

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.

Femtosecond Colliding-Pulse Ring Dye Laser

Photonics is offering the Femto colliding-pulse-mode ring dye laser, which was designed in collaboration with the Institut d'Optique d'Orsay. Its optimized six-mirror laser cavity includes a four-prism system to control the group-velocity dispersion. As a result, two counter-propagating femtosecond pulses having minimum temporal broadening are generated in the cavity.

The laser provides pulses as short as 80 fsec at wavelengths of 620–685 nm or 775nm, with an average power greater than 20 mW at a repetition rate of 100 MHz. The Femto dye laser is intended for the study of ultrafast phenomena in physics, chemistry and biology. *Photonics*, 52 Avenue de l'Europe, (B.P. 39), 78160 Marly-le-Roi, France.

Circle number 140 on Reader Service Card

Versatile Potentiostat for Electrochemistry

EG&G Princeton Applied Research has introduced Versastat, a versatile potentiostat for a wide variety of laboratory techniques. The computer-controlled Versastat includes IBM-compatible software that allows users to control every function of the instrument. The software can, for example, control multi-cycle voltammetry experiments. Users can also design their own techniques, using the system's electrochemical command set.

The Versastat includes an IEEE-488 computer interface. The potentiostat control-amplifier output voltage ranges from +20 V to -20 V, and the maximum output current is 250 mA. The electrometer cell voltage ranges from +10 V to -10 V, and the input resistance exceeds 1010 ohms.

The Versastat is of modular design,



to accommodate expansion through application software. A user can, for example, add the firm's Model 342 Softcorr software to perform nine different electrochemical corrosion measurement procedures. Additional software can be used for a wide variety of educational and research electrochemical applications. *EG&G Princeton Applied Research*, P. O. Box 2565, Princeton, New Jersey 08543.

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Turbomolecular Pumps with New Ceramic Bearings

The new Leybold Turbovac TMP50 and TMP1000 grease-lubricated turbomolecular pumps are claimed to be the only commercially available pumps with silicon nitride ceramic ball bearings. This new ball-bearing technology, we are told, has been field-tested with more than 1000 pumps without a single bearing failure. The pumps are available in KF, CF, ISO-K, and ASA inlet flange sizes. Their compactness suits them for use in small mobile systems, ion implantation, tube evacuation, ultra-clean vacuum, mass spectrometers, measuring and analytical instruments, sample-preparation equipment and other such applications.

The pumps are mountable in any position. They are all of single-unit construction, and they are claimed to operate very quietly, with little vibration. Pumping speeds for N_2 range from 29 l/sec to 1150 l/sec, depending

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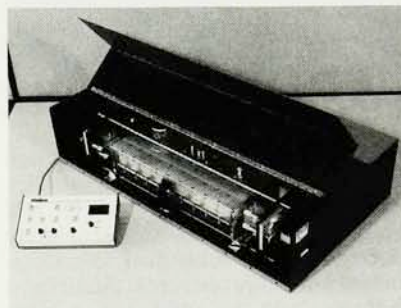


on model and flange size. The accompanying solid-state converters take up $\frac{1}{4}$ rack for the TMP50 and a full rack for the TMP1000. *Leybold Vacuum Products, 5700 Mellon Road, Export, Pennsylvania 15632.*

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High-Energy Pulsed Infrared Chemical Laser

Helios has introduced a new hydrogen (and deuterium) fluoride chemical laser to complement its existing line of CW lasers. This new Model PCLII can produce 350-mJ pulses at a wavelength of $2.8 \mu\text{m}$ with HF, and 200-mJ pulses at $3.8 \mu\text{m}$ with DF. In both



cases the repetition rate can reach 5 Hz with peak power up to a megawatt. The laser operates at sub-atmospheric pressure, with a transverse electric discharge and a flowing mixture of SF_6 and H_2 gases. It offers previously unavailable output energies, we are told, opening a number of new applications in medicine, semiconductors and mid-infrared research. *Helios, 1822 Sunset Place, Longmont, Colorado 80501*

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Cantilever Styluses for Scanning Force Microscopes

Park Scientific Instruments is offering its new Microlevers cantilever stylus assembly for scanning force microscopes. Each Microlevers wafer contains at least 1400 useable cantilever styli. The cantilever senses the forces between its tip and the atoms of the surface being scanned. A topographic map of the surface is formed by recording the cantilever deflection as the sample is scanned beneath the stylus.

For optimal resolution, the cantilever must have small dimensions, a low force constant, a high resonant frequency, high lateral strength and stiffness, and a very sharp tip. Micro-

fabricated on a wafer from low-stress Si_3N_4 , the Microlevers are very resilient, we are told, with force constants ranging from 0.4 to 0.004 N/m. Integrated pyramidal tips have minimal radii of less than 400 Å. A variety of force constants can be used for imaging in the low-force repulsive mode or the attractive mode. Optional features include reflective gold and chrome coatings, integrated pyramidal tips, and tool kits that includes a wafer tweezer, chip-handling tweezer, tungsten-carbide scribe and a scribing anchor. *Park Scientific Instruments, 476 Ellis Street, Mountain View, California 94043.*

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Gridless 2-Amp Scrubber Ion Source

Commonwealth Scientific is offering a 2-amp, gridless ion source for use as a low-voltage scrubber with large box coaters. It can provide current densities in excess of 8 mA/cm^2 at 60 eV. Designated the Mark III, this ion source is designed for production installations that perform ion cleaning or other ion-assisted procedures over a work area of 1 to 2 m in diameter.

