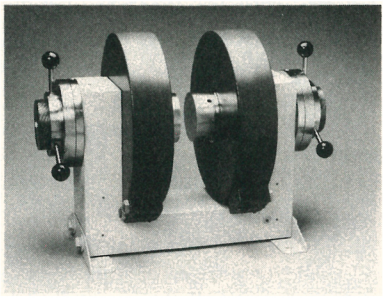
NEW PRODUCTS

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.

Four-Inch Variable-Gap Laboratory Electromagnet

Lake Shore has introduced the LS-4005, a four-inch electromagnet for use primarily in laboratories. Rotating pole nuts provide magnet air-gap adjustments of 0 to 4.1 inches. A field



intensity of up to 1 tesla (at 50 amps, 31 volts and a 1-inch air gap) is possible. The coils are water cooled. Pole caps can be exchanged to adapt the LS-4005 for different applications. The adjustment mechanism ensures accurate pole alignment, and the open-yoke design provides convenient air-gap access. Applications include susceptibility measurements, Hall-effect studies, hysteresis-loop determinations and magnetic-resonance demonstrations. The LS-4005's coils are compatible with the Varian V-4004 and V-4005 electromagnets. *Lake Shore, 64 East Walnut Street, Westerville, Ohio 43081-2399.*

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1-MV, Long-Duration, Fast-Rise Pulse Generator

The long-pulse Marx generator, Model 40404, from Maxwell Laboratories generates from 250-kV to 1-MV pulses with a rise time of 65 nsec (for loads of 200 to 1000 ohms) and a duration of up to 10 nsec (adjustable in 100-nsec steps). The 12-stage, 50-kJ generator exhibits less than 5-ns jitter at 1 MV, 2% droop per μsec and a flat-top ripple of less than $\pm 1\%$ with a 1000-ohm load. Voltage overshoot into a high-impedance load is less than 10%. Pulse-to-pulse reproducibility is within $\pm 1\%$.

The generator, which comes as a turnkey system, includes a high-voltage, vacuum-insulated diode, controllers, voltage monitors and gas regulators. The constant-current charging subsystem charges to maximum voltage in about 50 seconds. The oil-submerged unit can fire at rates of 20 shots per hour in eight-hour shifts. The generator is internally protected and can operate safely into a short-circuit load. A number of output interfaces are available to customize the voltage waveform for specific applications. Model 40404 is intended as a source for high-power microwave systems, pulsed lasers and flash x-ray units, and as a general laboratory device. *Maxell Laboratories, 8888 Balboa Avenue, San Diego, California 92123.*

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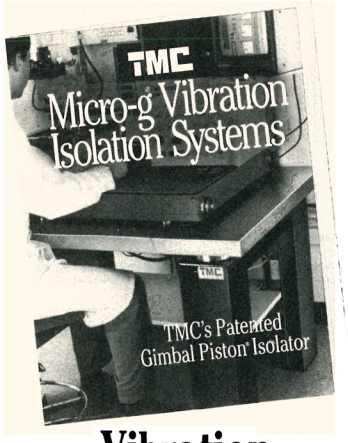
Scientific Plotter Software for PCs

MicroMath has released Graph Version 3, for plotting scientific and engineering data on an IBM-compatible PC XT/AT with at least 500 Mb RAM. The program has log, exp, sqrt, add, subtract, reciprocal, logit, probit, integral and derivative operator functions. X–Y plots can have linear, log, logit or probit axes, and data can be presented as a histogram. A variety of empirical curve plots is offered. Text, lines, arrows and other graphics can be added to the plot interactively, and publication-quality graphics can be output to PostScript devices, HPGL devices or dot-matrix printers.

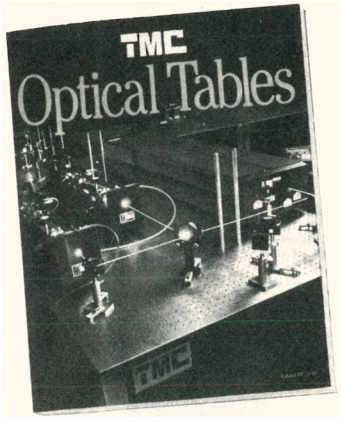
New features available with Version 3 include: extended-memory support; multiple Y-axis plotting; im-

NEW CATALOGS



Vibration Isolation Systems

New fourth-generation Micro-g® Gimbal Piston® Vibration Isolation Lab Tables. Features include higher isolation performance, modular construction, contemporary industrial design. Catalog also contains Table Top Platforms, Floor Platforms, and technical comparisons of isolators and top plates.



