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.

InGaAsP photodetectors and receivers

Ortel has announced several new InGaAsP photodiode components and receivers. The Models PL100-PM and PMS and PL050-PM and PMS are photodetectors consisting of high-speed, highly efficient InGaAsP p–i–n photodiodes mounted in pigtailed packages for high-speed single-mode fibers or multimode fibers. The photodiodes have typical rise times of 100 and 50 psec, respectively, and 3-db bandwidths of 3 and 6 GHz. They also offer high quantum efficiencies, low capacitances and low dark currents.

The Model RLW-100(S) and RLW-50(S) optical receivers combine PL100-PM and PMS and PL050-PM and PMS photodiodes and a bias network into single, turn-key units. To obtain additional gain, one can connect the output from the RLW receivers directly to any standard 50-Ω microwave or rf amplifier. *Ortel Corporation, 2015 West Chestnut Street, Alhambra, California 91803*

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Position-sensitive and integrating x-ray detector

EG&G PARC is extendings its OMA III product line with a new, position-sensitive x-ray detector, the M1412XR. This detector is intended for the detection of pulsed or cw x rays in the 1–20-keV range. Based on a beryllium-window diode array, the M1412XR has a thousand 2-mm×25-micron elements, each of which has a sensitivity of approximately 1 count per 8.5 keV of incoming energy.

This diode array integrates x rays in much the same manner as does film, giving the detector several advantages, we are told, over proportional counters. During pulsed experiments, the M1412XR accurately records the instantaneous high flux striking many resolution elements. During cw experiments, the instrument avoids the problems associated with dead time, pulse pileup and position error due to the simultaneous arrival of two x-ray photons.

Each detector element has a maximum count rate of 8×10^5 sec^{-1}. Using position-selective rapid scanning—for example, 100 elements in 2 msec—one can achieve a count rate of 8×10^6/sec for each of the 100 elements. One can also digitally average strong signals from the M1412XR. For weak signals, single-scan exposure times can be extended to well beyond 100 seconds. The detector is vacuum compatible, and it comes with a removable Kapton window. The price of the M1412XR is $13 000. *EG&G Princeton Applied Research P.O. Box 2565, Princeton, New Jersey 08543*

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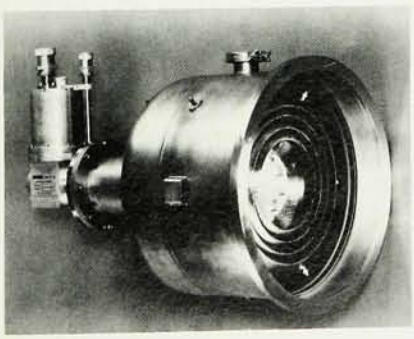
High-power cryopump with digital thermometer

Balzers has introduced the RCP 401Z cryopump, which incorporates a digital thermometer and features a choice of flanges. The 16-inch (400-mm) unit has a gas capacity of 6500 standard liters for argon and 30 standard liters for hydrogen. It contains a brushless dc motor in the cold head that operates with low vibration levels. The pumping speed is 18 000 L/sec for water vapor and 6500 L/sec for air. The



new products

refrigeration power of the pump is 65 W at or below 77 K and 6 W at or below 20 K. Prices start at $18 000, depending on the options chosen. *Balzers, 8 Sagamore Park Road, Hudson, New Hampshire 03051*

Circle number 142 on Reader Service Card

Inchworm piezoelectric translator motors

Burleigh Instruments has introduced four new series of inchworm translators. Redesign of Burleigh's patented piezoelectric motor has resulted, we are told, in several performance enhancements, including a mechanical step resolution of 4 nm, a maximum speed greater than 2 mm/sec under full load (1.5 kg) and a maximum travel distance of 8.25 inches. The new motors are available in either open-loop or closed-loop configurations. In closed-loop operation, the exact position or motion of the motor can be accurately measured by optical-fringe methods or counting encoders. These piezoelectric motors are true linear translators, Burleigh says, with no the conversion of rotational motion and subsequent backlash associated with lead-screw or gear-driven designs. *Burleigh Instruments, Burleigh Park, Fishers, New York 14453*

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Laser-beam pointer for fine aiming

Optics for Research manufactures laser-beam pointers and aimers that make use of pairs of optical wedges to change the direction or location of a laser beam. The beam pointer uses one pair of equal wedges with a clear aperture of 20 mm; the wedges are independently rotated to point the laser beam anywhere within a 10° cone. The beam aimer consists of two wedge sets operated in tandem to provide x–y displacements as well as directional pointing. The units are available with wedges made from a variety of materials to accommodate laser light of a variety of wavelengths. *Optics for Research, P.O. Box 82, Caldwell, New Jersey 07006*

Circle number 144 on Reader Service Card

Magnetron sputtering source for ultra-high vacuum

The Enerjet division of Kurt J. Lesker has developed the Torus-5uhv magnetically enhanced sputtering source for ultra-high-vacuum applications. Its samarium–cobalt magnets, we are told, create an extremely uniform plasma above the target surface, so that films are deposited quickly, uniformly and homogeneously, with small grain size, little radiation damage and high density. The Torus-5uhv is designed to be mounted on any uhv system—existing or newly designed—and requires only a standard metal-seal flange. The magnet assembly is readily dismounted so that the full system can be baked out with only the target within the working environment. *Kurt J. Lesker Company, 1515 Worthington Avenue, Clairton, Pennsylvania 15025*

Circle number 145 on Reader Service Card

Portable four-decade vacuum standard

The Model PVS-1 Baratron is the latest addition to the MKS line of portable vacuum standards. Housed in an aluminum carrying case, the standard consists of a Model 222CA capacitance manometer with a four-decade range and an accuracy of 0.5% of reading. The manometer has a 0.5-inch-diameter tube for connection to the vacuum system, and connects to the instrument with a 10-foot cable.

