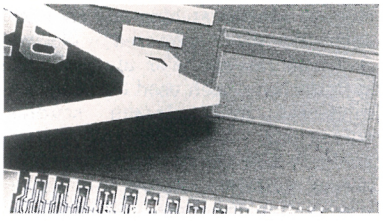
# NEW PRODUCTS

**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.

## Scanning Probe and Scanning Electron Microscope

Topometrix recently introduced the Observer, which incorporates an atomic-scale-resolution scanning probe microscope and a scanning electron microscope with high scanning rate, large viewing field and spatial



resolution of a fraction of a micron. The Observer's SEM allows the user to rapidly locate submicron features on the sample that would be too small to see with an optical microscope. These features can then be examined more closely by the SPM in any of its modes, including scanning tunneling microscopy and atomic force microscopy. *Topometrix, 5403 Betsy Ross Drive, Santa Clara, California 95054-1162*

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## PowerPC-Based Notebook Workstation with UNIX

IBM has added a notebook workstation, the N40, to its RISC System/6000 series of computers. The N40 has 16 megabytes of 70-nanosecond memory (expandable to 64 megabytes) and a 50-megahertz Powerpc 601 microprocessor with 32-kilobyte unified instruction and data cache. Its operating system is a stand-alone version of AIX 3.2.5 (IBM's version of UNIX), and it is compatible with all AIX applications except those directly associated with support of multiuser systems.

The 340-megabyte hard disk is removable, and additional disks are available so that more than one user can use the same computer. The N40's high-resolution, 9.4-inch thin-film-transistor active-matrix screen supports 256 colors, and it has zoom and pan functions. The 6.9-pound computer also includes an internal fax/modem and a pointing device on the keyboard that eliminates the need for an external mouse. Available options include memory expansion cards, an external floppy disk drive, an external four-hour battery pack and a 12-volt car cigarette-lighter adapter. *IBM, 1133 Westchester Avenue, White Plains, New York 10604*

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## Real-Time Debugging for Multicomputers

Mercury Computer Systems has introduced its Supervision system-level debugger for real-time embedded multicomputers running from one to several hundred processors. The debugger has a graphical user interface that provides a system-level view of what is going on in the multicomputer. To make it easier to see which processes are experiencing problems Supervision allows processes to be grouped, monitored and controlled, with the results displayed in real time.

A session file saves and restores all debug and display setup parameters, while a log file stores on-line control-point and data-point information for off-line analysis. *Mercury Computer Systems, 199 Riverneck Road, Chelmsford, Massachusetts 01824-2820*

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## Diamond Anvil X-Ray Diffraction Cells

Diacell Products has introduced two diamond anvil cells for x-ray diffraction at very high pressures. The cells can be used for single-crystal and powder diffraction studies, with either laboratory sources or synchrotron beams. The diamond anvils are mounted on beryllium plates, and they have a 90° field of view for data collection.

The DXR-5 cells are manually driven by two bolts. They have been routinely operated at pressures of 60 gigapascals. The DXR-GM is driven by a gas-pressurized metal membrane that can attain sample pressures of 1 megabar, we are told. Diacell plans to market an equivalent hydraulically driven cell in the near future. *Diacell Products, 54 Ash Tree Road, Oadby, Leicester LE2 STD, United Kingdom*

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## Resonant Optical Scanner

Electro-Optical Products has introduced a 1000-Hz resonant optical scanner with an optical scan angle of 60°. The scanner consists of a 15-mm round or octagonal mirror mounted on a torsion spring, driven at its resonant frequency by an electromagnetic oscillator. Frequency stability is maintained by a feedback amplifier (also available from the manufacturer). The frequency varies by less than 5% over the operating temperature range from 0 to 40 °C. We are told that its rugged design and the absence of wearing parts make the scanner able to run stably and maintenance-free for more than 30 000 hours. The scanner can be used in medicine, optics, and image and pattern formation and recognition, especially remote and aerospace applications. *Electro-Optical Products, PO Box 650441, Fresh Meadows, New York 11365*


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## Multipurpose Modular Plasma System

A. G. Services and Thin Film Engineering have introduced their System 1700 modular plasma systems. These systems are centered around an 18-inch high-conductance vacuum-process chamber that can be quickly reconfigured to run different processes. The user then selects the desired process control software, electrodes, plasma sources and vacuum pumps. Also available are a sealed gas pod for toxic or corrosive gases, temperature control units, custom tooling, endpoint detection systems and a system for automatically moving the electrodes.

