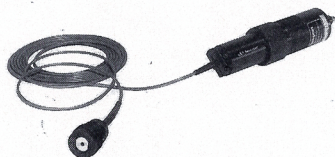


NEW PRODUCTS

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.

High-Transmission Supercavity

Newport's new high-transmission supercavity optical spectrum analyzer, available in models for wavelengths of 0.63, 1.06, 1.30 and 1.55 microns, offers efficiencies exceeding 63% and finesse greater than 5000. Transmission through the cavity results in a loss of less than 2 dB, making the



units suitable for applications involving low-level signals, optical communications and optical filters. The analyzers are said to reveal spectral details previously hidden from most Fabry-Perot interferometers. Each unit comes with a controller, five-axis optical mount and a fiber input adapter that simplifies the coupling of light into the cavity. *Newport, P.O. Box 8020, Fountain Avenue, California 92728-8020.*

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Field Emission Auger Surface-Analysis System

Perkin-Elmer has introduced a new field-emission scanning Auger microscope. The PHI 670 Auger Nanoprobe combines a Schottky field-emission electron source with a new multi-channel detector, cylindrical-mirror analyzer and advanced software to provide high-magnification SEM images, elemental sensitivity with high detection limits and very high throughput. The 670 is said to provide 100 000-time-magnification micros-

copy within minutes. Additional features of the PHI 670 nanoprobe include a magnetic sample-introduction system for improved sample handling and an enhanced ultra-high-vacuum environment, which permits ion-beam Auger depth profiling. The 670 is driven by a data system, which includes an HP-Apollo 32-bit UNIX workstation and Perkin-Elmer software. The 670's software includes several new features such as auto-peak identification and labeling and parameter flexibility during depth profile acquisition. *Perkin-Elmer Physical Electronics, 6509 Flying Cloud Drive, Eden Prairie, Minnesota 55344.*

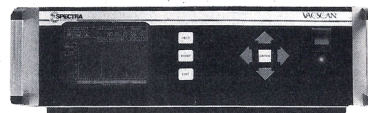
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New Family of Medium-Sized Computers

IBM has introduced its System 390 computer series, which includes the Enterprise System 9000 family of 18 new processors. The system 9000's functions include:

- ▷ Architecture that implements high-speed, fiber-optic channels, allowing computer equipment to be located anywhere within 5.6 miles of the computer and facilitating any-to-any connectivity;
- ▷ Enhanced enterprise-wide security functions for high-speed, high-volume transmission of sensitive information;
- ▷ High-performance supercomputing vector options for affordable advanced scientific and technical applications;
- ▷ Software enhancements for faster application development, better management of distributed data and easier transfer of applications from one system or network to another;
- ▷ New client-server hardware and software products designed to simplify the management and coordination of a local-area-network environment;

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▷ An external time-reference system that connects and synchronizes separate IBM processors in a multisystem complex and allows customers to operate them as one system.

IBM, 113 Westchester Avenue, White Plains, New York 10609.

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**Turbomolecular
Vacuum Pump and
Controller**

Varian has introduced a new turbomolecular pump and controller, which has an innovative pump rotor and stator that make it compact and lightweight and provide high performance. The Turbo-V60 has silicon-nitride ceramic, permanently lubricated ball bearings. The monoblock pump rotor has five different blade angles to optimize pumping speed, compression ratios and ultimate pressure. The pump delivers 65 liters of nitrogen per second and 10^{-10} torr ultimate pressure.

The Turbo-V60 has a microprocessor-controlled frequency converter featuring self-diagnostics. The quarter-rack mountable unit alpha numerically displays operational status plus diagnostics. *Varian Associates, 611 Hansen Way, Palo Alto, California 94303.*

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**Liquid-Helium-
Level Monitor**

Cryomagnetics's Model 1200 S/H digital sample-and-hold liquid-helium-level monitor provides high-performance features normally found in advanced instruments. It offers a "deicing" cycle to ensure accurate readings under adverse cryogenic conditions and operates in both continuous sample-and-hold and manual-update modes. The instrument is compatible with the three- or four-wire superconductive sensors from Cryomagnetics, American Magnetics, Oxford Instruments and CCL. It has an adjustable linear current source and switch-selectable sampling intervals of up to 24 hours. The 1200 S/H can be calibrated in inches, centimeters or percentage fill.

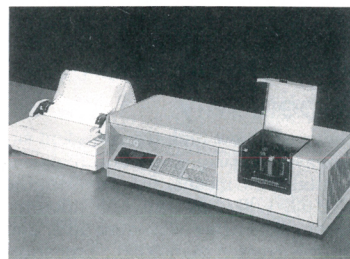
Options include a 10 mV/cm or 4-20 mA latched analog output, an adjustable alarm and rack mount. The 1200 S/H will operate two sensors of different active sensing lengths. *Cryomagnetics, P.O. Box 548, Oak Ridge, Tennessee 37831.*

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**UV-VIS
Spectrophotometer**

GBC Scientific Equipment has released the GBC 911A, a microprocessor-controlled UV-VIS spectrophotometer that can store up to 32 spectral scans and mathematically manipulate them with respect to one another and basic operators.

