

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.

New Software for Students to Explore Chaos

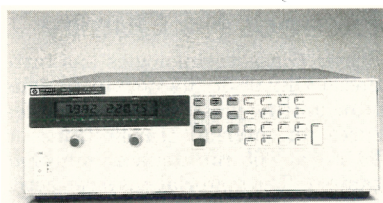
Physics Academic Software has issued a menu-driven computer program called *Chaos Demonstrations*, which presents an easy-to-use tour of the basics of chaotic dynamics. An automatic "museum mode" steps through 18 demonstrations. Parameters can be varied with single key-strokes, and viewers can temporarily take command of the program from any screen. The software comes on a 5¼ or 3½-inch floppy disk and runs on an IBM-compatible PC, XT, AT, PS2 with 256K RAM and graphics card. A math coprocessor is recommended.

The demonstrations include: driven pendulum, nonlinear oscillator, Van der Pol equation, three-body problem and magnetic quadrupole. On-screen explanations and a quiz for students are also included. Instructors can modify the quiz questions. A 116-page user's manual has mathematical descriptions suitable for undergraduate and graduate students. *Physics Academic Software, P.O. Box 8202, North Carolina State University, Raleigh, North Carolina 27695-8202.*

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Switching Power Supplies Comparable to Linears

Hewlett Packard has introduced two 2-kW power supplies: Models HP6671A and HP6674A. The company claims that they approach the performance of linear power supplies and provide the efficiency and compactness of switching power supplies. Peak-to-peak output noise of the 6671A is less than 7 mV under all operating conditions, compared with



50 mV for typical switching supplies or 5 mV for a linear post-regulated supply of twice its size and weight. The 6671A supplies up to 220 amps dc at 0-8 V, and the 6674A supplies up to 35 amps at 0-60 V. The 6674A's peak-to-peak noise level is 15 mV, which as a percentage of its maximum output is less than that for the 6671A.

The power supplies are 5-1/4 inches high in a rack-width housing and are intended for automated-test-equipment applications. They use the IEEE-recommended standard commands for programmable instruments. They can be operated manually via front-panel controls. An extendable interface allows up to 16 to be connected to a single IEEE-488 address. *Hewlett Packard, 19310 Pruneridge Avenue, Cupertino, California 95014*

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ECR Plasma Stream and Ion-Beam Source's

A new series of light-weight, compact ECR plasma sources has been introduced by Technics Plasma. These sources are intended as additions to existing etching or deposition systems. Typical applications are surface cleaning of parts prior to PVD coating, micropattern generation, and ion-beam-assisted evaporation or sputtering. The microwave applicator is said to eliminate the bulky

Cryo

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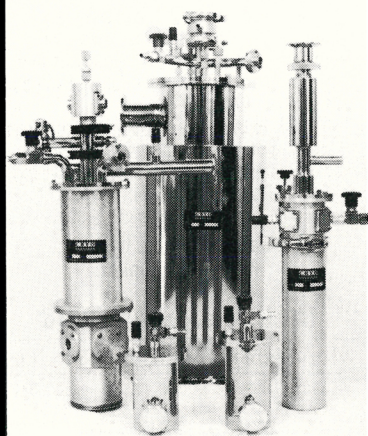
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microwave components used with other sources; the ECR-magnet needs less than 2 kW. The magnetic (soft-stream) and grid (ion-beam) extraction units are available in two sizes. Substrates up to 8 inches in diameter can be treated uniformly. The sources come with a compact solid-state switching power supply, which fits in a standard 19-inch rack. *Franke Consulting, Daphnestrasse 11, D 8000 München 81, Germany*
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Ultraviolet- Transmitting Glass Exceeds H4 Quality

Schott Glass Technologies has introduced Ultran 30, its new ultraviolet-transmitting glass. The material features an internal transmittance of 99.5% at 365 nm for a 25-mm-thick sample. The material has a refractive index of 1.54830 and an Abbe value of 74.25 at the sodium d-line (587.6 nm). It is available in dimensions up to 240 mm × 210 mm × 55 mm; 300-mm dimensions are possible after slumping. It can be routinely supplied at quality levels up to, and in some cases exceeding, H4 (as defined by Schott). The glass also exhibits precision grade striae and favorable bubble characteristics. The glass can be fabricated using common glass-processing methods and can be used for a broad range of applications, including lenses, windows and substrate materials for excimer lasers, fiber optics and micro-lithography. *Schott Glass Technologies, 400 York Avenue, Duryea, Pennsylvania 18642.*

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Wide-Range Modular Vacuum-Gauge Controller

Balzers has introduced the IMG 300, a modular vacuum-gauge controller, which covers pressures from atmospheric to 10^{-11} torr. The system's ionization gauge measures down to 10^{-7} torr, which makes it suitable for sputtering and other high-pressure plasma-process applications. The IMG 300 can be equipped to operate combinations of Pirani, inverted-magnetron, Bayard-Alpert and high-pressure ionization gauges to provide continuous measurements over the entire pressure range.