Optical Tables

Latest catalog covers six standard lines of TMC steel honeycomb optical tables including patented, spill-proof CleanTop®. Discusses design, construction and features, with cost/performance comparisons and selection guides.

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port–export of Lotus, DIF, dBase and ASCII files; residual plotting (plots of *Y*-observed–*Y*-calculated versus *X*); data set name and date–time stamp on hardcopy text output; enhanced statistics; optional data sieve for large data-file handling; digital data smoothing; data column selection for simplified data input; and encapsulated PostScript output for flexibility with word processors and page-layout software. The program can use a coprocessor. *MicroMath Scientific Software, 2469 East Fort Union Boulevard, Suite 200, P.O. Box 21550, Salt Lake City, Utah 84121.*

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More Wavelengths for Raman Holographic Edge Filters

Physical Optics has introduced Raman holographic edge filters for use at wavelengths of 457, 532, 647, 752 or 830 nm. These filters have a flat high-transmission signal past the rejected line. Their optical density is typically greater than 5.0 for a single filter. The narrow slope produced by the filter allows the user to examine the strongest Raman signal close to the excitation wavelength. *Physical Optics, 2545 West 237th Street, Suite B, Torrance, California 90505.*

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Extra Light-Sensitive CCD Imagers

First Magnitude has announced its StarScape IIA and IIB ultra-low-light-level digital-imaging devices for astronomy and remote sensing. The devices are designed for use with IBM-compatible computers and feature cooled detectors for low-noise (extended integrating time) operation.

Models IIA and IIB are compact liquid-nitrogen- and thermoelectrically cooled CCD cameras. Both use a 16-bit A/D converter and weigh 5 pounds. The IIA is 13.5 inches high; the IIB, 5.5 inches. Both are 5.5 inches in diameter with a 590×490 pixel CCD; a 1024×1024 pixel CCD is optional. *First Magnitude, 519 South 5th Street, Laramie, Wyoming 82070.*

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Vacuum-Deposition Equipment

Nordiko USA is offering a new line of high-performance vacuum deposition equipment featuring:

▷ Four cathode positions and sequential or co-deposition modes;
▷ Cathodes in colinear or focused arrangements in conjunction with a rotating or static work holder;
▷ Substrate heating to 850° C, substrate cooling, rf etch and bias, rf ion-source operation, process-control automation and load lock with true cassette-to-cassette operation. *Nordiko USA, 771 Ridge Road, Webster, New York 14580.*

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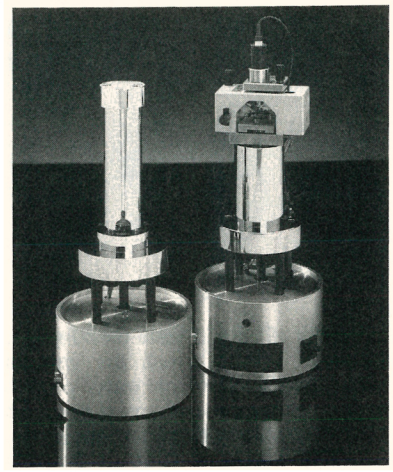
Bigger Atomic-Force, Scanning-Tunneling Microscopy Scans

Digital Instruments has introduced 125×125 μm scanners for its NanoScope scanning-tunneling microscope and atomic-force microscope. They scan up to 100 μm per second, operate



in both air and liquids and are interchangable with other NanoScope scanners. The three-dimensional images can be displayed and manipulated in many different ways. *Digital Instruments, 6780 Cortona Drive, Santa Barbara, California 93117.*

Circle number 146 on Reader Service Card

Magnetic Fluxmeter–Integrator

Metrolab's PDI 5025 precision digital integrator is designed to integrate bipolar voltages from ±5 mV to ±5 V across an induction coil. The unit provides the magnetic flux change in volt-sec between user-defined trigger pulses generated by an internal timer or by a coil-position encoder. Measurements are performed "on-the-fly" with no dead time and are available to the host computer via an IEEE-488 or RS-232C interface.

