

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

Fiber-Optic Spectrometer

The model USB2000-VIS-NIR from Ocean Optics is a miniature fiber-optic spectrometer usable in the 350- to 1000-nm wavelength range. The unit's 2048-element linear CCD array detector, a 25- μm entrance slit, and a grating of 600 lines/mm combine to provide an optical resolution to 1.5 nm. The spectrometer plugs into the USB port of any Windows 98- or Windows 2000-based PC, eliminating the need for external power supplies and A/D converters. The USB2000-VIS-NIR can be expanded into a spectrophotometer system with one of three direct-attach accessories that combine an application-specific sampling chamber and a light source in one package. Effective for measurements in the 390- to 900-nm range, the accessories include the USB-ISS-VIS model for use with 1-cm-square cuvettes, and the USB-ISS-T and USB-FHS that hold 12-mm o.d. test tubes and 1-in or 2-in-square/round filters, respectively. *Ocean Optics Inc, 380 Main Street, Dunedin, Florida 34698, <http://www.oceanoptics.com>*

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InGaAs Array Spectrometer

CVI Spectral Products has announced the SM302 compact spectrometer that consists of a low-noise, 256-element indium gallium arsenide array detection module and a high-precision tunable spectrograph optimized for a standard spectral range of 0.9–1.7 μm that can be optionally extended to 0.9–2.55 μm . The spectrometer has the capacity for dual gratings and includes a 16-bit data acquisition board, one 600-groove grating, and a slit tailored for high-resolution work throughout the usable range of the detector. However, the configuration of the slit and both gratings may be user specified for desired coverage and resolution. The InGaAs detector

is cooled and temperature stabilized, and offers multichannel detection with a readout rate of 100 kHz or faster. *CVI Spectral Products, 200 Dorado Place SE, Albuquerque, New Mexico 87047, <http://www.cvilaser.com>*

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Vacuum UV Spectrophotometer

McPherson has introduced the VUVaS (vacuum ultraviolet absorbance spectrophotometer) system that performs dual-beam measurements of absorbance, transmittance, and reflectance at various angles in the 115- to 380-nm wavelength range. The VUVaS series is said to include the first vacuum-compatible double-beam system that simultaneously collects sample and reference spectra; individual spectral or ratio results are displayed during acquisition. Spectrally agile beam collimation delivers a consistent and wavelength-independent spot size to the sample. Standard units accept either five 1-in diameter samples or three 2 x 2-in samples. Detector angles can be set from 10 to 180°; sample angles can be set from 0 to 89°. The variable and selectable sample/detector position permits analysis of irregular or diffractive samples. *McPherson Inc, 7A Stuart Road, Chelmsford, Massachusetts 01824-4107, <http://www.mcphersoninc.com>*

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1024 × 1 Linear InGaAs Array

Indigo Systems' ISC0007-GS1024 is reportedly the world's first 1024 × 1 linear indium gallium arsenide focal plane array for dense wavelength-division multiplexer (DWDM) and near-IR spectroscopy applications. The device doubles the resolution of previously available arrays and is designed to provide the ultrahigh spatial resolution and wide dynamic range needed for optical quality monitoring in DWDM systems. The array is sensitive to optical radiation in the wavelength range from 900 to 1700 nm, compatible with S-, C-, and L-band laser applications. Similar to Indigo's 256 × 1 and 512 × 1 devices, the ISC0007-GS1024 combines the company's readout integrated circuit InGaAs detectors, and bump-bonded hybridization techniques. The company's proprietary technologies have allowed the elimination of temperature stabilization without performance degradation in the array. *Indigo Systems Corp, 5385 Hollister Avenue, Suite 103, Santa Barbara, California 93111, <http://www.indigosystems.com>*

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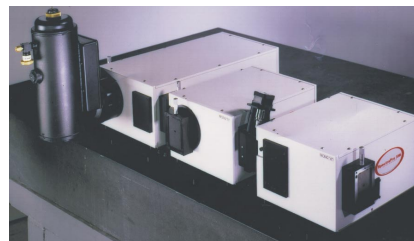
Eight-Channel Spectrometer

The SSRack 8-channel spectrometer system from StellarNet features eight independent fiber-optically-coupled spectrometers operating in parallel. Each channel contains its own detector and associated digitizer with scan memory and can be configured with UV, visible, and near-IR range detectors. Each optical channel provides 2048 wavelengths and can be used for fiber optic sensing of chemical, pharmaceutical, laser, thin films, and other industrial monitor applications that use spectral information for measurement of sample concentration, thickness, color, illumination, and transmissive or reflective properties. The instruments are installed inside a 700-MHz industrial computer with a 100-megabit network interface. *StellarNet Inc, 13801 McCormick Drive, Tampa, Florida 33626, <http://www.stellarnet-inc.com>*

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Triple-Spectrograph System

Acton Research has announced the TriplePro series of modular triple-spectrograph systems. The new spectrograph incorporates a 300-mm double-



subtractive monochromator as the pre-filter, with the company's triple-grating SpectraPro 500 spectrometer as the final dispersing stage. The TriplePro covers a wavelength range of 200–1100 nm, with a resolution of better than 0.05 nm, and is equipped with two exit positions on the output stage. Because the SpectraPro 500 is furnished with a second entrance position, it can be used as a single spectrometer without physically altering the TriplePro optical system. The TriplePro comes with the company's SpectraSense software for use with CCD detectors, or in the scanning mode, with photomultiplier tubes and control electronics. *Acton Research Corporation, 530 Main Street, Acton, Massachusetts 01720, <http://www.acton-research.com>*

