

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.

Helium-cadmium laser for incorporation in instruments

Liconix has introduced the Series 4300 lasers, which are designed specifically for use in systems and instruments. These short-wavelength (442 nm) lasers are available with output powers ranging from 7 to 12 mW in the TEM₀₀ mode. The long-term power stability is 2%, the noise level is below 1% rms and the expected operating life is 5000 hours. New elements in the laser-head design include a coaxial tube, hermetic (hard) seals, laser mirrors that are integrated with the tube and a long-lived cold cathode. The laser head is cooled with forced air. The switching-type power supply operates at 100, 117, 220 and 240 V ac. *Liconix, 1390 Borregas Avenue, Sunnyvale, California 94089*

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Pulse amplifier with variable pulse width

The new 200-volt pulse amplifier from EG&G Princeton Applied Research is designed specifically for driving proximity-focused microchannel-plate-intensified detectors used in optical multichannel analyzers. The pulse width can be varied from 100 nsec to 100 msec. One can use the pulse amplifier in conjunction with optical multichannel analyzers to reject optical background in pulsed laser experiments and to time resolve events in the range of 500 nsec to 100 msec. The standard



TTL input pulse required to trigger the pulse amplifier can be generated by a simple circuit whose design is provided in the instruction manual, by any commercial pulse generator or by the OMA III Model 1303 programmable pulse generator from EG&G Princeton Applied Research. The pulse amplifier costs \$800. *EG&G Princeton Applied Research, P.O. Box 2565, Princeton, New Jersey 08540*

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High-capacity closed-cycle cryogenic refrigerator

Cryodynamics has introduced the Model M20 closed-cycle cryogenic refrigerator, which produces 110 W net usable refrigeration at 77 K in 7.5 minutes with less than 2000 W input power. The four-piston cryogenic engine operates at low gas pressure and without lubrication. It is hermetically sealed and weighs 65 pounds. Mechanical balancing of the engine reduces vibration and acoustic noise. The manufacturer guarantees a minimum of 1000 hours of maintenance-free continuous or on-off operation. The Model M20 is available in both air- and water-cooled designs. *Cryodynamics, 191 Mill Lane, Mountainside, New Jersey 07092*

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Digital oscilloscope with graphics printer

The Model SE 571 Digitalscope from BBC-Metrawatt/Goerz incorporates a thermal printer that prints information, including the measurement protocol, from the CRT within ten seconds. The scope is equipped with two input channels, each with its own analog-to-digital converter and memory. The maximum sweep frequency is 25 MHz; the resolution is 8 bits. The auto-ranging capability of each channel automatically selects the amplifier sensi-



SIGNAL PROCESSING SOFTWARE AND HARDWARE FOR YOUR PC

TMS 32010 Hardware/Software

For your IBM PC, XT, or AT with the 320/PC CARD. TMS 32010, A/D, D/A on the board and utility software. Debugger, loader, real-time efficiency monitor and patch processor, and signal acquisition and editing utilities. The Algorithm Development Package priced under \$2,000.

Software for Digital Filter Design

For your IBM PC, XT, AT or compatible. Design Butterworth, Chebyshev, Elliptic, Kaiser window and Parks-McClellan filters for general purpose and TMS 320-specific implementations. Now available (version 2.0) with arbitrary magnitude FIR filter design capability. Generates TMS 32010 assembly code for filter implementation. Priced starting at under \$1000.



Atlanta Signal Processors, Inc.
770 Spring St., Atlanta, GA 30308
(404) 892-7265

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ALPHA SPECTROSCOPY

From The Simple

This single-channel Alpha Spectrometer features the versatile 7400A Vacuum Chamber and the low noise 7404-01 Preamp/Amplifier. With the S-20 MCA and its built-in detector bias supply, this system provides uncompromising performance at extremely low cost. A wide choice of SSB detectors and all the accessories necessary to complete or enhance your Alpha Spectroscopy System are readily available from Canberra.



