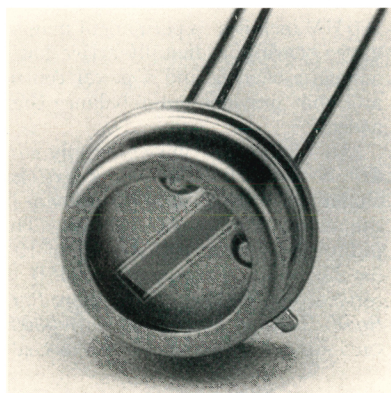


NEW PRODUCTS

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.

Dual Element Positioning Photodiode

Centronic has introduced its Model CD-25T, a dual-element PIN photodiode for sensing small position displacements. The active area combines a large height-to-width aspect ratio with a very small (20 micron) optical gap separation between elements for precise positioning. The diode's peak spectral sensitivity is at a wavelength of 950 nm and it can



operate between 0° C and 70° C. We are told that when the outputs of the different elements are compared by a differential amplifier, the photodiode provides position resolution in the micron range. *Centronic, 2088 Anchor Court, Anchor Business Park, Newbury Park, CA 91320.*

Circle number 180 on Reader Service Card

Data Analysis Software Package Based on Rough Sets

Reduct Systems has released its Datalogic/R software packages designed to draw conclusions from real data sets with a variety of data types. The system uses the theory of rough sets to derive a non-redundant set of rules about patterns in the data set,

even if the set is incomplete, imprecise or inconsistent. The system can also generate and verify models based on these rules. The user can manipulate the process by changing the weights given to different attributes of the data, or by changing the level of precision required for a rule to be considered valid.

The software package is available only for MS-DOS 5.0 machines with 640 K RAM, VGA graphics card and hard disk. Output from the program must be printed on an Epson or HP-compatible laser printer. *Reduct Systems, 402-4010 Pasqua Street, P.O. Box 3570, Regina, Saskatchewan, Canada S4P 3L7*

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Atomic Force Microscopy Interface with Laser Interferometry

Park Scientific Instruments has developed an interface system for its Auto-probe atomic force microscope controller. The interface uses high-resolution optical interferometers as position sensors for the AFM probes. The system's software servo-controls and hardware provide automated real-time calibration and, we are told, they reduce short-term and long-term drifts of the microscope probes. The system includes control electronics based on digital signal processing and Windows microscope image acquisition and analysis software. *Park Scientific Instruments, 1171 Borregas Avenue, Sunnyvale, California 94089*

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Fast Dose Calibrators for Nuclear Medicine

Biodex Medical Systems has introduced its Atomlab 100 and Atomlab 200 calibration systems for nuclear medicine. Both systems offer push-

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A GUIDE TO FEYNMAN DIAGRAMS IN THE MANY-BODY PROBLEM, Richard D. Mattuck. Superb introduction for nonspecialists to important area of modern physics. Feynman's diagrams, quasi particles, Dyson's equation, superconductivity, many other topics. Exercises. "... a great delight..."—*Physics Today*. Second (1974) edition. xv + 429pp. 5% × 8%. **67047-3 Pa. \$11.95**

MATHEMATICS OF CLASSICAL AND QUANTUM PHYSICS, Frederick W. Byron, Jr. and Robert W. Fuller. Graduate-level text offers unified treatment of mathematics applicable to many branches of physics. Theory of vector spaces, analytic function theory, theory of integral equations, group theory, more. Many problems. Bibliography. xii + 665pp. 6% × 9%. **67164-X Pa. \$16.95**

THE DEVELOPMENT OF X-RAY ANALYSIS, Sir Lawrence Bragg. Authoritative review by founder of X-ray analysis covers pure physics of X-ray analysis, applications in chemistry, mineralogy, metallurgy, biochemistry, physiology, genetics. Numerous examples and illustrations. Bibliography. 1975 edition. 270pp. 5% × 8%. **67316-2 Pa. \$8.95**

LECTURES ON NUCLEAR THEORY, L. Landau and Ya. Smorodinsky. Concise graduate-level introduction to key aspects of nuclear theory: nuclear forces, structure, reactions, pions, more. "... a real jewel of an elementary introduction..."—*Nuclear Physics*. 1959 edition. vii + 108pp. 5% × 8%. **67513-0 Pa. \$5.95**

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button calibration and isotope selection, and they automatically perform background correction, zero adjustment and range selection. The final dose is reached in less than 2 seconds and displayed on a 4-digit LED display in either curie or becquerel.

The Atomlab 200 performs the additional functions of lab management, record keeping, inventory control and pharmaceutical quality assurance. *Biodex Medical Systems, Brookhaven R&D Plaza, 20 Ramsay Road, Box 702, Shirley, New York 11967-0702*

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Dual Channel Arbitrary Waveform Generator

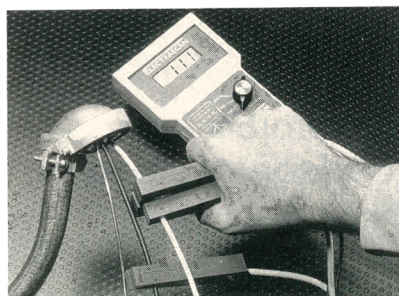
Analogic has introduced a 50-megasample per second, programmable arbitrary-waveform generator, the Model 2650, available with either one or two independent channels. The generator produces both standard and user-defined waveforms and provides four triggering modes. It runs under industry-standard software.