The 911A can perform multiple-wavelength work, including automatic absorbance ratio, percentage ratio



and percentage peak crossover for multicomponent analysis. The 911A stores up to 15 operating programs and allows scans and numeric data to be output to a parallel printer. The unit comes complete with a seven-position carousel. *GBC Scientific Equipment, 22 Brooklyn Avenue, Dandenong, Victoria, Australia 3175.*

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**Near-Infrared
Polarizers**

Oriel has added new infrared polarizers to its polarizer family. These NIR glass polarizers provide extinction exceeding 10^{-3} and high transmittance and are useful for work with diode lasers. The polarizers use tiny silver crystals embedded in glass to absorb one polarization preferentially. Oriel offers models for 800, 1060, 1310 and 1550 nm, which are supplied in 1.0-inch-diameter discs for easy handling and mounting. They are anti-reflection coated on both sides. *Oriel, 250 Long Beach Boulevard, P. O. Box 872 Stratford, Connecticut 06497-0872.*

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**Photodiode-Detector
System with
Preamplifier**

The eV-250 photodiode-detector system from eV Products detects x rays, gamma rays and charged particles. This system integrates a detector and an ultra-low noise preamplifier.

NEW PRODUCTS

When the eV-250 is used to detect gamma rays, a CsI(Tl) scintillator is directly coupled to a photodiode, and the scintillator converts the high-energy gamma rays to low-energy photons. The detector system has a number of claimed advantages over standard systems, including: No gain drifts even when operating in magnetic fields; compact detector design; low voltage and low current; good energy resolution for a large variety of particles; rates up to 10 000 without degradation (depending on the type of spectroscopy amplifier used). The eV-250 is suitable for rugged, inaccessible environments; and can be ordered with a variety of scintillators, such as CdWO_4 and undoped CsI. *eV Products, 2b Old Dock Road, Yaphank, New York 11980.*

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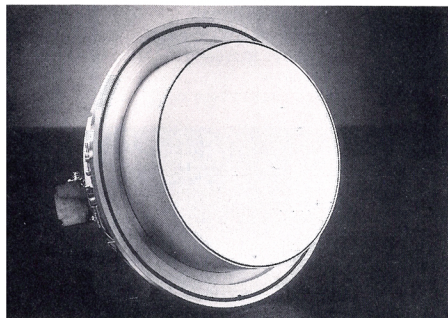
Mass-Separated Ion Beams

A new ion-beam machine that can produce mass-separated ion beams from 5 eV to 75 keV has been developed by Colutron Research. A typical ion current for singly ionized oxygen at 5 eV is 50 μA ; for Ar^+ it is 100 μA . The machine is capable of delivering up to 1 mA of various ion species at energies above 20 keV. Energy spread is claimed to be less than 0.5 eV over the entire energy range. The machine is pumped by three 1000-liter molecular pumps. The target or process chamber can be blanked off for quick access and change of substrates. *Colutron Research, 2321 Yarmouth Avenue, Boulder, Colorado 80301*

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Submicron Step-Coverage Sputtering Source

Varian has introduced the planar magnetron sputtering Quantum



Source, a physical vapor-deposition source that provides submicron-scale metallization at high levels of step coverage. It operates at pressures a decade lower than traditional sources, reducing the gas scattering and low-angle vapor associated with the technique. Lateral growth of the metal film is controlled, with a substantial increase in bottom and sidewall coverage in high-aspect-ratio submicron contacts. Step coverage is as high as 35% in contact holes 1 μm deep and as narrow as 0.45 μm wide for films that are less than 0.1- μm .

The source provides full-face erosion of the sputtering target, which, the company claims, results in reduced particulates, up to 50% longer target life, and a constant deposition rate throughout the life of the target. It sputters aluminum alloys as well as refractory metals and their reactively formed compounds. *Varian Associates, 611 Hansen Way, Palo Alto, California 94303.*

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Sensitive, Spectrally Flat Joulemeter

Molelectron Detector has introduced two new pyroelectric joulemeter probes, models J4-05 and J4-09. The probes consist of a blackened pyroelectric detector and low-noise transistor amplifier in an EMI-shielded housing. Their intended use is as a spectral standard for tunable, pulsed lasers of all types, from ultraviolet to far infrared. Energy measurements from nanojoules to millijoules are possible using a standard oscilloscope. *Molelectron Detector, 7470 SW Bridgeport Road, Portland, Oregon 97224.*

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New Literature

Diffraction files—The International Centre for Diffraction Data has released the 1990 edition of its *ICDD Powder Diffraction File and Related Databases*, which describes its PDF-2 file (a database of 53 000 patterns of organic and inorganic compounds) and other files available from ICDD on CD-ROM and other media. The publication also describes the NIST crystal data and NIST/Sandia/ICDD electron-diffraction database, which contains crystallographic and chemical information on more than 71 000 crystalline materials. *International Centre for Diffraction Data, 1601 Park Lane, Swarthmore, Pennsylvania 19081.*

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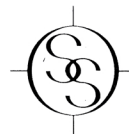
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