new products

The items listed have been selected from among those appearing concurrently in "New Instruments" or "New Materials and Components" in *Review of Scientific Instruments*. We gratefully acknowledge the cooperation of the editor of *RSI*, J. B. Horner Kuper, the associate editor for New Instruments, Joshua Stern, and the associate editor for New Materials and Components, R. K. Eby.

These descriptions are based on information supplied by the manufacturer and in some cases from independent sources. Neither *Review of Scientific Instruments* nor PHYSICS TODAY assume responsibility for their correctness.

Microanalyzer

The Microscan 9 scanning electron beam microanalyzer incorporates continuous adjustability of accelerating voltage from 1 to 60 kV with fully compensated electron optics, designed to provide optimum operating conditions for all materials being studied when used in conjunction with a computer-controlled specimen stage and x-ray spectrometers. Automatic drift compensation, element peak-seek, operating parameter error checking, and on-line ZAF corrections are standard features. The instrument can be programmed and left to operate unattended overnight with fully automatic control of specimen motion, changes in operating parameters, data collection, data reduction, and presentation. The display system includes side-by-side viewing cathode ray tubes for image comparison, and a third for automatic photo recording with digital exposure control. Each display tube can receive six signal inputs, and can show full or reduced scan area. X-ray signals can be displayed at TV rates. Signal processing capabilities include contrast expansion, surface differentiation, gamma, gray level, and contouring. The computer-controlled spectrometers have a 500 mm Rowland circle, a 75° x-ray takeoff angle, and a linear crystal path, to minimize errors due to x-ray absorption, specimen variations, and irregularities in beam scanning. There is simultaneous x-ray analysis of multiple elements from boron upward in the periodic teble.—*Cambridge Instrument Co. Inc., 40 Robert Pitt Dr., Monsey, NY 10952.*

Circle No. 140 on Reader Service Card

Cube beamsplitters

Cube beamsplitters with metal–dielectric separating films and AR-coated faces provide beam separation without ghost images and are easier to mount and more rugged than conventional flat-plate splitters. These units are made of optical grade BK-7 glass. All surfaces are flat to two waves. Sizes from 5 to 50 mm on an edge are available from stock. The metal–dielectric film reduces substantially the polarization and angle sensitivity found in all dielectric cube beamsplitters. Transmission/reflection ratios between the two output beams are held quite constant over the entire band from 400 to 700 mm. Single layer antireflection coatings are applied to all four faces.—*Melles Griot, 1770 Kettering St., Irvine, CA 92714.*

Circle No. 141 on Reader Service Card

Magnetic field controller

The model FFC-4DP computer-programmed magnetic field controller is designed for precise control of mass spectrometers, MHD systems, beam transport electromagnets, air core solenoids, laboratory electromagnetic systems for NMR and EPR experiments, and similar applications. It provides fully automatic computer control input as well as manual input of the field amplitude of an electromagnet. It compensates for stray fields, eliminates hysteresis effects, and takes into account any variation of the field from temperature gradients and other variables. The instrument can be interfaced with most regulated power sup-

new products

plies and computers with 6 decades of BCD output. Field set resolution is 1 part in 10^6 and linearity is 5 parts in 10^6 of full range. Full range capability is factory set from 5 to 50 kG.—*Walker Scientific, Inc., Rockdale St., Worcester, MA 01606.*

Circle No. 142 on Reader Service Card

Spectrophotometer

The model 751 atomic absorption spectrophotometer is a dual-channel, double-beam instrument that includes a microcomputer to make all required computations. Each channel incorporates a 330 mm monochromator, and both channels can operate with deuterium arc background correction. The instrument can analyze samples for two elements simultaneously or, in the internal standard mode, can compare the absorbance of the element being determined to that of an element of known concentration. Calculations performed by the microcomputer include linearization of the analytical curves in both channels, using two, three, four, or five standards; readout in concentration in single-channel, dual-channel, or internal standard modes; peak height and peak area; and mean, standard deviation, and RSD values. A keyboard lock mode secures a program against accidental disruption; a standby mode permits the computer to retain its calibration program when the instrument is switched off. Results are printed out and identified by a built-in alphanumeric printer.—*Instrumentation Laboratory, Inc., Jonspin Rd., Wilmington, MA 01887.*

Circle No. 143 on Reader Service Card

Detector for spectrometers

The 4800 series continuous dynode electron multiplier detects positive or negative ions, electrons, ultraviolet radiation, and soft x rays. Characterized by low noise and high gain (1×10^8), it is available either unmounted or mounted for mass spectrometer retrofit and can be used for either analog or digital mode signal processing. This pulse counting capability will allow some instruments to operate with wider dynamic range and greater sensitivity. The gas dynode structure makes the detector more compact than CuBe multidynode electron multipliers and its surface can be exposed to air without degradation. It can handle count rates to 10 MHz and dc anode currents to 7 μA. A specially designed mounting fixture enables stable operation at the higher potentials associated with negative ion detection.—*Galileo Electro-Optics Corp., Galileo Park, Sturbridge, MA 01518.*

