

new products

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Lawrence G. Rubin

Focus on spectroscopy

UV optical fiber assemblies

Ocean Optics has introduced Xtreme Solarization-Resistant (XSR) optical fiber assemblies for spectroscopy, which provide UV transmission down to less than 300 nm and high resistance to UV degradation. Radiation below 300 nm degrades transmission in standard silica fibers, resulting in solarization—increased light absorption in the UV fiber that blocks transmission and can invalidate data. The XSR fiber, ideal for those deep-UV applications, couples to the company's spectrometers and accessories via SMA 905 connectors. The assemblies are available in core diameters of 235 μm and 455 μm and in standard lengths of 25 cm, 1 m, and 2 m; custom lengths can also be provided. A reflection probe version of the XSR is available for reflection and fluorescence from solid surfaces or backscattering and fluorescence from liquids and powders. *Ocean Optics Inc, 830 Douglas Avenue, Dunedin, FL 34698, <http://www.oceanoptics.com>*
See www.pt.ims.ca/12138-131

Spectrophotometers

Jasco has announced the V-600 series of UV, visible, and NIR double-beam spectrophotometers. The V-630, a general-purpose instrument with a spectral range of 190–1100 nm and a fixed bandpass of 1.5 nm, incorporates silicon photodiode detectors and high-speed scanning of up to 8000 nm/min. The V-630Bio is designed for life science applications and consists of the V-630, an intelligent remote model for biological and clinical analysis, and a microcell holder. The V-650, 660, and 670 series use a photomultiplier tube detector

for accurate measurements of low-concentration samples. The V-660 also includes a double monochromator and provides a variable bandpass to 0.1 nm, a range of 187–900 nm, and a stray light level of below 0.00008%. The V-670's unique single monochromator design, with fewer mirrors and thus a higher throughput, uses a lead sulfide detector in the NIR region. *Jasco Inc, 8649 Commerce Drive, Easton, MD 21601, <http://www.jascoinc.com>*
See www.pt.ims.ca/12138-132

Visible and NIR spectrometer

The LabSpec 5000/5100 series of spectrometers from Analytical Spectral Devices is a rapid, hybrid, postdispersive system with high sensitivity and very low stray light for robust qualitative and quantitative applications. The instruments offer a broad spectral range of 350–2500 nm, an integrated wide-band halogen light source, standard SMA 905 fiberoptic connectors, and ASD's wide array of sampling accessories. The new spectrometers are supplied with the company's Indico software and include a streamlined compatibility with LabVIEW software



for autonomous control. The LabSpec 5000/5100 series also offers an embedded remote trigger port and ASD's new cooled NIR indium-gallium-arsenide TurboScanner technology. The model 5000 provides a 10-nm NIR resolution; the 5100 has a 6-nm NIR resolution. *Analytical Spectral Devices Inc, 5335 Sterling Drive, Suite A, Boulder, CO 80301, <http://www.asdi.com>*
See www.pt.ims.ca/12138-133

Fiberoptic spectrometer

Avantes has enhanced its AvaSpec multichannel fiberoptic spectrometers with the AvaSpec USB2.0, a modular system that can be configured with up to 127 spectrometer channels, all read out simultaneously, and synchronized by the master's board microprocessor. A different wavelength range, detector, and integration time can be selected for

each channel without losing the advantage of synchronization between the channels. The AvaSpec USB2.0 uses the USB2.0 bus to connect the various channels to the PC platform. Different detector types for the UV, visible, and NIR can now be used to cover a wide wavelength range with a single spectrometer. This allows users to measure in a two-channel setup from 200 nm to 2.2 μm , including the observation of laser-induced breakdown spectroscopy with high resolution in the 200–900 nm range. *Avantes Inc, 9769 West 119th Drive, Suite 4, Broomfield, CO 80021, <http://www.avantes.com>*
See www.pt.ims.ca/12138-134

Fizeau interferometer

4D Technology Corp has developed the FizCam 2000 Fizeau 4-inch interferometer, an on-axis design with almost complete insensitivity to vibration and air turbulence. The new system features a short coherence-length source that enables measurement of close parallel glass surfaces, such as those of optical hard disk platters, without the need for extraneous coatings to control multiple interference fringes. The FizCam 2000 eliminates bulky and slow phase shifters by using a single-camera, high-speed optical phase sensor that makes a wavefront measurement in as little as 30 μs . The instrument offers 6 $\times$ motorized optical zoom imaging and remote control of focus, zoom, path matching, and camera gain and includes the company's 4Sight advanced wavefront analysis software. *4D Technology Corporation, 3280 East Hemisphere Loop, Suite 146, Tucson, AZ 85706, <http://www.4dtechnology.com>*
See www.pt.ims.ca/12138-135