CANBERRA

Canberra Industries, Inc.
One State Street
Meriden, Connecticut 06450
(203)238-2351

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new products

tivity and the time base, and indicates these parameters with LEDs on the front panel.

One can use the SE 571 as an eight-channel logic recorder that displays data alphanumerically or in the form of timing diagrams. The instrument can also provide a combined display of four logic signals and a single analog signal.

One can evaluate the input voltage, timing and frequency with two cursors. Signal addition, multiplication and averaging are built-in functions. The nonvolatile memory can hold up to eight preprogrammed signal-parameter settings. An IEEE-488 interface for system control and transfer of output data is available. The SE 571 is priced at \$6500. *BBC-Metrawatt/Goerz, 2150 West 6th Avenue, Broomfield, Colorado 80020*

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Ultra-high-purity niobium for superconducting thin films

Nippon Silica Glass USA has announced the availability of ultra-high-purity niobium with purity greater than 99.9997%, excluding gas and tantalum content. The tantalum level is below 10 ppm, we are told. The levels of refractory metals are claimed to be below the detection limit: molybdenum below 1 ppm, tungsten below 3 ppm and vanadium below 1 ppm. Magnetic metal impurities are, according to the manufacturer, also below detection levels: The values for iron, nickel and cobalt are less than 1 ppm. The impurities of nonmetallic elements are given as follows: oxygen, 10-30 ppm; carbon, 20-30 ppm; nitrogen, 4-6 ppm; and hydrogen, 5-6 ppm. The amounts of other metallic impurities are claimed to be below detection levels (less than 1 ppm, except for silicon, which has a level of less than 3 ppm). The residual resistivity ratio is 2500. The product is available in globules of 1-10 g. *Nippon Silica Glass USA, 373 East Main Street, Suite G-5, Somerville, New Jersey 08876*

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Universal bases that can be mounted anywhere

Newport has made available two models of universal bases—one for post holders and another for riser blocks—that allow optical components to be mounted anywhere and at any angle on optical tables with a pattern of holes on 1-inch centers. The bases hold a freely rotating disk with an eccentric clearance slot to accommodate a 1/4-20 tie-

down bolt. The slot is long enough to allow translation over half the diagonal distance between two mounting holes and it is always possible to find a mounting hole through the clearance slot by rotating the trapped disk. One can then attach the base firmly to the table. Edge-mounted indexing spheres provide reference points for the exact positioning of free-standing components. Kinematic bases, which allow the removal and replacement of components with sub-arc repeatability, are also available in a rotating-disk design. The price for each model of the universal bases is \$38. *Newport Corporation, 18235 Mount Baldy Circle, Fountain Valley, California 92728*

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Vacuum-leak detector with audio alarm

Delta Ultra Sense has introduced the AD-150 leak locator with audio alarm; it covers pressures from 1 atm to 10^{-7} Torr. The heart of the leak locator is a very sensitive heat-conductivity element that can measure a leak rate of 2×10^{-3} atm cm³/sec for a 1-liter volume at atmospheric pressure; the mea-



surable leak rate at 10^{-7} Torr is less than 10^{-9} atm cm³/sec. One can use any fluid tracer with this instrument. *Delta Ultra Sense, 1070 East Dominguez Street, Unit H, Carson, California 90746*

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Gamma-analysis system for personal computers

Canberra has announced a gamma-analysis system for the IBM PC or IBM AT. The Saturn consists of an interface board that connects the host computer to either a Canberra Series 20 or Series 35 Plus multichannel analyzer for data acquisition and display. The application software includes a BASIC software tool kit for on-line control of the MCA, Lotus 123 keyboard macros for spectrum display and pop-up foreground-background operation. One can expand the system with the optional SPECTRAN-AT analysis package; its compiled FORTRAN and floating-point coprocessor



combine with Saturn to produce a complete 4096-channel system for qualitative and quantitative analysis, including doublet resolution. *Canberra Industries, One State Street, Meriden, Connecticut 06450*

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Analog vacuum gauge with thermocouple

