

NEW PRODUCTS

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. 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.

LAWRENCE G. RUBIN

FOCUS ON SPECTROSCOPY

Imaging Spectrometers

McPherson has announced two types of detectors suitable for use with most of the company's spectrometers, to provide both spectral and spatial information: silicon-based charge-coupled devices (CCDs) for measurements in the 200–1100 nm wavelength range and InGaAs linear array detectors for either 700–1700 nm or 1000–2200 nm. McPherson claims that its imaging spectrometers are the only ones that allow the user to switch between optimum resolution and best imaging. Corrective, first-surface optics can be inserted or removed from the spectrometer's light path; when the unit is being used for imaging, the optics are at the fold away position, permitting the axial port to be used for high-resolution scans while the lateral port is being used for imaging or multistripe detection. Control of the spectrometer systems is based on Windows 95-compatible software. *McPherson Inc., 7A Stuart Road, Chelmsford, Massachusetts 01824-4107*

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Liquid Crystal Tunable Filter for CCD Cameras

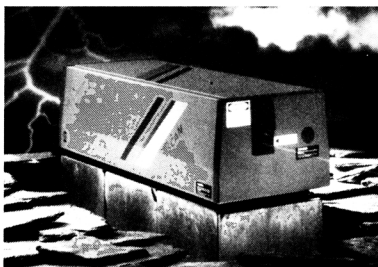
The VariSpec is a tunable imaging filter from CRI that uses electronically controlled liquid crystal elements to select a transmitted wavelength in the visible and near-infrared ranges, while blocking all other wavelengths. The filter can be used with a monochrome CCD camera and lens to form a multispectral imaging system. For applications where imaging is not required, the filter can be used as a compact spectrometer with high throughput. The VariSpec consists of optics and electronics control modules connected

by a cable of up to 2 m in length. The filter transmission is sensitive to polarization of the input beam; input polarization control is an optional feature. The electronics provide digital control and synchronization ports as well as an RS-232 interface. *CRI Inc., 80 Ashford Street, Boston, Massachusetts 02134*

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Laser Spectroscopy System

The new SCANMATE OG from Lambda Physik is a complete tunable pulsed dye laser system for spectroscopists performing work in the 320–1036 nm range. The integrated auto-calibration system records and calibrates the spectra, allowing semi- and fully automatic calibration related to atomic line positions measured by an integrated hollow cathode lamp. It also calibrates the laser drive. The eight-channel data acquisition system saves time by recording up to eight user-defined signals, and offers several line fit routines for the calculation of



center of mass, line width and line shape. Software functions can precisely tune the system to the maximum of a spectral line and can execute a short calibration before tuning the laser to the selected wavelength with an accuracy of better than 5 ppm. The system can control up to four SCANMATE lasers simultaneously and can switch between a wavelength scale and

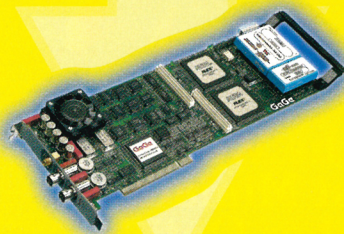
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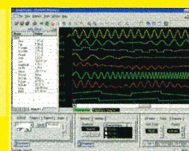


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a wave number scale. *Lambda Physik Inc, 3201 West Commercial Boulevard, Fort Lauderdale, Florida 33309*

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Fiberoptic Input Spectrograph

Control Development has introduced the Matchpoint two-dimensional array-based spectrograph, a compact unit on a personal computer card with fiberoptic input. The CCD array is a high quantum efficiency back-illuminated device that uses thermoelectric cooling and is especially suited for low-light-level applications. The fiberoptic input allows multiplexing and remote measurements in hazardous environments. The spectrograph is permanently calibrated for wavelength, with the calibration stored on board. A 16-bit analog-digital converter (ADC) is used for photodetector conversion and a 16-bit digital-analog converter for analog offset, to maximize the ADC dynamic range. *Control Development Inc, 3702 West Sample Street, South Bend, Indiana 46619*