This end-Hall-effect source is 8 inches in diameter and 11 inches long. It can be mounted inside conventional evaporator or sputtering systems. It serves to minimize substrate heating, and we are told that it improves adhesion, stress control, uniformity, optical properties and cycle time. The source is oxygen compatible. *Commonwealth Scientific, 500 Pendleton Street, Alexandria, Virginia 22314.*

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Three-Dimensional Color Monitor for Personal Computers

Tektronix has introduced three full-color stereoscopic display systems for IBM PC/AT personal computers and compatibles. Based on the combination of a color CRT and the firm's liquid-crystal-shutter stereoscopic technology, the new models SGS 431 (16-inch diagonal), SGS 630 (19-inch diagonal) and SGS 635 (multimode 19-inch diagonal) offer what the firm calls "passive 3D viewing" through simple, non-tethered polarizing glasses.

Included with the stereo-3 dimensional system is a stereoscopic graphics adapter (SGA) card, which offloads low-level graphic functions from

the IBM PC/AT. The card supports all common 2D primitive functions. The card also lets users present high-quality 3D images from applications software. For applications developers, the SGS stereo-3D systems include a graphics subroutine library that supports all 3D primitives, as well as many primitives.

The SGS systems should be particularly useful for a number of display applications where stereoscopic information is critical—for example, molecular modeling, cartography, photogrammetry, remote sensing, nondestructive testing and medical imaging.

The color monitor also has a removable liquid-crystal modulator, so that one can have either 1280×1024 resolution for monoscopic viewing or 1280×512 resolution for stereoscopic display. The SGS431 sells for \$9 800, the SGS 630 for \$13 300 and the SGS 635 for \$13 800. Each includes a color monitor, stereoscopic modulator, driver unit, connecting cable, four pairs of polarizing glasses, stereoscopic graphics adapter card and a graphics subroutine library. Tektronix, P. O. Box 500, M/S 46-943, Beaverton, Oregon 97077.

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30-Nanosecond Laser Strobe Light

Oxford Lasers' Laserstrobe is a new laser light source for high-speed photography. It is intended for applications requiring a stroboscopic light source. It can provide single shots or as many as to 32 000 pulses of visible light per second. The stroboscopic laser light can be delivered through a



fiber optic cable for use inside turbines and other normally inaccessible systems. Each stroboscopic flash from Laserstrobe lasts approximately

30 nsec. Applications include engine combustion analysis, droplet photography, spray analysis, ballistics and flow visualization. Oxford Laser, 898 Main Street, Acton, Massachusetts 01720.

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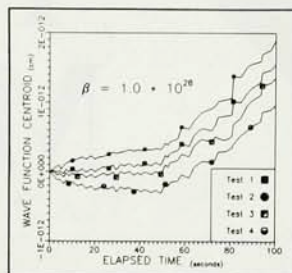
New Literature

Reflectance—Labsphere is offering its 1990 *Product Catalog and Technical Reference Guide*. This 112-page catalog describes the firm's line of reflectance materials, reflectance standards and targets, laser cavity assemblies, integrating spheres, uniform light sources, photometers, radiometers and reflectance-spectroscopy accessories. The catalog includes an 18-page technical reference guide, which provides information regarding integrating-sphere applications and flux calculations, illuminance uniform Lambertian sources and the comparative properties of various reflective materials and coatings. Labsphere, P.O. Box 70, North Sutton, New Hampshire 03260

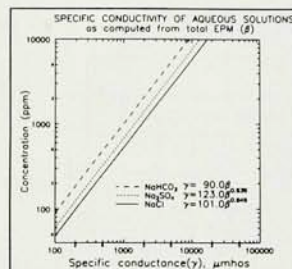
Scanning-probe microscopes—Burleigh Instruments is offering a new 18-page technical guide for the design of the scanning-probe microscopes. The *Scanning-Probe Microscope Book* provides a historical perspective, and it describes the various types of these surface-probe microscopes. The book presents, in some detail, the theory of operation of the scanning-tunneling microscope, as well as an overview of its major components and their interaction. While various scanning-probe microscopes are intended for different environments and applications, they all share a common architecture. The book includes a glossary and bibliography. Burleigh Instruments, Burleigh Park, Fishers, New York 14453.

Spectroscopy—Perkin-Elmer offers two brochures, describing the Model 5500 multi-technique system and the toroidal x-ray monochromator. The 5500 does XPS, Auger spectroscopy and SIMS, all in one system. The toroidal x-ray monochromator is claimed to give the best energy resolution commercially available when combined with the electron optics of the firm's XPS instruments. The monochromator has a 500-mm Rowland circle for high x-ray energy dispersion and a toroidal crystal design for maximum collection efficiency. Comparison spectra are shown for a variety of applications. Perkin-Elmer, Physical Electronics Division, 6509 Flying Cloud Drive, Eden Prairie, Minnesota 55344.

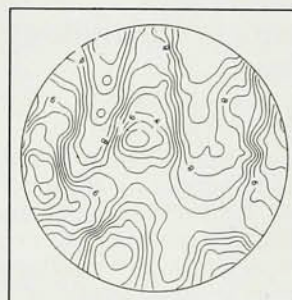
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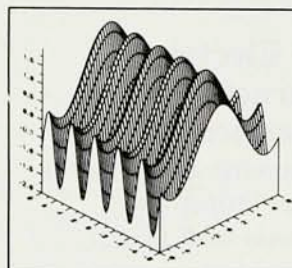
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