The System 1700 can carry out, singly or in combination, reactive ion etching, plasma etching and chemical vapor deposition enhanced by electron cyclotron resonance or plasma. The systems have been used for superconductivity and plasma studies, waveguide manufacture, failure analysis and chemical vapor deposition of materials ranging from dielectrics to diamond films. *A. G. Services, 616 Wellington Drive, San Carlos, California 94070*

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## Telemetry System for Monitoring Remote Sites

Divelbiss has introduced its Watchman Reporter, a telemetry system for simultaneously monitoring up to 16 remote sites. When triggered, the Watchman Reporter reads out reports from all 16 sites and can then send the information to up to 4 fax numbers or send an 80-character message to up to 10 pagers.

The Reporter can be interfaced to a programmable logic controller, data acquisition system or computer, and it can also be used as a 2400 baud modem, allowing the user to communicate with a device connected to the reporter's serial port. When the system is connected to a cellular phone, sites can be monitored without phone lines. The Watchman Reporter may find applications in fields such as geophysics and atmospheric science,

where data are gathered remotely. *Divelbiss, 9776 Mt. Gilead Road, Fredericktown, Ohio, 43019*
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## Ultrasonic Liquid Processor

Misonix has introduced an ultrasonic liquid processor, the XL2015 Sonicator. The processor is intended for continuous in-line particle dispersion,

particle size reduction and deagglomeration. The system's so-called Flocell has an adjustable annulus with replaceable orifices, and it can process up to 40 liters per minute. Flocells are available in polycarbonate, teflon or stainless steel (pressure rated to 100 pounds per square inch). The Flocell can be easily detached from the apparatus for cleaning. *Misonix, 1938 New Highway, Farmingdale, New York 11735*
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## Fluorescence Lifetime Spectrometers

Photon Technology International has introduced three new systems for fluorescence-lifetime spectroscopy. To measure lifetimes from 200 picoseconds to 750 nanoseconds, the Strobemaster uses a flashlamp with a repetition rate of up to 100 kilohertz in the spectral range from 180 to 750 nanometers (selected by an appropriate filter). For increased illumination and sensitivity, the Laserstrobe uses a 20-Hz dye laser, tunable between 260 and 950 nm, as an excitation source. Both systems use the strobe technique, in which successive runs count photons after longer delays to construct the fluorescence decay curve.

The TCSPC-1000 employs time-correlated single-photon counting, in which the fluorescence decay curve is constructed as a histogram of the delay between the flash and the detection of the first photon from the sample.

Among the possible applications for these systems are studies of surfaces, polymer structure, chemical kinetics and fluid composition. *Photon Technology International, 1 Deerpark Drive, Suite F, South Brunswick, New Jersey 08852*
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## UltraLow-Temperature Dilution Refrigerators

Janis Research, in partnership with Leiden Cryogenics, has introduced a series of ultralow-temperature dilution refrigeration systems, the DRS-2000, DRS-600 and DRS-300. The most powerful system, the DRS-2000 can reach 5 millikelvin and it has a cooling power of 1800 microwatts at 100 millikelvin outside the mixing chamber. Higher performance is possible inside the chamber.

The smaller DRS-600 can also reach 5 millikelvin and it has a cooling power of 600 microwatts at 100 millikelvin. Possible applications for these systems include two- and three-dimensional studies of quantum solids and liquids, materials science research and superconductor studies. *Janis Research, Two Jewel Drive, P. O. Box 696, Wilmington, MA 01887–0696*
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## New Literature

**Vacuum Society overview**—The American Vacuum Society recently published a brochure describing its activities, focus and publications. The brochure details the society's technical symposiums, topical conferences, short courses, equipment exhibitions and educational materials. *Contact: Angela Mulligan, American Vacuum Society, 120 Wall Street, 32nd Floor, New York, New York 10005*

**Temperature measurement**—Thermo Electric is offering a 500-page guide for those interested in temperature measurement and control systems. *Temperature Measurement Designer's Guide* contains over 100 pages of technical data, as well as descriptions and application data for thermocouples, connectors, panels and instrumentation. *Thermo Electric, 109 North Fifth Street, Saddle Brook, New Jersey 07662.* ■