

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.

Frequency doubler

EG&G Princeton is offering a new non-linear crystal frequency doubler for its model 2100 Dyescan laser and other monochromatic optical sources. Because of its cylindrical shape, the doubler is said to have several unique advantages over the more conventional rectangular shaped devices. Recent tests using this laser, we are told, show that the doubler exhibits a conversion efficiency of 20% with type-1 phase matching. Furthermore, a single cylindrical KDP crystal will phase match continuously over the wavelength range 520 to 1000 nm. Several rectangular crystals would be required to cover this same range, because the entrance and exit faces present a clear aperture to the beam over an extremely narrow range of frequencies.

Another advantage claimed for the new doubler is the fact that the beam position remains constant over the operating range of the crystal. Rectangular doublers cause changes in beam position with changing frequency. This cylindrical doubling system is microprocessor-controlled, and it automatically tracks throughout its entire tuning range. The price is \$4000. *EG&G Princeton Applied Research, PO Box 2565, Princeton, New Jersey 08540*
Circle number 140 on Reader Service Card

Streak camera

The model C1370 from Hamamatsu is a streak camera whose two-picosecond resolution is said to fulfill the special needs of ultra-fast kinetics. One has the choice of two plug-ins. A fast plug-in provides streak speeds of 50 to 1.5 mm/ns. Changing to the slow plug-in provides a streak speed range of 1.5 to .07 mm/ns. Applications include picosecond spectroscopy, laser photochemistry, photobiology and photo-physics, laser fusion, optical communication

and beam diagnostics.

The C1370 features a streak tube with built-in microchannel plate for optimum image intensification and precise shot-to-shot reproducibility. No external image intensifier is required. A microprocessor-based temporal analyzer with SIT camera is available for real-time data acquisition and data processing as well as video viewing of the event. *Hamamatsu Corporation, 420 South Avenue, Middlesex, New Jersey 08846*

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Spectrometer

Jarrell-Ash's Monospec 50 is a half-meter scanning spectrometer. With a direct drive and a 25 000-steps/revolution stepper motor, the Monospec 50 is claimed to exhibit the highest resolution of any half-meter spectrometer currently available. The stepper-motor resolution is equivalent to 0.0002 nm/step, which, insures smooth tracing of high resolution spectra at low speeds.

To program and run the spectrometer, a minicomputer can be interfaced to the digital drive. Jarrell-Ash offers



a spectrometer-control-system accessory for this purpose, with a minicomputer and green-phosphor video monitor. BASIC software programs for spectrometer operation include capabilities such as the automatic setting of optical limits (depending on grating

20 MHz COUNTER



Model 719
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From 1 to 5 seconds
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- Positive and Negative
Discriminator Inputs
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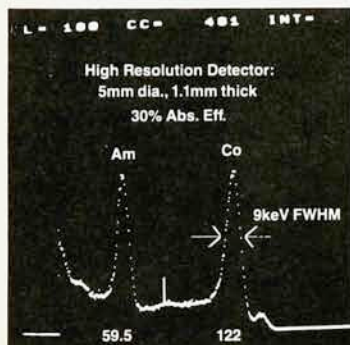
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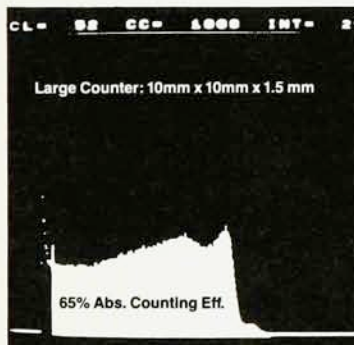
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Cd Te γ detector



Bias 200V; Leakage 6.6nA at 24°C; Window 0.02mm Al; 1.00 MBq Co-57 source at 13 cm and 13 kBq Am-241 at 2 cm. Counting rate 1.3 k/s.



Bias 50V; Leakage 26nA at 25°C; 1.00 MBq Co-57 source at 13 cm.

The growth and fabrication of Cd Te crystals is more than a science. It's an art. The art of doing it just right. For the right price.