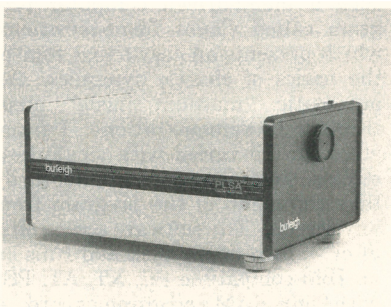
Pressure is displayed on a 15-mm high-intensity LED in torr, mbar or pascal. A multifunction eight-seg-

ment alphanumeric LED display can show pressure bar-graph display, trip points, second-gauge head display and system status. The instrument features automatic identification of the connected gauge head. *Balzers, 8 Sagamore Park Road, Hudson, New Hampshire 03051.*

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Spectrum Analyzer for Pulsed Lasers

Burleigh Instruments has announced a new spectrum-analyzer system for pulsed lasers. The PLA-3500 is designed for mode-structure and line-shape analysis as well as real-time measurement of line width, laser drift and laser scan. Resolution exceeds 200 MHz for fixed-frequency lasers and 1% of wavelength for tunable



lasers. Operating wavelengths are from 400 to 1100 nm. An analyze mode provides smoothing and differentiation of spectra, curve fitting to real line-shape functions and measuring of multilinear frequencies. The system is computer controllable via an interface card in an IBM-PC/AT or compatible computer. *Burleigh Instruments, Burleigh Park, Fishers, New York 14453.*

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Wide-Bandwidth Faraday Cup

Arch Development at the University of Chicago is licensing a wide-bandwidth Faraday cup. This simple, low-cost instrument is intended for critical timing measurements of ion beams; it can measure intensities of nanoamps to tens of microamps with 60-picosecond bunching resolution. The Faraday cup can replace surface-barrier and microchannel plate detectors.

Arch claims that production cost should be less than alternate technologies employed for ion-beam-bunch analysis. The device may be water

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cooled to extend its beam-power-handling capability, and the cup surface may be lined to extend its stopping power above 30 MeV/nucleon. *Arch Development, University of Chicago, 1101 East 58th Street, Chicago, Illinois 60637.*

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Gamma Spectroscopy Instrument

EG&G Ortec has added the Mercury system to its Spectrum Master family of spectroscopy instruments. The new system consists of the Ortec 973U amplifier and 921 multichannel buffer. Its germanium detectors are said to provide a throughput of 86 000 counts per second and a dead-time correction accuracy exceeding 3% at input rates exceeding 400 000 counts per second. Applications for the Mercury system include high-rate gamma spectroscopy in nuclear-waste management and neutron activation analysis as well as air-discharges monitoring at nuclear facilities. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37831-0895.*

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High-Repetition-Rate Dye Laser

Oxford Lasers has introduced a new range of high-repetition rate (2–15 kHz) dye-laser systems using its copper lasers as a high-efficiency pump source. These integrated systems can produce pulses of tunable light covering the wavelengths from the near ultraviolet to the near infrared. The highly monochromatic (bandwidth around 4 GHz) pulses are short (around 20 nsec) and have high peak power (around 100 kW). Oxford offers a four-page pamphlet, "Dye Laser Applications Note," to describe the theory and uses of these laser systems. *Oxford Lasers, 898 Main Street, Acton, Massachusetts 01720.*

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Low-Noise Charge-Sensitive Preamp

eV Products has introduced the eV-350, a low-noise, general-purpose, charge-sensitive preamplifier. The unit incorporates three separate preamplifiers on a single hybrid circuit in a package that is 3-inches wide $\times$ 3.75 inches long $\times$ 1.75 inches high. It features a noise value of 170 e rms when $C_{\text{source}} = 1$ pF; its sensitiv-

ity is 2 mV/fC, or 88 mV/MeV Si equivalent. The eV-350 is intended for use with low-capacitance detectors, such as the silicon-strip and silicon-drift, and for various gas proportional chambers. *eV Products, 2b Old Dock Road, Yaphank, New York 11980*

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Briefcase-Size Helium-Leak Detector

Alcatel's new briefcase-size, oil-free, helium-leak detector is designed for testing systems equipped with a vacuum pump or pumping system. The ASM-100H uses a proprietary molecular-drag pump concept to provide inlet pressures to 10 mbar (7.5 torr) and system sensitivity of 10^{-9} atm cc/sec He. *Alcatel Vacuum Products, 40 Pond Park Road, Hingham, Massachusetts 02043*

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Licensing of Coating Process

Optical Coating Laboratory is licensing MetaMode, an automated, high-rate, thin-film coating process. The dc magnetron sputtering process allows flat or irregularly shaped substrates to be coated at or near room temperature. Applications include: coatings for precision light control; optical interference; protective barriers; energy control; dichroic filters and laser rejection. The process is suited for product-application development in such fields as electronic components and semiconductors. *Optical Coating Laboratory, 2789 Northpoint Parkway Santa Rosa, California 95407-7397*

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New Literature

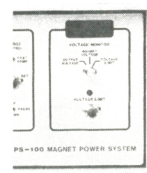
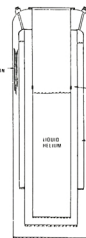
Nuclear Spectroscopy—EG&G Ortec is offering a free 432-page catalog *Detectors & Instruments for Nuclear Spectroscopy* (1991), which features more than 130 NIM, CAMAC and germanium detector products. New product listings include: ultra-large Ge coaxial detectors (p-types with relative efficiencies to 100% and n-types to 80%); ultra-low-background Ge detectors; Model 675 Ge resolution enhancer; CAMAC Model CCF8200 constant-fraction discriminator with eight independent channels; and models 973 and 973U ultrahigh-rate amplifiers. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37831-0895.*

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