

NEW PRODUCTS

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LAWRENCE G. RUBIN

FOCUS ON SPECTROSCOPY

CCD Spectrometer

Acton Research Corp has introduced the InSpectrum spectral acquisition system, which features thermoelectrically-cooled, two-dimensional CCDs incorporated into an imaging spectrometer. The instrument can be configured with front-illuminated, UV coated, or back-illuminated CCDs in 24.5 mm by 3- or 6-mm high formats. The f/4.0 spectrograph, which has a focal length of 300 mm, offers interchangeable two-grating turrets that give both high resolution (0.20 nm) and wide spectral coverage (200–1100 nm). It incorporates an automated filter wheel with the company's SuperARCoated order-sorting and neutral-density filters, allowing fiber bundles to be butted against the image slit without image degradation. An optional internal calibration source provides accurate wavelength calibration. InSpectrum comes with the company's SpectraSense software. *Acton Research Corp, 530 Main Street, Acton, Massachusetts 01720*

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OEM Spectrometer Module

The SAS256 spectrometer module from Ocean Optics is designed specifically for the OEM with a 1.8 in $\times$ 1.55 in $\times$ 0.85 in footprint and an optical resolution of ~ 2.0 nm (full width at half maximum). The spectrometer incorporates a 1200 line-per-millimeter holographic grating, 1000- μ m-high slits with widths from 5 to 200 μ m, and a 256-element linear CMOS detector; integration times range from 5 ms to 60 s. The SAS256 is optimized for a wavelength range of 300–850 nm; however, ranges from 200 to 1100 nm are also possible. Its serial port can interface with many types and sizes of PCs; when connected to a laptop PC via its USB port, it draws its power from the PC. OEM accessories include light sources, optical-fiber

assemblies, and sampling chambers. *Ocean Optics Inc, 380 Main Street, Dunedin, Florida 34698*

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Double Monochromator

McPherson's double monochromators are configured by joining two individual instruments into either additive or subtractive-dispersion double spectrometers. The double-additive monochromator includes mechanical linkage of two sine drives and wavelength control via a single-motor, high-resolution scan drive. Subtractive units may use single- or dual-motor drives depending on their configuration. Stepper motor drives are interfaced for operation through PCs. The double monochromators feature dual 350-mm focal lengths with f/4.8, ± 0.07 -nm wavelength accuracy in the visible, a reproducibility of ± 0.005 nm,



and continuous stray light rejection of $10^9:1$ to $10^{10}:1$. Interchangeable gratings provide wavelength coverage from 185 to 2600 nm. Applications include Raman or photoluminescence in which strong Rayleigh scatter must be suppressed so that weak signal events can be detected. *McPherson Inc, 7A Stuart Road, Chelmsford, Massachusetts 01824-4107*

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Compact Spectrophotometer

Shimadzu Scientific Instruments has announced the MiniV spectropho-

tometer, which features a spectrum mode that allows for full spectral data acquisition over the wavelength range of 325–1100 nm. Once the scan is completed, the peaks and valleys can be marked within a few seconds. Repeat scans provide a measure of any spectral change over the entire range. The absorbance or transmittance of a sample can be measured at a fixed wavelength using the photometric mode. In the quantitation mode for single component analysis, a calibration curve can be established for determining unknown sample concentrations. Methods, results, and raw data can be saved on the stand-alone instrument, optional dedicated integrated circuit data cards, or in a PC directory using the company's UV Data Manager software. *Shimadzu Scientific Instruments Inc., 7102 Riverwood Drive, Columbia, Maryland 21046-2502*

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Mass Spectrometry Detector

Burle Industries has introduced an ultrafast time-of-flight (TOF) detector for mass spectrometry, a 2- μm pore microchannel plate (MCP) device with subnanosecond pulse widths (~ 250 ps rise time). The high channel density reportedly provides a 10-fold dynamic range improvement and a mass resolution 10 times greater than conventional MCPs. The new TOF detector has a flat input surface for uniform ion conversion and a matched-impedance conical anode. The detector's high aspect ratio, 18-mm collection diameter enables gains in excess of 10^7 at 2400 V. The company's replaceable MCP cartridge includes a chevron set of two extended dynamic-range MCPs and a high-transmission grid mounted in a rugged module. *Burle Industries Inc., 1000 New Holland Avenue, Lancaster, Pennsylvania 17601-5688*

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PC Spectrometer

The WaveStar PC spectrometer from Ophir Optonics will measure spectra from a variety of sources, including continuous and pulsed sources from microwatts to watts in intensity. The instrument has a spectral response of 570–1100 nm for model V and 350–635 nm for model U and is said to have up to four times as high a resolution as similar competing instru-



ments (0.5 nm full width at half maximum). The WaveStar automatically finds and tags peak wavelengths to 0.1-nm accuracy, plugs into a PC's parallel port, uses a photodiode trigger to capture single-shot events, and has a NIST-traceable intensity versus wavelength display. The company's software provides intensity correction, a zoom button to enlarge wavelength range, and a continuously variable shutter speed from 28 μs to 7.3 s. Available fiber adapters connect to fiber sources. *Ophir Optonics Inc., 9 Electronics Avenue, Danvers, Massachusetts 01923*