At Capintec Research, we have Cd Te crystals in stock, and are well immersed in both the science and art of their growth—as the above data amply demonstrates. If you're measuring gamma radiation, and would like to obtain the advantages of Cd Te without the drawbacks, give us a call at (800) 631-3826, or send your specific requirements to: CAPINTEC RESEARCH, 6 Arrow Road, Ramsey, NJ 07446 (Telex 642375)

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new products

used), and fully programmable scanning parameters. The Monospec 50 Accepts TTL and direction inputs.

A symmetrical half-meter Ebert-mount optical system gives the spectrometer high throughput at $f/8.6$, excellent resolution at 0.01 nm (with a 2400 grooves/nm grating), and wavelength accuracy of better than ± 0.2 nm. Ruled and holographic diffraction gratings available for the monospec 50 range from 2400 to 30 grooves/nm, covering a spectral range of 190 to 40 nm. An optional side-exit, swing-out mirror assembly converts the instrument into a spectrograph, or it can serve as an alternative exit slit position. Coupling flanges for array detectors and camera attachments are available. *Jarrell-Ash Division of Fisher Scientific, 590 Lincoln Street, Waltham, Mass. 02254*

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Infrared photodetectors

The new PD40 series of ultra-high-speed, high-sensitivity, near-infrared photodetectors from Opto-Electronics employ avalanche-type germanium photodiodes with risetime of less than 80 picoseconds. The signal width (fwhm) is less than 175 picoseconds with an associated gain of 8 or more. Usable spectral response is from 500 to 1800 nanometers. At 1500 nanometers the flux responsivity (at unit gain) peaks at 0.20 mA/mW (minimum). Optical input (100 mW is the maximum allowable) is via either a lens, a flat window or two meters of high-quality optical fibre. All models are said to be rugged and compact, offering simple, trouble-free operation. The detector is supplied with a separate, current-limited, variable-voltage power supply together with a 2 ft.-long shielded power supply cable. Prices start at \$5600 (US). *Opto-Electronics, Unit 9, 2538 Speers Road, Oakville, Ontario L6L 5K9, Canada*

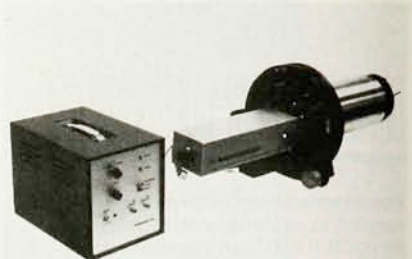
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X-ray streak camera

The new Hamamatsu 30-picosecond streak camera (model C1102-03) offers high resolution in the x-ray region. A streak tube with a gold photocathode deposited on the inner surface of its beryllium window provides a spectral response of 1 to 10 KeV. The built-in microchannel plate is said to offer optimum image intensification and precise shot-to-shot reproducibility. A stan-

dard flange couples the camera directly to the vacuum chamber port.

Available as a single component or as part of the complete Hamamatsu Temporaldisperser/Temporalanalyzer system, the C1102-03 streak camera mea-



sures intensity against both time and position in a single shot. Applications include laser research, laser-produced plasma focus, vacuum sparks, x-ray spectroscopy, laser compression, and complex-source geometry. *Hamamatsu, 420 South Avenue, Middlesex, New Jersey 08846*

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Ion-implantation monitor

The Impac AR-1 from Brookhaven Instruments is an ion implantation monitor, tester and calibrator. It is claimed to increase yield and reduce implanter downtime. Pushbutton-actuated, microprocessor-based programs check dose integrator accuracy, detect setup