Raman spectrometer

McPherson's Raman Workstation is an open architectural, single-stage Raman instrument that incorporates a research-grade, 350-mm, f/4.8 spectrometer for work from 325 nm to 1000 nm. It is equipped with good holographic notch rejection or very sharp cutoff filters to attain rejection edges of about 300 or 350 cm^{-1} , and it provides a resolution of 1.5 cm^{-1} at 500 nm using an 1800 grooves/mm grating. Open architecture means room to grow; system elements may be specially modified, altered, or replaced. Systems are available for the popular laser lines from 325 nm to



830 nm and include the laser, specialty filter(s), sample chamber with laser focusing, and signal collection optics. The spectrometer's model 125 sample handling system has an optional cryostat for cooling samples. *McPherson Inc*, 7A Stuart Road, Chelmsford, MA 01824, <http://www.mcphersoninc.com>
See www.pt.ims.ca/12138-136

Time-domain transmission spectrometer

Gigaoptics GmbH has released HASSP-THz, a high-resolution, time-domain terahertz transmission spectrometer that operates without a mechanical delay scanner, thus eliminating difficulties that stem from beam-pointing and spot-size variations. The instrument is based on a high-speed, asynchronous, optical sampling technology that uses two 1-GHz repetition rate Ti:sapphire femtosecond oscillators that are slightly detuned to enable 10-kHz time-delay scanning over a 1-ns window. The spectrometer provides a resolution of 1 GHz and a spectral coverage of 0.05–3 THz; unloaded, it achieves a signal-to-noise ratio of 60 dB within 1 min of acquisition time. Video-rate spectroscopy (28 spectra/s) is performed at 30 dB SNR. *Gigaoptics GmbH*, Blarerstrasse 56, 78462 Konstanz, Germany, <http://www.gigaoptics.com>
See www.pt.ims.ca/12138-137

Detector for mass spectroscopy

Hamamatsu has introduced the F9892-12 microchannel plate (MCP) assembly that offers superior time resolution with low time jitter for time-of-flight mass spectroscopy. An MCP consists of millions of very thin conductive glass capillaries fused together and sliced into a thin sheet. Each capillary works as an independent secondary electron multiplier. The F9892-12 has a large active area of 40 mm o.d. and is flat to within 20 μm over that area, a vital re-

quirement for maximizing time resolution since any warp in an MCP detector will result in a larger spread in ion arrival times, thus increasing the uncertainty of detected ion mass. The F9892-12 provides a time resolution of 1.2 ns with negligible ringing at ± 10 kV high-voltage floating operation. The detector has a gain of 1×10^6 and a dark current of 20 pA/cm². *Hamamatsu Corporation*, 360 Foothill Road, Bridgewater, NJ 08807, <http://www.hamamatsu.com>
See www.pt.ims.ca/12138-138

Cycloidal mass spectrometer

Monitor Instruments has announced TETHYS (TETHered Yearlong Spectrometer), a cycloidal mass spectrometer used to explore dissolved hydrocarbon and atmospheric gases at ocean depths to 5000 m. The prototype was successfully deployed aboard a four-person submersible during a recent petroleum expedition in the Gulf of Mexico. The TETHYS mass spectrometer was mounted on the submersible's air ballast tanks (see photo) and was linked to the forward crew compartment in which a computer provided control and



display. The instrument performed real-time composition analysis (fingerprinting) of dissolved hydrocarbons and decomposing hydrates to determine their origins. Results indicated that the hydrates and seeps in the area were sub-sea-floor petroleum deposits and not generated from microbial decomposition of organic matter. *Monitor Instruments Company*, 290 East Union Road, Cheswick, PA 15024, <http://www.monitorinstruments.com>
See www.pt.ims.ca/12138-139

Software for Raman spectroscopy

HORIBA Jobin Yvon has developed LabSpec 5 (LS5), a kernel-based modular structure software for operating all

of the company's Raman products. LS5 incorporates custom accessories such as FTIR, mapping, temperature-controlled stages, and additional detectors, all of which can be retrofitted by selecting the module to activate. The software enables the recording of Raman images in any shape or format at high speed and at high-spectral and high-spatial resolution. The company's Line Scanning modes can be added for even faster Raman mapping. LS5 also provides data processing tools that can isolate the spectral intensity from the background; monitor on the fly the intensity of marker bands; create maps of peak shift, band broadening, and amplitude variance; and perform multi-variant chemometric analysis. *HORIBA Jobin Yvon Inc*, 3880 Park Avenue, Edison, NJ 08820-3012, <http://www.jobinyvon.com>
See www.pt.ims.ca/12138-140