Readout is on a 4½-place digital voltmeter mounted on the front panel, which has a power connector for 115/230 V ac, a power switch, a D-type transducer connector and a 0–10-V dc output for a strip-chart recorder. Full-scale ranges are 10, 100 and 1000 torr, and the operating-temperature range is 0–50° C. *MKS Instruments, 34 Third Avenue, Burlington, Massachusetts 01803*

Circle number 146 on Reader Service Card

CCD sensors for imaging and spectroscopy

Intended for "one-shot" pickup or imaging systems already incorporating their own frame memory, the new Mod-

el TH 7884CD single-field charge-coupled-device image sensor from Thomson offers a capacity of 500×512 photo-MOS elements. A special substrate with an optically active layer thinned to 20 microns is said to give this sensor a very uniform dark signal—and hence high sensitivity—throughout the 400–1100-nm range, and also a modulation transfer function and response uniformity in the infrared closely matching that in the optical region.

Typical optoelectronic performance values include a dynamic range of 3300:1, and 9.0 V/μJ cm^2 response with a very high degree of uniformity. The TH 7884CD is also offered with a fiber-optic window to allow direct, low-loss coupling to an optical instrument.

The Model TH X31513 is a new, double linear CCD image sensor principally intended for spectroscopy. The double configuration allows one line of photoelements to be used as a background reference. To maximize sensitivity while maintaining good resolution, the photoelements measure 13 microns along the array and 750 microns in the perpendicular direction. The 2048-element arrays have a 500-micron separation, and each one is read out by two CCD shift registers on either side, receiving the odd and even pixels, respectively. Each shift register has its own readout circuit, so there are four separate outputs in total. The maximum data output rate is 10 MHz per line.

The elements use np photodiodes in which, we are told, the spectral response has been optimized for optical spectroscopy. Typical characteristics include a response in excess of 200 V/μJ cm^2, an rms noise voltage in darkness below 600 μV and a saturation voltage of 2.0 V. *Thomson Electron Tubes and Devices, 550 Mount Pleasant Avenue, P.O. Box 6500, Dover, New Jersey 07801*

Circle number 147 on Reader Service Card

Adjustable mirror for soft x rays to uv

Acton Research has introduced the Model AMA-250 mirror assembly for radiation in the wavelength range from 1 Å to above 500 Å. Typical applications include collecting and refocusing radiation from laser-produced plasmas and reshaping light beams from synchrotrons and tokamaks.

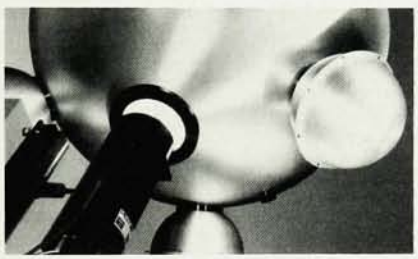
The AMA-250 features an adjustable glass or metal mirror whose radius is changed by turning adjustment screws, thereby bending the reflector to the desired cylindrical or elliptical radius. The radius of curvature can be made as small as 2.5 m. The low-cost mirrors can be easily replaced to alter the reflective properties or if the surface has become contaminated.

Standard rectangular or shaped flat glass can focus wavelengths as short as 50 Å, while specially profiled polished metal mirrors are capable of focusing wavelengths in the 1–50-Å range. The glass surfaces are typically coated with aluminum, gold or rhodium. The assembly is designed for use primarily at grazing incidence. *Acton Research Corporation, Box 215, 525 Main Street, Acton, Massachusetts 01720*

Circle number 148 on Reader Service Card

Uniform light sources for calibrating optical systems

The Unisource-4000 series of light sources has been introduced by Labsphere; the sources are designed to be used for analyzing and calibrating optical systems, detector arrays and electronic cameras. The sources produce a uniform luminance by using four satellite integrating spheres to provide extremely diffuse irradiance of a larger parent sphere. The sources are said to



achieve luminances uniform to within less than 1% at the exit port. The light sources are available with luminance levels up to 10 000 foot lamberts; the spectral radiance levels can be as large as 35 μW/cm^2 sr nm for the wavelength range 200–2500 nm.

Each of the four models in the Unisource-4000 series comes with lamp and filter assemblies, a current-regulated power supply and NBS traceable calibration. The units are priced from $4995. *Labsphere, P.O. Box 70, North Road, North Sutton, New Hampshire 03260*

Circle number 149 on Reader Service Card

New software

Signal analysis—DSP Systems has introduced DADISP, a spreadsheet-style signal-analysis software package for the IBM PC family of computers. One can set up individual signal-processing steps by simply typing a formula into a window; the results of each step are then displayed window by window. *DSP Systems, One Kendall Square, Cambridge, Massachusetts 02139* □