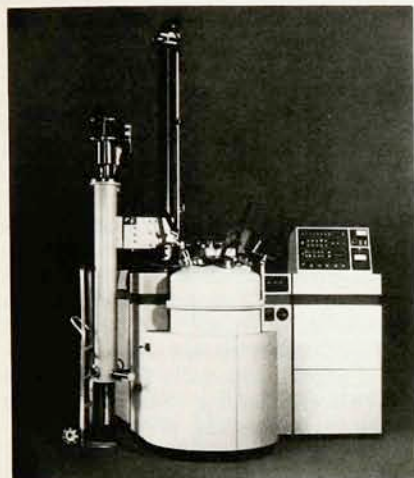
errors, verify dose-time calculations, and determine time for a given dose, area, ion charge and current. Comparison circuitry signals an alarm and halts implantation if the implant time for a wafer is outside a pre-selected setting. RS232c readout is provided, and pushbutton control functions may be remotely actuated. *Brookhaven Instruments, 11124 Jollyville Road, Austin, Texas 78759*

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Crystal growing system

Ferrofluidics has introduced the new, fully automated Six-Four-Two silicon crystal growing system. This produc-

tion system is automated to include pump-down, leak checking, melt-down, melt-level control, melt-surface-temperature sensing and automatic dip-



ping of the silicon seed. The complete growing process is automated, and the system's computer is said to allow for considerable process flexibility. The Six-Four-Two system incorporates a patented materials handling system, which eliminates handling of hot, heavy ingots by the operator. *Ferrofluidics, 40 Simon Street, Nashua, New Hampshire*

Circle number 146 on Reader Service Card

High-speed monochromators

Schoeffel McPherson has introduced a new line of high-speed research monochromators to accommodate a wide range of resolution requirements. These optically efficient models are available with focal lengths of 1.33, 1.0 and 0.66 meters. All three versions feature snap-in holographic or ruled gratings



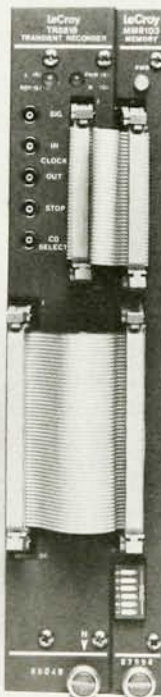
to cover a spectral range from the low-airpass ultraviolet to the infrared. All models permit connection of the firm's pre-dispersing monochromator to increase dispersion and signal-to-background ratios. Programmable stepper drives with parallel bus interfaces are available for all three models. *Schoeffel McPherson, 530 Main Street, Acton, Mass. 01720*

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Waveform recorder

LeCroy tells us that its new model TR8818 transient recorder "incorporates a major advance in the dynamic accuracy of high speed analog-to-digital converters." The instrument can digitize a 50-MHz sine wave at 10 ns intervals with 6.5 effective-bit accuracy; resolution is 8 bits. For signal frequencies up to 10 MHz, the accuracy increases to 7.2 bits. Fast slew rate signals do not degrade these accuracies. A reconstructed, digitized full-scale signal will be accurate within the stated number of effective bits.

The record length available for storing waveforms can be expanded from 32 768 samples to 512 k samples by using from 1 to 16 model-MM8103 memory modules. Both stored wave-



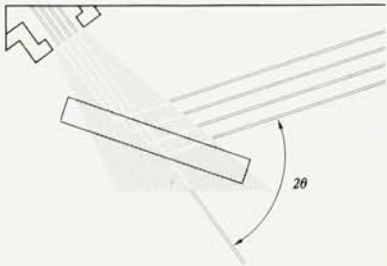
form data and control register settings are protected by internal batteries against power interruption.

The waveform recorder is fully programmable, including an internal sampling clock and digital signal offset. A bandwidth from dc to 50 MHz (1 dB) fully supports the digitizer's 50-MHz Nyquist frequency. Variable pre-trigger recording allows one to store all of a waveform even when a trigger is generated from the waveform itself. The price is \$2890 for the model TR8818 transient recorder and \$2100 for the model MM8103 memory. *LeCroy Research Systems, 1806 Embarcadero Road, Palo Alto, California 94303* □

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X-RAY ANALYZING CRYSTALS

(Bragg Diffracting Crystals)



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X-Ray Spectrometers

X-Ray Astronomy

EXAFS Spectroscopy

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