

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.

## Surface Analysis by X-Ray Fluorescence

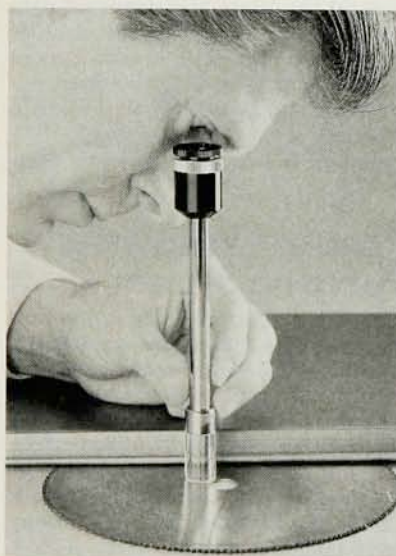
Perkin-Elmer's recently acquired German subsidiary, Atomika, has introduced the new XSA 8000 x-ray surface analyzer. The XSA 8000 uses a new method for measuring wafer surface contamination with a sensitivity of  $10^{11}$  atoms/cm<sup>2</sup>. The new analyzer uses total-reflection x-ray fluorescence to detect chemical elements. Its three main components are the x-ray generator with its molybdenum x-ray tube, the sample holding and positioning unit, and the energy-dispersive analyzer and detector system. The data system includes a color monitor with a printer and menu-driven software.

This non-destructive analysis system requires no vacuum or sample preparation. It can accommodate wafer diameters of 100, 125 and 150 mm. Applications include analysis of dry-etching and wet-chemical processes, quality control and optimization of cleaning processes. Perkin-Elmer, Physical Electronics Division, 6509 Flying Cloud Drive, Eden Prairie, Minnesota 55344

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## Pocket Microscope with Built-in Reticule

Edmund Scientific is offering a pocket-size 30× microscope, 7 inches long. It is intended for on-the-spot inspection and measurement of minute details. Measurement is accomplished with a built-in reticule. The extra-wide-field eyepiece provides a  $\frac{5}{32}$ -inch field of view, 20% wider than one can get with most pocket microscopes, we are told. A fine thread screw permits precise adjustments, and a knurled ring lets one rotate the reticule without moving the microscope. The  $\frac{3}{8}$ -inch chrome shaft and  $\frac{5}{8}$ -inch-diameter acrylic base fit into tight areas. The microscope is offered



with either inch- or metric-scale models. The price is \$100. Edmund Scientific, Dept. 19B1, N999, Edscorp Bldg., Barrington, New Jersey 08007

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## High-Power Laser Amplifier for Femtosecond Pulses

Oxford Lasers offers a new system for femtosecond pulse amplification based on its 60-W copper vapor laser and its proprietary optical cavity, which generates shortened, high-peak-power laser pulses.

The Oxford Cu60 laser, with its 60-W average power output, is the highest-power copper vapor laser commercially available, we are told. When fitted with Oxford's pulse-shortening cavity optics, it achieves at least 50% more power than could formerly be produced by its 40-W predecessor fitted with the same cavity.

The Cu60 and the SPK optical cavity together produce 11-nanosecond pulses of 511-nm (green) laser light with a peak power of 240 kW and

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a pulse repetition rate of 6.5 kHz. Its small beam divergence yields better focusability. This output is particularly suited to pumping two dye jet amplifier stages. The amplified femtosecond pulse train from the first CVL-pumped stage can be used to generate the white-light continuum, while the output from the second stage amplifies a small spectral range of the continuum. Tunable, short pulses of very high energy can be created in this way.

Research employing extremely high-peak-power femtosecond pulses will benefit from the reduced experimental run times and increased data rate made possible by the 6.5-kHz repetition capability of the copper vapor laser. *Oxford Lasers Ltd., 60/62 Madgelen Road, Oxford OX4 1RD, England*

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## Portable Vacuum-Pumping System

Key High Vacuum offers its new Inline series of pumping systems, available in 2-inch, 4-inch and 6-inch stacks. All models are watercooled. The 2-inch system can also be provided in an air-cooled configuration. The butterfly valves and liquid-nitrogen traps are made of stainless steel, and the baffles have holding times up to 16 hours.

The 6-inch system, with a pumping speed of 1500 liters/sec, can achieve a vacuum of  $5 \times 10^{-8}$  torr. The others can get down to  $2 \times 10^{-7}$  torr.

These portable systems are completely assembled and leak tested before delivery. They are well suited for environmental simulation studies, we are told. *Key High Vacuum Products, 36 Southern Boulevard, Nesconset, New York 11767*

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## Microprocessor-Controlled Cryopumps

CTI cryogenics has introduced its new "on-board" line of cryopumps, which let users monitor and control a wide range of vacuum-system functions. With their built-in microprocessor-based control systems, these pumps provide a range of capabilities previously unavailable in a single, self-contained package, we are told.