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Accessories for FTIR Spectroscopy

SensIR Technologies has introduced a new addition to its line of attenuated total reflectance (ATR) accessories for Fourier transform IR spectroscopic instruments. The Universal ATR (UATR) with DuraVision was designed for use with the Perkin Elmer Spectrum One systems and is recognized by the Spectrum One software. The UATR with DuraVision takes advantage of SensIR's DiComp diamond technology to create a sampling surface that is reportedly indestructible, yet retains exceptional optical characteristics. This enables the user to handle samples such as abrasives, resins, corrosive liquids, powders, and other intractable samples. The incorporation of video microscopy into the UATR allows analysis of samples as small as 100 μm ; the sample is observed through the diamond and correct sample positioning and sample contact are assured. *SensIR Technologies, 15 Great Pasture Road, Danbury Connecticut 06810-8153, <http://www.sensir.com>*

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Detectors for Spectroscopy

Roper Scientific has announced that its family of Princeton Instruments

Spec-10 detectors for spectroscopy has been reengineered to operate at speeds of 50 kHz and 2 MHz. While all of the company's CCD-based systems still have the option to run at 100 kHz and 1 MHz, the new speed settings provide Spec-10 users greater flexibility and new performance benefits. The 50-kHz setting lowers the read noise for several of the Spec-10 models to less than three electrons per pixel per second; the 2-MHz setting delivers faster spectral acquisition. Spec-10 systems can be configured with several front- and back-illuminated CCDs that reportedly provide an optimal pixel size for maximum spectral resolution, as well as rectangular arrays to support fast spectral rates and full spectral coverage. *Roper Scientific/Princeton Instruments, 3660 Quakerbridge Road, Trenton, New Jersey 08619, <http://www.roperscientific.com>*

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X-Ray Spectrometer

The S4 PIONEER 4-kW X-ray spectrometer from Bruker AXS provides sequential wavelength dispersive XRF (x-ray fluorescence) analysis over the full elemental range from beryllium to uranium. The samples can be in the



form of solids, powders, or liquids, with concentrations from sub-ppm to 100%. There is easy access to integrated sample magazines with fixed sample positioning for fast loading. The S4 PIONEER operates at up to 60 kV or 150 mA and includes a

vacuum seal, up to 10 primary beam filters, high-efficiency proportional and scintillation counters, up to 4 collimators, a 75 μ m ultrathin X-ray tube window, and up to 8 analyzer crystals. The spectrometer features a high precision of up to 0.05% with a typical measuring time of 10–20 s per element. *Bruker AXS Inc, 5465 East Cheryl Parkway, Madison, Wisconsin 53711-5373, <http://www.bruker-axs.com>*

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NIR Transmission Spectrograph

Inno-Spec GmbH has introduced the MS-T-NIR, a transmission spectrograph with a planar diffraction grat-

ing on a highly transmissive, antireflection coated substrate, together with a linear indium gallium arsenide array featuring high sensitivity and a wide dynamic range. Available in two focal lengths (25 and 50 mm) for the different size arrays, the detectors are two-stage thermoelectrically cooled. The spectral range is 850–1700 nm for the three models 25-NIR-1.7, 50-NIR-1.7L, and 50-NIR1.7H; it is 1100–2500 nm for the 50-NIR-2.5. The spectral resolutions are 18 nm, 8.2 nm, 4.2 nm, and 16.4 nm for the four models, respectively. Applications for the spectrographs are found in industrial process control for the food, feeding, waste, petro/chemical, plastics, and paper industries. *Inno-Spec GmbH, c/o EBC (USA) Inc, 3490 Bailes Street, Bonita Springs, Florida 34134, <http://www.inno-spec.de>*

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Acoustic Bubble Spectrometer

Dynaflow has developed the ABS Acoustic Bubble Spectrometer, a new instrument for measuring bubble-size distributions and void fractions in gas/liquid flows and mixtures. The ABS exploits the fact that bubbles strongly affect acoustic wave propagation. A pair of transducers transmit and receive a series of short monochromatic bursts of varying frequencies from which the signal attenuation and sound speed are determined; the company's software algorithms make possible the solution of the inverse problem. The acoustic technique, unlike optical techniques, does not require liquid or container transparency. The bubble content can be determined in the presence of particulates, and a wide range of measuring volumes can be used. *Dynaflow Inc, 10621-J Iron Bridge Road, Jessup, Maryland 20794, <http://www.dynaflow-inc.com>*

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New Resource

The Wiley Registry of Mass Spectral Data 7th Edition database from Palisade offers access to 390 000 reference spectra using 32-bit search software. The company's AccessPak has the registry on CD-ROM and installs it directly to virtually any existing mass-spectrometer data system. *Palisade Corporation, 31 Decker Road, Newfield, New York 14861, <http://www.palisade.com>* ■

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