

new products

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Lawrence G. Rubin

Focus on analytical instruments

X-ray microanalysis

Bruker AXS has announced the Quantax Quad, an innovative energy-dispersive spectroscopy (EDS) system for x-ray microanalysis on electron microscopes. The new system, powered by the company's Esprit software, delivers significantly faster EDS results across a broad range of applications, including field-emission, environmental, and low-vacuum scanning electron microscopes. The Quantax Quad features the Quad XFlash detector, which incorporates four independently operating 10-mm² silicon drift detectors with integrated anodes and FETs. This arrangement provides the high energy resolution of a single 10-mm² crystal at four times the count rate, and accepts maximum input count rates in excess of 2 million counts per second. Standard energy resolution is better than 133 eV at 10 000 cps. *Bruker AXS Inc, 5465 East Cheryl Parkway, Madison, WI 53711-5373, <http://www.bruker-axs.com>*
See www.pt.ims.ca/9466-131

Catalyst characterization and activity

Hidden Analytical has developed a pulse chemisorption operating mode for its CATLAB microreactor/mass spectrometer that allows single absorbate gases or user-defined multiple component pulses to be passed over samples. Properties such as adsorption isotherms, metal dispersion, and surface acidity can then be determined. The CATLAB is also optimized for continuous flow experiments, including temperature-

programmed desorption, reduction, and oxidation. The system includes a fast-response, low-thermal-mass, air-cooled furnace; a quadrupole mass spectrometer; and the company's quartz inert capillary series for continuous close-coupled catalyst sampling with minimum dead volume and memory effects. The mass spectrometer may also be operated as a standalone analyzer. *Hidden Analytical Inc, 37699 Schoolcraft Road, Livonia, MI 48150, <http://www.hiddeninc.com>*
See www.pt.ims.ca/9466-132

Near-IR camera

The Silver 220S near-IR camera from Electrophysics is an ideal thermal camera for laser-beam analysis, target-signature analysis, and imaging spectroscopy. It includes a thermoelectrically cooled, 320 × 256 mercury cadmium telluride focal-plane array that has high quantum efficiency (greater than 70%) and a spectral response of 0.8–2.5 μm . The broader response—compared with that of indium gallium arsenide-based cameras—covers the water absorption band at 1.95 μm . The Silver 220S features snapshot integration from 1 μs to 10 ms, frame rates up to 100 per second in full-frame mode, and a programmable frame rate from 1 to 100. The camera is also capable of sub-array windowing and can capture images at up to 400 Hz in a 320 × 64 sub-window format. The Silver 220S provides a real-time 14-bit digital output. *Electrophysics Corp, 373 Route 46 West, Fairfield, NJ 07004-2442, <http://www.electrophysics.com>*
See www.pt.ims.ca/9466-133



Modular microscope series

WITec Instruments has introduced the alpha300 series modular microscopes that include the alpha300 R confocal Raman microscope, the alpha300 S scanning near-field optical microscope, and the alpha300 A atomic force microscope. These instruments are driven by the new digital control unit, alphaControl, whose system-on-a-chip concept enhances speed, flexibility, accuracy, and timing precision. AlphaControl's digital signal processing reduces noise to very low levels and significantly improves data and image quality. The system is ex-

pandable and allows complete access to internal signals. For advanced scanning-probe-microscopy imaging tasks, the alpha300 series incorporates the company's TrueScan, a dynamic position error-correction system of the closed-loop scan stage for the highest accuracy in scan movement. *WITec Instruments Corp, 101 Tomaras Avenue, Savoy, IL 61874, <http://www.witec-instruments.com>*
See www.pt.ims.ca/9466-134

Handheld spectrometer analyzer

Polychromix's Phazir is said to be the first handheld near-IR digital transform spectrometer analyzer. The company's DTS technology uses an innovative MEMS spatial light modulator in a portable form factor and features a single indium gallium arsenide detector and no moving parts. The Phazir has a spectral range of about 900–1690 nm, an optical resolution of 11 nm, and stray light of less than 0.01%. It incorporates a 24-bit A/D converter and a mini-USB communications port; it can be configured to operate in various scanning modes. The Phazir, with a battery life of at least five hours, is designed to be used in the field and can collect spectra to support chemometric model development. Chemical analysis applications include material identification and inspection, quantitative and purity analysis, and quality control. *Polychromix, 30 Upton Drive, Wilmington, MA 01887, <http://www.polychromix.com>*
See www.pt.ims.ca/9466-135

Scanning electron microscope

JEOL USA has announced the JSM-6390LV, one of a new series of high-resolution tungsten scanning electron microscopes featuring multiple live image displays, streamlined graphical interface, and improved low-kV operation. The three different images (secondary electron, backscattered electron, and digital camera) are presented simultaneously. Secondary electron resolution is 3 nm at 30 kV, 8 nm at 3 kV, and 15 nm at 1 kV, and magnification ranges from 5 × to 300 000 ×. The LV model offers a low-vacuum mode, which allows for observation of specimens that cannot be viewed at high vacuum because of excessive water content or a nonconductive surface; specimens of up to 6 inches o.d. can be accommodated.