Circle No. 144 on Reader Service Card

Gel-type battery

The model PS-12200 is a 12 V, 20 A h sealed, rechargeable battery. Other batteries range from 4 to 12 V and from 1 to 20 A h. All employ a method of immobilizing the electrolyte to make the battery maintenance free, leakproof, and usable in any position. Compact and interchangeable, the batteries offer design flexibility. The batteries come in two versions: float type for standby use and cycle type for applications where a maximum number of charge/discharge cycles are required.—*Power-Sonic Corp., P.O. Box 5242, Redwood City, CA 94063.*

Circle No. 145 on Reader Service Card

Calculator display

The EduCalc is a teaching calculator with two display units, similar in size to a portable typewriter. The top carries a built-in Hewlett-Packard calculator with its usual numerical readout for operation by an instructor or a speaker. The second display faces

toward the audience or class, showing the same numbers with a wide viewing angle and a range of 60 ft. The cabinet doubles as a lectern. Five models are available: the 21 GD for scientific use, the 22 GD for statistics and finance, the programmable scientific 25 GD and 25 CGD, and the 27 GD that is programmed with financial, statistical, and scientific functions. A carrying case and instruction handbook are provided.—*Educational Calculator Devices, Inc., Box 974, Laguna Beach, CA 92652.*

Circle No. 146 on Reader Service Card

Thermally stable tables

A line of vibration isolated laboratory tables is said to provide work surfaces 50–100 times more stable than granite, steel, or ordinary honeycomb types.

The tables use Super-invar surfaces and a dense, highly conductive honeycomb core to achieve immunity to thermal expansion and deformation. Each table also includes an internal damping system for dynamic rigidity. Experimental setups can be mounted on the table mechanically, by means of

a dense array of tapped holes, or magnetically. The Super-invar series includes tables and breadboards of various sizes and shapes, and modular design permits on-site installation of large or custom configurations.—*Newport Research Corp., 18235 Mt. Baldy Circle, Fountain Valley, CA 92708.*

Circle No. 147 on Reader Service Card

Digital thermometer

Two probe-shaped digital thermometers, the 31T for °F (−67–392 °F) and the 32T for °C (−55–200 °C) use plug-in sensor probe tips that are interchangeable without recalibration. They are powered by rechargeable batteries. The temperature sensor, a semiconductor junction, is of low mass for rapid response. All tip styles may be used for surface measurements or liquid immersion. Cable connected tips allow measurement throughout the specified ranges; the standard short tip is limited on the high end to 150 °C (302 °F) to protect the instrument.—*Logical Technical Services Corp., 71 West 23 St., New York, NY 10010.*

Circle No. 148 on Reader Service Card

Pulse extraction system

The model 5011 is designed to gate selectively light pulses from mode-locked lasers, either cw or high repetition rate pulsed varieties. Units are available for wavelengths ranging from 1.35 through 0.488 μm. Pulse selection and extraction are performed on command by an external signal, or periodically under control of an adjustable oscillator contained within the instrument. Synchronization to the pulse repetition rate of the mode-locked pulse train is developed by a photodiode detector that views the pulse train continuously. The system responds to rates up to 200 MHz, corresponding to pulse-to-pulse separations of 5 nsec. Each system includes a Pockels cell, Glan laser polarizers, avalanche transistor amplifier, PIN photodiode, pulse width selector module, signal processing electronics, interconnecting cables, and optical base mount. Pockels cells and polarizers are available with apertures ranging from 6 to 16 mm.—*Lasermetrics, Inc., 111 Galway Place, Teaneck, NJ 07666.*

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New Literature

"Lambda Catalog"—Volume 1, 1976, contains 136 pp. There are sections on standard power supplies, custom power supplies, and power instruments. A general information section contains guides for the units in the sections above. New products include power supplies for microprocessors and switching power supplies.—*Lambda Electronics, 515 Broad Hollow Rd., Mellville, LI, NY 11746.*

Calculators—A 24-pp. booklet entitled "What to look for before you buy an advanced calculator" analyzes the characteristics of both good and poor types of scientific, business, and programmable calculators. Chapters include an introduction to advanced calculators, operating languages, functions and features, programmables, supporting material, and calculator construction.—*Hewlett-Packard Co., 1000 N.E. Circle Blvd., Corvallis, OR 97330.*

Depth profiling spectrometer—An 8-pp. brochure describes the depth profiling spectrometer, an instrument that combines Auger electron spectroscopy, ion sputtering, and high speed data acquisition. The system analyzes elements on a surface and profiles composition as a function of depth. It detects less than 0.1% of a monolayer and all elements except hydrogen and helium.—*Varian Palo Alto Vacuum Div., 611 Hansen Way, Palo Alto, CA 94303.*

High voltage test systems—A 4-pp. bulletin describes very low frequency (0.1 Hz) test systems with capability for highpot testing up to 100 kV, partial discharge testing, and power factor testing. It is said to reduce by a factor of up to 600 the test power required by conventional ac test sets or resonant power supplies.—*James G. Biddle Co., Plymouth Meeting, PA 19462.*

Image analysis—An 8-pp. brochure illustrates applications of image analysis as a research tool.—*Cambridge Instrument Co., Inc., 40 Robert Pitt Dr., Monsey, NY 10952.*