contain 5 million grid values, gridded at 6 kilometers. Free-air anomaly values derived from satellite altimetry data have been provided for oceanic areas where marine gravity data were not available.

Also being distributed with these data are FORTRAN programs that can be used to transform grid coordinates to and from geographic coordinates, and an interpolation routine extracting profiles from the gridded data sets. These data are also offered on floppy diskettes for personal computers. The DNAG Magnetics Data Set sells for \$290 on magnetic tape, the same price as the DNAG Gravity Data Set. *National Geophysical Data Center, NOAA, Code E/GC4, 325 Broadway, Boulder, Colorado 80303*
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Portable Helium Leak Detector

Alcatel Vacuum has introduced its new ASM 110TCL, a portable helium leak detector whose performance is claimed to "exceed anything available on the market today." The ASM 110TCL incorporates Alcatel's proprietary closed-loop technique to achieve



the unusual combination of high inlet-port pressures, fast response and high sensitivity in a single, portable leak detector.

The detector has a response time of 0.5 seconds. It can detect helium leaks as small as 2×10^{-11} atm cm³/sec, and it has a maximum inlet-port pressure of 0.3 mbar. *Alcatel Vacuum Products, 40 Pond Park Road, Hingham, Massachusetts 02043*
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Multichannel Analyzer

EG&G Ortec describes its new Model 100T Adcam Analyst as "a new type of multichannel analyzer." It has a



dedicated front-panel keypad control, but it is also a PC-based system with all the features provided by the firm's Adcam distributed architecture. Emulation software allows control either from the keypad or from the PC-style keyboard. In fact, the system may be used like any IBM-compatible personal computer, even while acquiring data.

The Analyst 100T multichannel analyzer may be used with the EG&G Ortec Ace Mate, an integrated preamp-amplifier bias supply. The Analyst 100T can support a variety of EG&G Ortec modular front-end data acquisition options. Weighing 14 kg, the instrument has a 9-inch-diagonal monochrome display and two 720-kilobyte 3.5-inch floppy disks. It can support two internal or multiple external ADCs. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37831*

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High-Temperature Superconducting Powders

W. R. Grace is offering high-temperature superconducting powders, of the type known as 1-2-3 powders, and a full line of high-purity rare earth oxides for a variety of superconductor applications. Grace's $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ powder is produced by a proprietary process. This calcined powder is 99.9 percent pure, and it exhibits greater than 92 percent superconductivity at liquid nitrogen temperatures when pelletized, we are told. It is also available in a submicron precursor form that requires calcination by the user.

Grace superconductor materials were jointly developed by Grace's Davison Chemical Division and the Grace corporate Research Division. Davison will tailor composition and other powder properties to meet specific user requirements. *Davison Chemical Division, W. R. Grace, P. O. Box 2117, Baltimore, Maryland 21203*
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