Software for light source

Gamma Scientific has released SynthiColor, a software program that combines with the company's RS-5B digital light source to offer an integrated spectral programming and generation system. The software provides spectral synthesis, data handling and storage, and spectral and colorimetric metrics. A comprehensive range of highly accurate electro-optical measurements can be performed in minutes. SynthiColor makes it possible to emulate a full range of natural or manmade illuminants, such as sunlight, lamps, and other emissive materials. Users can also create unusual spectral profiles and produce colors that use calibrated radiometric and photometric power levels. Spectral and colorimetric characteristics can be adjusted while maintaining constant radiometric or photometric power. *Gamma Scientific*, 8581 Aero Drive, San Diego, CA 92123, <http://www.gamma-sci.com>
See www.pt.ims.ca/12138-141

Accessory for FTIR spectroscopy

Aabspec has introduced the horizontal Large-Angle Reflectance Infrared (LARI) option for the company's 2000-A multimode system. This FTIR facility is useful for powders, thin films, liquids, and difficult-to-analyze samples over the wide temperature range of -170 °C to 950 °C and a pressure range of ultrahigh vacuum to 2000 psi. The new option provides a means of introducing a direct readout thermocouple

or an additional vacuum pumping port. Solid-gold reflecting surfaces provide optimal optical performance; no further optics are required. The LARI arrangement has been used, for example, with an FTIR spectrometer, in which it adds the capability of introducing UV irradiation into an experiment, a configuration used by polymer researchers to look at curing processes and degradation. *Aabspec*, 135 Sutton Drive, Plainview, NY 11809, <http://www.aabspec.com>
See www.pt.ims.ca/12138-142

Broadband microscope

The UVM-1 broadband microscope CRAIC Technologies covers the UV, visible, and NIR spectral ranges from 200 nm to 2500 nm. The instrument can acquire transmission, reflectance, polarization, and fluorescence images with submicrometer resolution—all with the same microscope, without



swapping components. It can be fitted both with the company's DirecVu to view samples by eye and with the high-resolution digital imaging system. The microscope incorporates broadband optics and thermoelectric-cooled CCD detectors. The UVM-1 has applications in trace evidence, flat-panel displays, semiconductor film thickness, surface plasmon resonance, photonic and protein crystals, DNA analysis, MEMS devices, and forensic drug and combinatorial chemistry. *CRAIC Technologies Inc.*, 948 North Amelia Avenue, San Dimas, CA 91773, <http://www.microspectra.com>
See www.pt.ims.ca/12138-143

Integrating sphere

Gigahertz-Optik's UPB-150-ART is an integrating sphere for multipurpose

single- or double-beam reflectance and transmittance applications in both ± 8 -degree and 0-degree geometries. The 150-mm-diameter barium sulfate-coated UPB-150-ART offers an ideal compromise between light throughput and sphere functionality. Its five precision-machined application ports provide a symmetrical knife-edge design to guarantee optimum light input, and its one detector port is compatible with the company's standard line of sphere detectors or with those of other suppliers. Various accessories for the integrating sphere include port plugs, port reducers, sample holders, and light traps. A slide-and-fix mount on each port allows the accessories to be fixed. *Gigahertz-Optik Inc.*, 5 Perry Way, Newburyport, MA 01950-4009, <http://www.gigahertz-optik.com>
See www.pt.ims.ca/12138-144

On the Web

ASTM International has a new version of its entire library of technical information in digitized format. This repository enables users to access nearly all of the ASTM literature from more than 140 technical committees and spanning more than 100 years. The resource includes special technical publications, manuals, journal articles, papers, and books and their individual chapters. *ASTM International*, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, <http://www.astm.org>
See www.pt.ims.ca/12138-145

Alfa Aesar has added to its product search function the capabilities to search by molecular structure and substructure and by MDL numbers, which originate from the *Available Chemicals Directory*. The structure and substructure function allows customers to search for families of building blocks and intermediates through the use of a molecular drawing tool. *Alfa Aesar*, 26 Parkridge Road, Ward Hill, MA 01835, <http://www.alfa.com>
See www.pt.ims.ca/12138-146

Solid Sealing Technology has launched a new comprehensive website that provides access to a complete library of feedthrough, connector, thermocouple, isolator, baseplate, and crystal sensor drawings and specifications. Also available is a new standard product catalog. *Solid Sealing Technology Inc.*, 44 Dalliba Avenue, Watervliet, NY 12189, <http://www.solidsealing.com>
See www.pt.ims.ca/12138-147

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