The standard model has 12 bit vertical resolution and horizontal resolution of 64k points, upgradable to 256k points. According to the manufacturer, the Model 2650 is suitable for applications in geophysics, acoustics and a variety of other fields. *Analogic, 8 Centennial Drive, Peabody, Massachusetts 01960.*

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Non-Contact Measurement of Voltage, Current and Power

Electrascan has introduced its Model VIP-500 multimeter, which, we are told, will accurately measure the voltage of an insulated wire and the current and power passing through it



without making contact with the actual conductors. The voltage is determined by measuring and integrating the electric field around the wire, while automatically compensating for wire diameter, insulation thickness and wire orientation. The VIP-500 measures voltages up to 500 volts a.c., currents up to 200 amperes and power up to 100 kilowatts. The clamp-on sensors fit wires between 0.1 and 0.5 inches. *Electrascan, 2917 Avalon Avenue, Berkeley, California 94705*

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All-Magnetic, Wide-Range Turbomolecular Pump

Balzers has developed an all-magnetic, wide-range turbomolecular pump that is said to operate with minimal vibration and to require no maintenance. With a dry diaphragm backing pump to provide a hydrocarbon-free vacuum, the pump can reach an ultimate pressure of 10^{-10} torr. The Model TPH/U 180 HM includes a permanent magnet upper bearing, a digitally active lower magnetic bearing and a power control unit that provides out-of-balance compensation.

An emergency power supply and dry ceramic ball bearings are included to ensure safe shutdown in the event of a power failure. The pump has a compression ratio of 10^{12} for N_2 , with a flow rate of 170 liters/second. *Balzers, 8 Sagamore Park Road, Hudson, New Hampshire 03051*

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Dual-Channel Measurement of Laser Power and Energy

Coherent has introduced the Labmaster Ultima, a system for measuring the power and energy of lasers with dual channel operation. The system measures ratio and difference, noise, beam position and stability, and power and energy trending. It also provides a fast analog tune screen, RS232 and GPIB interfaces and a statistics software package.

The Labmaster Ultima is compatible with all Coherent power and energy heads in the Labmaster and the Fieldmaster series. *Coherent, Auburn Group 2301 Lindbergh Street, Auburn California 95602-9595*

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Electromagnet Characterization System

Lakeshore Cryotronics has introduced an electromagnet characterization system that includes the Model 647MPS electromagnet power supply, the Model 450 Gaussmeter and associated sensors and software. Also included is a water-cooled electromagnet, available in C-yoke or H-yoke



designs, with either a 3-inch or 4-inch gap. The 647MPS power supply provides four-quadrant hysteresis loops with shortened integration intervals, uniform magnetic field reversal and the ability to make plots of magnetic field strength versus applied magnetic field (B vs. H).

The Model 450 gaussmeter can measure fields from 20 microgauss to 300 kilogauss, and it displays magnetic-field values with a resolution of 1 part in 30 000. Probes are available for a variety of applications. Suggested uses for the system include magnetic susceptibility measurements and studies of magneto-optics and the Hall effect. *Lake Shore Cryotronics, 64 East Walnut Street, Westerville, Ohio 43081-2399*

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64-Channel, 333 Kiloherertz Data Acquisition Board

Keithley Metrabyte has introduced its DAS-1800HC series of 12-bit analog and digital input/output boards. These boards provide 64 single-ended or 32 differential analog inputs and data acquisition speeds up to 333 kilosamples/second. The DAS-1800HC boards can scan and specify each of the 64 channels independently and they can be controlled from either a Windows or DOS environment. All

inputs are software programmable and the user may choose from several triggering options. A high level function call driver supports Basic, C and Pascal programming under DOS and all programming languages under Windows that use dynamic link libraries. *Keithley Metrabyte, 440 Myles Standish Boulevard, Taunton, Massachusetts 02780*

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Rapid Quench Flow System for Kinetics Studies

Hi-Tech Scientific has introduced the Model RQF-63, a rapid quench flow system for studying fast reactions involving solutions that cannot be monitored by absorbance or fluorescence spectrophotometry. The device mixes two solutions, allows them to flow and react for a prescribed time and then quenches the reaction processes by mixing in a quench solution. The reaction time can be varied from 3 milliseconds to 100 seconds by changing the volumes and flow rates of reactant solutions and by changing age-loop cartridges. To increase precision and reproducibility, the sample and quench solution syringes are driven by a stepper motor with bipolar drive. *Hi-Tech Scientific, Brunel Road, Salisbury SP27PU, United Kingdom.*

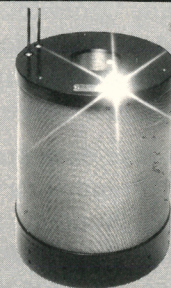
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New Literature

Dynamic Data—The Institute for Environmental Sciences has published a 300-page handbook of recommended practices for dealing with dynamic data, the *Handbook of Dynamic Data Acquisition and Analysis*. The book covers: dynamic measurement and planning, data acquisition, validation, editing and analysis. The book also contains appendices on pyroshock and nonstationary vibroacoustic data analysis. *Institute of Environmental Sciences, 940 East Northwest Highway, Mount Prospect, Illinois 60056*

Sunspot and Geomagnetism Databases—The Solar-Terrestrial Physics Division of the National Geophysical Data Center is offering a series of databases on sunspots, solar flux, coronal index and geomagnetic indices. They are intended for environmental scientists and the cost is about \$25 per disk. *National Geophysical Data Center, Code E/GC2, Department 925, 325 Broadway, Boulder, Colorado 80303-3328.*

SUPERCONDUCTING MAGNET SYSTEMS



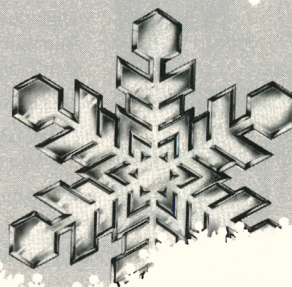
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