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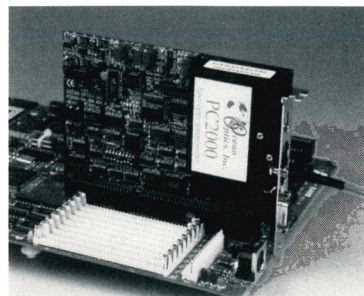
Imaging Spectrographs

The imaging spectrographs in the TRIAX series from Instruments SA come in three focal lengths (190 mm, 320 mm and 550 mm) and feature a patented, on-axis triple-grating turret. The spectrographs provide high throughput, high resolution and imaging quality, high stray light rejection and a large flat field (30 mm × 12 mm). Equipped with RS-232 and IEEE-488 computer interfaces, these spectrographs allow the user to automate the wavelength drive, grating changes, slit widths, integrated CCD shutters and the motorized filter wheel. The 320 mm and 550 mm models have dual entrance ports, and all three models have dual exit ports. Accessories such as light sources, sampling optics, CCDs, spectral acquisition electronics and software broaden the applications for the spectrographs. *Instruments SA Inc, Jobin Yvon-Spex Division, 3880 Park Avenue, Edison, New Jersey 08820*

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Fiberoptic Plug-In Spectrometer

New from Ocean Optics is the PC2000, a high-sensitivity spectrometer mounted on a card that installs into a bus slot in a personal computer; it is thus "invisible" to the user, requiring no



bench space. The PC2000 combines a high-performance UV-visible-near-infrared spectrometer with a 1 MHz, 12-bit ADC system. It features a compact optical bench coupled to a 2048-element CCD linear array detector, and is especially useful for low-light-level applications, such as fluorescence and plasma monitoring.

The ADC system's eight-channel multiplexer connects up to seven slave spectrometers to the master card, and the channel rotator allows fast cycling through the spectrometer channels for acquiring simultaneous spectra. Multiple spectrometer channels are beneficial for experiments requiring expanded wavelength range, multiple point sampling and reference monitoring. *Ocean Optics Inc, 380 Main Street, Dunedin, Florida 34698*

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Laser Flash Photolysis Spectrometer System

Edinburgh Analytical Instruments has introduced the LP900 spectrometer system for use in laser flash photolysis, a technique for studying the characteristics of transient chemical or biological species generated by a short, intense pump pulse. The pulse is supplied by a Nd:YAG laser, included in the standard LP900; other lasers are offered as options. The spectrometer has two modes of operation. In the kinetic mode, changes in transient absorption are monitored at a single wavelength as a function of time. In the spectral mode, the kinetic detector is replaced with a CCD camera, so that a complete spectrum can be measured in a single shot. A wide choice of gratings is available for the LP900's Czerny-Turner monochromator/spectrograph to cover the wavelength range of 200–1700 nm. There are two photomultiplier detector versions of the spectrometer; a nitrogen-cooled germanium photodiode is an option for near-infrared work. *Edinburgh Analytical Instruments Ltd, Riccarton, Currie, Edinburgh EH14 4AP, Scotland*

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Diode Array Spectrophotometer

The Shimadzu MultiSpec-1500 diode array spectrophotometer can acquire spectra in just 0.1 second over the wavelength range 190–800 nm with a resolution of 3 nm. The full spectrum is then displayed one second later. The instrument employs an aberration-correcting, concave, surface-pressed holographic grating that disperses light to 512 high-sensitivity detectors. The compact device has a large, open sample chamber, which provides quick and easy access to the samples and reagents used in quantitative analysis applications. The MultiSpec-1500 has a photometric range from –0.500 to 2.000 in absorbance, and from 0.0 to 300.0% in transmittance; the photometric accuracy is ± 0.005 absorbance at unity absorbance. The company's Hyper-UV software for Windows 95 is used to control the instrument. *Shimadzu Scientific Instruments Inc., 7102 Riverwood Drive, Columbia, Maryland 21046*

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1/4-Meter Imaging Spectrograph

Oriel Instruments announces the MS260i 1/4-meter spectrograph, featuring an asymmetrical, in-plane Czerny–Turner optical configuration. The device has a resolution of 0.25 nm, with a 0.25 μ m slit and a 1200 lines/mm grating, and holds up to three gratings simultaneously. The same high-speed stepping motor is used for the wavelength drive and for grating changes. Built into the spectrograph are a motorized filter wheel and a 0.5 Hz repetition rate shutter.