Standard automated features include focus/astigmatism, gun (saturation, bias, and alignment), and contrast and brightness. JEOL USA Inc, 11 Dearborn Road, Peabody, MA 01960, <http://www.jeolusa.com>.

See www.pt.ims.ca/9466-136

Multiple-pass monochromator

Multiple-pass, double-dispersion accessory optics is now available from McPherson for its diffraction spectrometers. The multiple-pass monochromators allow users to work with low f /number, high throughput, and twice the resolution. This result is achieved by plane folding mirrors that repeat the light path—light passes over the diffraction grating twice—while the monochromator aperture ratio (f /number) remains unchanged. Double-pass optics have been installed on the company's spectrometer with a 2-m focal length and, more recently, on the relatively short 0.67-m, fast $f/4.7$ instrument. The impetus for modifying the short system came from researchers working with Raman spectroscopy in which light is at a premium and increased dispersion and resolution help distinguish the spectra. McPherson Inc, 7A Stuart Road, Chelmsford, MA 01824, <http://www.mcphersoninc.com>

See www.pt.ims.ca/9466-137

Strained silicon process control

Bede X-ray Metrology has developed the BedeMetrix-F with ScribeView, a new strained silicon process control system at the 90-nm technology nodes and below, for high-volume semiconductor manufacturing. ScribeView combines the latest in x-ray optics with the company's Bede Microsource x-ray generator to give a very small spot, which enables in-line measurements in the scribe line or on pads on patterned wafers. The new system uses high-resolution x-ray diffraction to measure

epilayer strain, composition, thickness, and relaxation. The high-resolution diffraction enables those four parameters to be determined in strain-engineered systems such as the silicon-germanium structures used in heterostructural bipolar transistors and raised source and drain devices. Bede X-ray Metrology, 14 Inverness Drive East, Suite H-100, Englewood, CO 80112, <http://www.bede.com>
See www.pt.ims.ca/9466-138

Thin-film deposition controller

INFICON has introduced the XTC/3, a thin-film deposition controller that provides accurate control of deposition rate and thickness. The new instrument incorporates the company's ModelLock oscillator technology, which prevents film thickness errors caused by mode-hopping and measures films with greater precision than conventional



techniques. The controller works with the company's Crystal 12, Crystal Six, and dual sensors for automatic replacement of crystals for continuous deposition rate monitoring. Films and processes can be assigned unique, descriptive names for easy retrieval. The XTC/3S is a single-layer model that supports up to nine films, two sensors, and two sources. The XTC/3M for multiple layers can handle up to 99 processes, 999 layers, and 32 films, also with two sensors and two sources. INFICON, Two Technology Place, East Syracuse, NY 13057-9714, <http://www.inficon.com>
See www.pt.ims.ca/9466-139

Digitizer cards for peak analysis

Acqiris USA is now offering its models AP240 and AP235 dual-channel reconfigurable PCI analyzers with new advanced peak analysis and time-to-digital conversion firmware. The analyzers are useful in systems in which signal bursts are acquired and analyzed and data reduction-to-peak information is most valuable. Peaks are located

using an advanced hysteresis algorithm that measures the true peak position and amplitude and allows multiple peaks to be defined within a wide range. Model AP240 has a 1-GHz front-end bandwidth, 1-gigasample/s A/D converters, and up to 12 megabytes of memory (48 MB optional); AP235's front-end bandwidth is 500 MHz with a 500 MS/s maximum sampling rate. For single-channel applications, both cards can interleave their two A/D converter channels to double the sample rate. Acqiris USA, P.O. Box 2203, 234 Cromwell Hill Road, Monroe, NY 10950-1430, <http://www.acqiris.com>

See www.pt.ims.ca/9466-140

Colloid stability analyzer

Ultrasonic Scientific's HR-US Colloid Stability Analyzer performs high-resolution ultrasonic spectroscopy for materials analysis. It can evaluate emulsions, suspensions, and opaque materials. The HR-US can be pressurized up to 10 bars, allowing analysis of liquids with low boiling points and liquids above the boiling point. Ultrasonic spectroscopy is a nondestructive technique based on precision measurements of parameters of high-frequency sound waves propagating through samples, which allows direct probing of intermolecular forces. For example, measurement of velocity and attenuation of the ultrasonic wave allows real-time monitoring of particle concentration and changes in particle size. Ultrasonic Scientific - USA, 255 Old New Brunswick Road, Suite 1205, Piscataway, NJ 08854, <http://www.ultrasonic-scientific.com>