The 507 thermocouple vacuum gauge introduced by Edwards High Vacuum provides continuous reading from 4 to 10^{-3} Torr. The instrument features a 230° circular scale that is wide enough to eliminate the need for range switching. An electronic control circuit adjusts the instrument to different temperatures. The 507 is housed in a compact case and is suitable for panel mounting (mounting clamps are provided) or bench mounting with detachable feet. *Edwards High Vacuum, 3279 Grand Island Boulevard, Grand Island, New York 14072*

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Light source covering the complete uv-ir range

Hamamatsu has designed a new duplex light source for spectrometry that covers the entire 160-2500-nm range. The lamps contain both a deuterium arc and a tungsten filament in a single tube; both light sources are aligned on the optical axis. These lamps can be used only in instruments designed to accept a duplex lamp. *Hamamatsu*



Corporation, 420 South Avenue, Mid-
dlesex, New Jersey 08846

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New software

Paraxial optics—Mendon Research has released its Paraxial Optics Program, a package designed to permit optical designers, drafters and opticians to evaluate first-order properties of optical systems. The program runs on the IBM PC family and compatible computers. *Mendon Research, 1260 Creek Street, Webster, New York 14580*

Microwave design—Microwave SPICE, a program developed by Eesof, relates active device characteristics to process-related parameters and performs frequency or time-domain analysis. The program runs on the IBM PC and compatibles and requires 640 kilobytes of RAM. *Eesof, 31194 La Baya Drive, Suite 205, Westlake Village, California 91362*

Data analysis—BBN Software Products has introduced RS/1, a data-analysis package for scientists and engineers designed for the new IBM RT PC. The package includes graphics, data management, statistics, curve fitting, modeling, simple English commands and a powerful programming language. *BBN Software Products, 10 Fawcett Street, Cambridge, Massachusetts 02238*

Problem solving—C. Abaci has released a version of The Scientific Desk for the new IBM RT PC. The package contains a number of functions and subroutines for mathematical and statistical calculations. The programs incorporate examples, tutorials and documentation and are menu driven. *C. Abaci, 208 St. Mary's Street, Raleigh, North Carolina 27605*

Powder diffraction—Scintag has released a software package for its PAD V powder diffractometer that can be used for instrument setup and data collection, reduction and searches. The package can be used in an interactive mode or in a batch mode for unattended operation, and functions on dual-user or multi-user 16- or 32-bit systems based on FORTRAN 77. *Scintag, 3350 Scott Boulevard, Building 28, Santa Clara, California 95054*

New literature

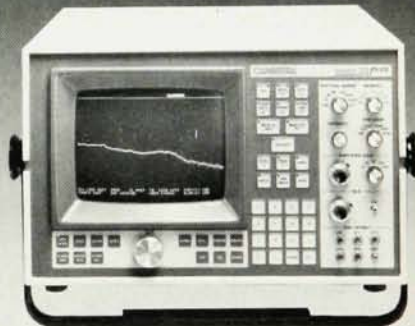
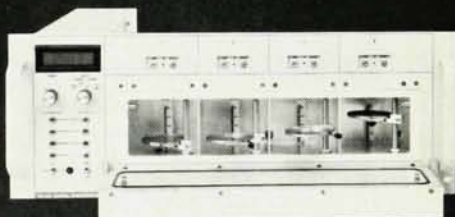
Noise measurements—The new, 8-page Ithaco application note IAN 38 describes methods for measuring signals, noise and signal-to-noise ratios for 90 dB to below -20 dB using lock-in amplifiers. *Ithaco, 735 West Clinton Street, P.O. Box 6437, Ithaca, New York 14851*

ALPHA SPECTROSCOPY

To The Sublime

The 7404 Quad Alpha Spectrometer, unlike any other, was designed from the ground up as a multi-channel system. This is why the 7404 alone has such important features as digital readout of detector bias, leakage current, vacuum level, and pulser energy along with provisions for sample bias and vacuum/bias interlock to protect your SSB detectors.

The S-35 PLUS MCA with our 8222 Gated Mixer-Router completes a four-channel system which is truly elegant as well as economical.



CANBERRA

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