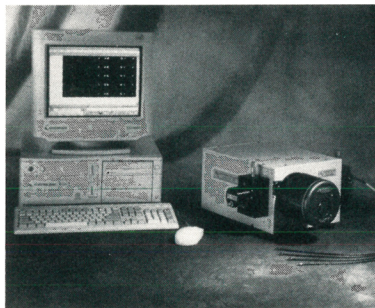
For multitrack spectroscopy (simultaneous recording of multiple spectra), the company offers its InstaSpec CCD and photodiode array detectors; for optimal imaging, the spectrograph's toroidal mirrors provide $1.1 \times$ horizontal and $1.6 \times$ vertical magnification. Optical accessories include spectral calibration lamps, an F/number matcher and multitrack optical fibers. *Oriel Instruments, 150 Long Beach Boulevard, Stratford, Connecticut 06497-0872*

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Integrated CCD Systems

The SpectruMM CCD detection systems from Acton Research Corp (ARC) include front-illuminated, UV-coated

and back-illuminated, high quantum efficiency ($>90\%$) designs with low dark current. They feature spectral acquisition rates of up to 588 spectra/second and 30 images/second, thermoelectric cooling, 1024×256 or 1024×128 pixel formats and video output capabilities. By combining the CCDs with ARC's imaging spectrographs and SpectraSense software, the user can perform types of multitrack spectroscopy, which allows several sources, samples or processes to be monitored simultaneously. A full range of fiberoptic



probes and accessories are available for Raman, fluorescence, source characterization, absorbance and photoluminescence applications. *Acton Research Corp., P.O. Box 2215, 525 Main Street, Acton, Massachusetts 01720*

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Time-of-Flight Mass Spectrometer

EG&G Instruments has combined its FASTFLIGHT digital signal averager with its Electrospray time-of-flight mass spectrometers to produce a system capable of extremely fast data acquisition—orders of magnitude faster than a digital oscilloscope, we are told. Designed primarily for use in analyzing the output of a chromatograph, FAST-FLIGHT provides a 2 GHz effective sampling rate and can record 100 μ s time-of-flight spectra at rates up to 10 spectra/second for more than 30 minutes. A digital signal processor compresses real-time data by a factor of 10. An electronic circuit, the Precision Enhancer, transforms the 8-bit input ADC into a 12-bit ADC for averaging multiple records to form a spectrum. The mass spectrometer's Windows NT-compatible software provides an interface for data acquisition, control, display and analysis. *EG&G Instruments, 801 South Illinois Avenue, Oak Ridge, Tennessee 37831-2011*

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celebrate a century of physics

We hope you plan to join us to Celebrate a Century of Physics at the upcoming Centennial Meeting of the American Physical Society, March 20-26 1999 in Atlanta, combining the scientific programs of the traditional March and April Meetings of the Society.

More than 7,000 physicists and other scientists, and more than forty Nobel Laureates are expected to attend and participate in the largest physics meeting ever held. In addition to the scientific program, many special centennial programs and events are planned throughout the week including:

- Centennial plenary sessions featuring world-renowned speakers
- Symposium on International Science Cooperation with presentations by eminent international scientists
- More than thirty Centennial Symposia planned by APS units
- Panel discussion among past Presidential Science Advisors
- Historical Wall Chart
- Nobel Discoveries Exhibit
- Physics festival (demonstrations, exhibits, lectures)
- APS Units Expo
- International reception and banquet
- Gala Event at the Fernbank Museum of Natural History
- Alumni Reunions
- Invitations to speak have been extended to the President and Vice-President of the United States

ABSTRACT DEADLINES

March program topics -
November 13

April program topics -
December 4

Consult the APS homepage for complete information on the Centennial Meeting program and instructions on how to register.

WWW.APS.ORG/CENTENNIAL

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