The bench instrument features a voltage-to-frequency converter, which provides 100 kHz, 500 kHz or 1 MHz, linearity exceeding ± 20 ppm at 500 kHz and a 2×10^{-8} volt-sec resolution at a gain of 1000 for 500 kHz. Gain is programmable. The instrument provides the input for an incremental angular- or linear-deplacement encoder and an output for coil-position motor control. Two measuring channels can be housed in one PDI 5025.

Applications include harmonic analysis of accelerator magnets, measurements of magnetic-field cycles in accelerators, light-source insertion-device characterization and magnetic-field mapping. *GMW Associates, P.O. Box 2578, Redwood City, California 94064.*

Circle number 147 on Reader Service Card

Spectrum Analyzer for Pulsed Lasers

Burleigh Instruments has announced a new spectrum-analyzer system for use with pulsed lasers. The PLSA-3500 enables analysis of mode structure and line shape, as well as real-time measurement of line width, laser drift and laser scan from 400 to 1100 nm. Resolution is better than 200 MHz. For tunable lasers, wavelength measurement is better than 1%, providing a wavelength label for distinguishing scans. The PLSA-3500 is computer controllable via an interface card in the user's IBM-compatible PC/AT computer. The analyze mode provides smoothing and differentiation of spectra as well as curve fits to real line-shape functions and measurements of multilaser frequencies. *Burleigh Instruments, Burleigh Park, Fishers, New York 14453.*

Circle number 148 on Reader Service Card

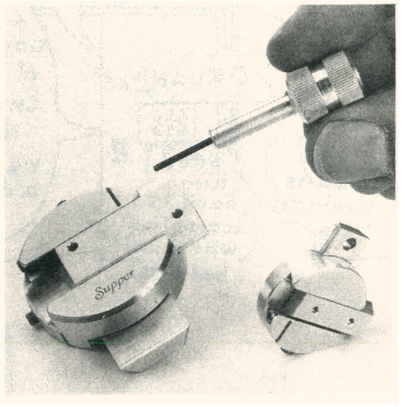
Octal Timing Discriminator for Nuclear Detectors

EG&G Ortec has introduced Model TD8000, a CAMAC octal timing discriminator for timing threshold or coincidence-logic control of large nuclear-detector arrays. The TD8000 is designed for signal amplitudes from -25 to -5 mV when using photomultiplier tubes or scintillation, microchannel-plate, gas-filled and solid-state detectors. This single-width module includes eight separate 100-MHz timing discriminators for leading-edge timing or overlap coincidence logic. Optimized individual detector characteristics are achieved through separate computer control of each of the eight discriminator thresholds. Control of the common output-pulse widths facilitates computer adjustments of coincidence resolving times. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37831-0895.*

Circle number 149 on Reader Service Card

X–Y Translational Micropositioners

Charles Supper's microslide assemblies are available in four sizes ranging from 0.500-inch OD $\times$ 0.254-inch thick with 0.125-inch *X–Y* travel to 1.490-inch OD $\times$ 0.527-inch thick with 0.750-inch *X–Y* travel. Constructed of aluminum with hardened



stainless steel socket drive screws, each translational sledge is manually adjustable and fully lockable using a six-spline $^1/_{16}$-inch drive key. The units are permanently lubricated. *Charles Supper, 15 Tech Circle, Natick, Massachusetts 01760.*

Circle number 150 on Reader Service Card

UV Laser Stabilizer

Cambridge Research & Instrumentation has introduced a new intensity-control and noise-reduction system that operates up to 257 nm. The LS-100 UV stand-alone servo system removes intensity noise and drift from CW or mode-locked ultraviolet laser beams. It is said to provide 0.05% long-term stability, a noise-reduction ratio of 400:1 at dc, a servo bandwidth of 200 kHz and beam-power adjustment without changing the tube current. It also features protection electronics. Applications include stereolithography and precision exposures. *Cambridge Research & Instrumentation, 21 Erie Street, Cambridge, Massachusetts 02139.* ■

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