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InGaAs Array Detectors

Jobin Yvon has designed a family of indium gallium arsenide (InGaAs) array detectors for near-IR spectroscopy without the need for an optical chopper. When these focal-plane photodiode arrays are coupled to one of the company's spectrographs, they provide a significant multiplexing advantage over single-channel detectors because they acquire spectral information in parallel. The new arrays are available in liquid nitrogen-cooled and compact thermoelectrically-cooled packages controlled by IEEE-488-based control systems. The arrays are useful in low light level, multichannel, spectroscopic applications including near-IR Raman spectroscopy, photoluminescence measurements, plasma diagnostics, emission spectroscopy, measurement of fiber optics transmission, and characterization of near-IR laser diodes, optical filters, and light sources. *Jobin Yvon Inc., 3880 Park Avenue, Edison, New Jersey 08820*

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UV/Visible Spectrometers

PerkinElmer Instruments has announced three spectrometers that make up the Lambda series: models

25, 35, and 45. The Lambda 25 has fixed 1-nm slits, the Lambda 35 and Lambda 45 have 0.5-, 1-, 2-, and 4-nm variable slits; the Lambda 45 has a premonochromator to lower stray radiation. The instruments all cover the 190–1100 nm wavelength range and use double-beam optics to compensate for instrument and sample matrix drift. The Lambda series incorporates concave holographic gratings, uses prealigned deuterium- and tungsten-halogen lamps with an automatic source change, and provides dependable results at high- and low-absorbance values. The company's UV WinLab software supports scan- and sampling-accessory control, concentration procedures, time-based analysis, data handling, viewing graphics, and instrument calibration. *PerkinElmer Instruments, 761 Main Avenue, Norwalk, Connecticut 06859-0010*

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Mercury Analyzer

Leeman Labs has introduced an automated mercury analyzer based on cold vapor atomic absorption spectroscopy. The Hydra AA is designed to determine the concentration of mercury in the low-parts-per-trillion to high-parts-per-billion range. The analyzer includes a programmable autosampler capable of processing up to 10 standards, 7 check standards, and 88 aqueous samples in a single analytical protocol. Its sample introduction system permits the analysis of a broad range of sample types, ranging from pure waters to difficult



foaming samples. The Hydra AA features an automatic high-concentration protection system to shield the instrument from exposure to samples containing excessively high levels of mercury. *Leeman Labs Inc, 6 Wentworth Drive, Hudson, New Hampshire 03051*

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IR Camera

Applied Scintillation Technologies has developed the CamIR¹⁵⁵⁰ by matching a CCD camera, selected for its sensitivity and spectral specification, with a phosphor to create a sen-

sitive IR camera in the 1550-nm region. Peak sensitivities are at 1512 and 1540 nm. Due to the nature of the phosphor coating, the sensitivity (as low as 0.2 $\mu\text{J}/\text{cm}^2$) is nonlinear with respect to the incident illumination; this emphasizes brighter regions of the image. The camera can be used with or without a lens to provide real-time imaging and the imaging signal can be linked to image storage systems. To accommodate a lens, a CS-lens mount is supplied with a C-mount adapter. The camera is smaller than a 2-inch cube; can be supplied in a portable system, including a cable and handheld display; and weighs less than 500 g. The unit's built-in charger circuit is suitable for use with any 12-V supply. *Applied Scintillation Technologies, 8 Roydonbury Industrial Estate, Harlow CM19 5BZ, England*

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Multiport CCD Array Camera

Spectral Instruments has announced the 800 series thermoelectrically-cooled, multiport digital camera, optimized to obtain high performance from a variety of large scientific-quality CCDs, including those with multiple output ports. Using multiple ports permits higher frame rates in critical applications. Two analog processing options are available: a 16-bit, 1-MHz digitizer for highest precision imaging or a 14-bit, 5-MHz digitizer for faster frame rates. The camera's image data can be adjusted by computer to maximize use of the digitizer's dynamic range. The 800 series system offers a programmable readout of subarrays and independent serial and parallel register binning. *Spectral Instruments Inc, 1802 West Grant Road, Suite 120, Tucson, Arizona 85745*

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On the Web

Spectral ID Version 3 from Galactic Industries can create and search spectral libraries for a number of analytical techniques, including near-IR, IR, Raman, UV-visible, fluorescence, and mass spectroscopy. Spectral ID can search nearly all commercial spectral libraries—with more than 750 000 available spectra—and can read nearly any instrument data file format. *Galactic Industries Corp, 395 Main Street, Salem, New Hampshire 03079-2464* ■

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