See www.pt.ims.ca/9466-141

Multiaxis motion controller

Aerotech has announced the Ensemble Epaq, which provides up to six axes of motion control in one standalone package. It is capable of further expansion by daisy chaining three extra single-axis drive units for up to nine total axes. The controller allows users to mix and match drive types—linear or pulse-width modulation, brush or brushless, and stepper—within the same positioning system using a common programming and control platform. The Ensemble Epaq is ideal for such applications as point-to-point motion, linear and circular interpolation, multiaxis error correction, 2D error mapping, direct commutation of linear and rotary brushless

servomotors, and on-board servo auto-tuning. Multiple Epaqs can be controlled from one Microsoft Windows PC through Ethernet or USB. *Aerotech Inc*, 101 Zeta Drive, Pittsburgh, PA 15238-2897, <http://www.aerotech.com>
See www.pt.ims.ca/9466-142

UV camcorder

Oculus Photonics has developed the UVCorder, said to be the first digital, near-UV camcorder. The UV camera module is mounted atop a commercial camcorder, from which it receives power. The UVCorder features enhanced UV response in the 300- to 400-nm range, with a peak response at 370 nm. It has excellent rejection of visible and IR light, ideal for imaging in both indoor and outdoor situations, even when the UV illumination is lower than the visible and IR ambient light. The camcorder can also capture color video and stills for reference. UV imaging can be used to detect anomalies in surface texture and composition, corona discharge from high-voltage electrical equipment, sun damage or irregularities in human skin, and for laser and LED beam alignment.

Oculus Photonics LLP, 6489 Calle Real, Suite A, Goleta, CA 93117, <http://www.ultravioletcameras.com>

See www.pt.ims.ca/9466-143



Miniature spectrometer

The MiniRam BTR111 from B&W Tek is a portable near-IR Raman spectrometer suitable for advanced field analysis and identification of biological, chemical, pharmaceutical, and polymeric materials. The system provides a 200–2500 cm^{-1} sensitive response range, optical resolution of about 6–11 cm^{-1} , and integration times of 9 ms–65 s. The BTR111 is equipped with a 16-bit digitizer and a thermoelectrically cooled 2048-pixel CCD detector. The excitation laser features the company's CleanLaze technology with a standard 785-nm narrow linewidth; other optional wavelengths are available. The MiniRam offers a USB 2.0/1.1 computer interface and can be used with GRAMS/AI, a comprehensive desktop spectroscopy system for data processing and management

software. *B&W Tek Inc*, 19 Shea Way, Suite 301, Newark, DE 19713, <http://www.bwtek.com>

See www.pt.ims.ca/9466-144

New literature

Oxford nanoScience has published a series of technical datasheets covering 3D atom probe usage. The first three are *Electropolishing Methods for Bulk Samples*, *Mass Resolution of Maraging Steel*, and *Cluster Analysis*. They can be downloaded from the technical library section at <http://www.oxfordnanoscience.com/tech-library.shtml>. *Oxford nanoScience Ltd*, 6 Carters Lane, Kiln Farm, Milton Keynes MK11 3ER, UK, <http://www.oxfordnanoscience.com>.

See www.pt.ims.ca/9466-145

Keyence America has issued a catalog of its VHX-100 series digital 3D microscopes. The 24 pages cover products and accessories, technical details about digital-focusing functions and depth composition, and industry-specific applications. *Keyence Corporation of America*, 50 Tice Boulevard, Woodcliff Lake, NJ 07677, <http://www.keyence.com>

See www.pt.ims.ca/9466-146

On the Web

Fluke Biomedical has created a first responder website to aid those responsible during radiological emergencies. It provides information on radiological detection equipment, equipment training, and grant funding. *Fluke Biomedical, Radiation Management Services*, 6045 Cochran Road, Cleveland, OH 44139-3303, <http://www.flukebiomedical.com/rms> ■

See www.pt.ims.ca/9466-147

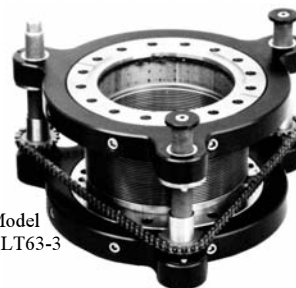
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Bellows-Sealed Linear Translator (BLT)



Model
BLT63-3

Operating Instructions:

1. 
2. 
3. Repeat if necessary.

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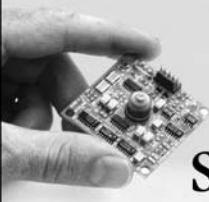
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