The factory-integrated vacuum system includes a keypad control/display panel mounted on the cryopump and anywhere else the user wishes. One can also control the system from a host computer through an RS-232



interface. Pushing a single button on the keypad provides base pressure within two hours. *CTI-Cryogenics, 266 Second Avenue, Waltham, Massachusetts 02254-9171*

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## Alpha Particle Spectrometer

Canberra's new Model 7401 is a NIM-based alpha spectrometer that combines most of the instrumentation needed for alpha spectroscopy in a single package. All one needs in addition is a detector and a vacuum pump. The unit includes a built-in counter-timer and a stainless steel vacuum chamber. Pressure, detector bias, leakage current and other essential parameters are displayed on the front panel, as are counts, elapsed time and preset time.

The Model 7401 can handle detector areas up to 900 mm<sup>2</sup>, and it can accommodate 2-inch-diameter samples. Canberra's PIPS (passivated implanted planar silicon) detectors, with thin windows that improve spectral resolution, are well matched to this new alpha spectrometer. *Canberra, One State Street, Meriden, Connecticut 06450*

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## Single Crystals of High-Temperature Superconductors

Superconix, a small, new company, is offering single crystals of the high-temperature superconducting oxides.

Large YBaCuO and BiCaSrCuO crystals are available with zero-resistance values up to 85 K. The YBaCuO crystals grow as thin sheets less than 0.1 mm thick, with maximum dimensions of about 15 mm. Because the crystals are difficult to extract from the melt, the largest free-standing YBaCuO crystals are only 9 mm in maximum dimension.

Crystals of  $\text{Bi}_2\text{Ca}_1\text{Sr}_2\text{Cu}_2\text{O}_x$  are also available, but the largest crystals are comparatively Bi lean and Cu rich, with approximate composition  $\text{Bi}_1(\text{Ca},\text{Sr})_{5-6}\text{Cu}_{6-8}\text{O}_x$ . These crystals grow as long rods (up to 60 mm), with maximum cross-sectional dimensions of about 3 mm by 1 mm. The crystals with highest crystallographic quality and shiny surfaces have thinner cross-sectional dimensions. The long, thin shape of these crystals makes them particularly attractive for certain applications. The longest free-standing crystals reach 20 mm. The superconducting transition temperatures of all these BiCaSrCuO crystals are sensitive to oxygen annealing conditions. *Superconix, PO Box 31, St. Paul, Minnesota 55101*

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## Fast Data Acquisition with Personal Computers

Qua Tech is offering its new System 12000, a sophisticated high-speed data-acquisition unit that interfaces with the IBM PS/2 models 50, 60 and 80, the IBM AT and other compatible computers. It sells for \$3000. The system lets one convert and record large quantities of data at megahertz speed with a personal computer.

The System 12000 is at once a 12-bit, 8-channel analog-to-digital converter; a 12-bit, 2-channel digital-to-analog converter; and a 16-line digital input-output device. Its on-board memory is 256K 16-bit words. Direct access to the computer's memory allows the System 12000 to operate independently of the host computer. The system offers pre- and post-triggering, over-voltage protection, selectable gains and 8255-controlled digital input and output. Assembly language drivers can be called from BASIC, QUICKBASIC, Turbo PASCAL and FORTRAN. Terminal strips mounted on the back of the unit facilitate connections to the outside world. The System 12000 comes with AT or PS/2 interface card, interface cable, external data-acquisition unit, software driver and complete documentation.

Qua Tech, 478 E. Exchange Street, Akron, Ohio 44304

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## Inexpensive Laser-Diode Current Source

ILX Lightwave has introduced the LDX-3412, an inexpensive laser-diode current source. This is a transient-free source that can operate in a



constant-current mode, or it can use external photodiode feedback to operate at constant power. The source offers low-noise output, slow turn-on and independently adjustable current-limit and front-panel controls. The LDX-3412 can provide currents up to 200 mA. It sells for under \$1000. *ILX Lightwave, P.O. Box 6310, 34368 E. Frontage Road, Bozeman, Montana 59771*

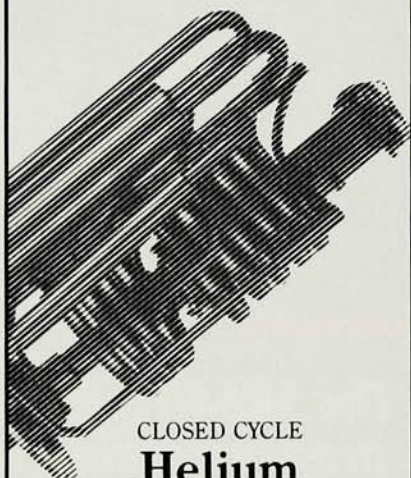
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## New Literature

**Motion controllers**—Aerotech's 148-page Motion Control Product Guide describes the company's extensive lines of motor-driven linear and rotary positioning stages, microstepping translators and stepping motors, servo motors and amplifiers, and their comprehensive line of motion controllers, ranging from single-axis, point-to-point microstepping controllers to multi-axis, contouring, closed-loop, servo drive systems. *Aerotech, 101 Zeta Drive, Pittsburgh, Pennsylvania 15238*

**Vacuum**—The 750-page 1989 vacuum products catalog from the Kurt J. Lesker Co. has been reorganized for greater user convenience. The product coverage has been increased to provide a comprehensive selection of vacuum hardware, components, services, instruments and systems. *Kurt J. Lesker Co., 1515 Worthington Avenue, Clairton, Pennsylvania 15025* ■

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