

NEW PRODUCTS

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LAWRENCE G. RUBIN

FOCUS ON ANALYTICAL INSTRUMENTS

Spectral Confocal Microscope

Leica Microsystems has introduced the TCS SP2 AOPS, a confocal microscope with an electronically controlled and freely definable acousto-optical beam splitter. This element replaces the conventional primary beam splitter in the scan head for reflecting excitation light toward a sample and transmitting emitted fluorescent light for detection. The TCS SP2 AOPS precisely and rapidly adapts from single- to multichromatic characteristics of any type. It resembles an infinite set of multichroic beam splitters and provides a spectral imaging and measurement environment for multifuorescent samples. The microscope has automatic adjustment for the selected laser lines, greater transparency, sharper wavelength selection, rapid wavelength switching, input ports for additional lasers, and an output port for coupling external devices. *Leica Microsystems Inc., 2345 Waukegan Road, Bannockburn, Illinois 60015, <http://www.leica-microsystems.com>*

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X-Ray Spectrometer

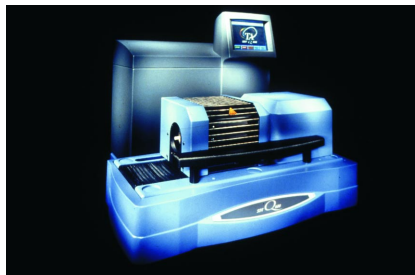
The S2 RANGER x-ray spectrometer from Bruker AXS is used for elemental analysis in metallic and non-metallic solids, powders, and liquids. The instrument is a bench-top spectrometer with integrated touch-screen operation providing full functionality without a keyboard or mouse. As the newest member of the company's Spectrometry Solutions family, the S2 RANGER offers x-ray fluorescence (XRF) analysis of elements from beryllium to uranium in the concentration range from sub-ppm to 100% with high precision and accuracy. Because a precalibration technique is used, XRF standards are not required in the analysis. The S2 can be supplied with a single-position loader or with a multisample tray autosampler, in which up to 28 different samples can be loaded and meas-

ured; new samples can be loaded and added to the measurement batch at any time—even during the measurement. *Bruker AXS Inc., 5465 East Cheryl Parkway, Madison, Wisconsin 53711, <http://www.bruker-axs.com>*

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Heat Flow and Weight Change Analyzer

TA Instruments has announced the SDT Q600 materials characterization analyzer that simultaneously enables a measurement of heat flow (DSC) and weight change (TGA). The analyses



can be performed on high-temperature materials at temperatures from ambient up to 1500°C. The Q600 incorporates a high-sensitivity (0.1 µg) dual-balance mechanism, a bifilar-wound furnace, and a horizontal purge-gas system with mass flow control and gas switching capability for TGA (thermogravimetric analysis) measurements. Within the Q600, a platinum/platinum-rhodium thermocouple embedded in each beam ensures accurate transition and differential temperature measurements. Calibration with sapphire, and dynamic normalization using instantaneous sample weight, provides DSC (differential scanning calorimeter) data. *TA Instruments Inc., 109 Lukens Drive, New Castle, Delaware 19720, <http://www.tainst.com>*

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Confocal Microscope Accessory

Thales Optem's new OptiGrid Confocal microscope system is based on the com-

pany's grid projection technology. The new system delivers full confocal imaging capability for a variety of reflected-light microscopes (including models from Leica, Nikon, Olympus, and Zeiss) without the use of lasers, pinholes, or deconvolution software. OptiGrid uses the conventional light from the host microscope's vertical illuminator and projects a carrier frequency (referred to as a "grid") onto the specimen. The projected grid tags only the portions of the specimen that are perfectly in focus. Working with the user's PC and an electronic camera, OptiGrid's software recovers only that in-focus image data, suppressing stray light and unwanted noise. The new system can deliver a confocal light efficiency of 65–75%, 6 to 60 times higher than alternative confocal technologies. *Thales Optem, 78 Schuyler Baldwin Drive, Fairport, New York 14450-9196, <http://www.thales-optem.com>*

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X-Ray Sensitive Imaging Camera

Rad-icon Imaging has developed the Shad-o-Box EV series of x-ray sensitive digital imaging cameras for high-energy applications up to 160 keV. The cameras allow imaging of thicker, denser materials such as steel up to 10 mm and aluminum up to 25 mm in thickness. The Shad-o-Box EV is available with imaging areas of 50 × 50 mm, 50 × 75 mm, and 50 × 100 mm, with all three versions featuring 10 line pairs/mm. Each camera incorporates a large-area photodiode array sensor with 48-µm pixel spacing; output from the imager is digitized with 12-bit resolution. The EV camera offers a 4000:1 dynamic range at a frame rate of 2.7 frames/s. An optional high-gain version boosts the sensitivity of the analog front end by about five times, at the expense of slightly lower dynamic range and reduced data rate. *Rad-icon Imaging Corp., 3193 Belick Street, Unit 1, Santa Clara, California 95054, <http://www.rad-icon.com>*

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Raman Microscope System

The LabRam IR from Jobin-Yvon is a combination dispersive Raman and FTIR confocal microscope that features both methods of vibrational spectroscopy in a single instrument. Those methods provide spectral fingerprints, which perform precise chemical and molecular characterization and identi-



fication. The new microscope has the advantages of the company's SameSpot analysis, which enables the multi-micro-analysis of the same spot on the sample to be investigated.

The SameSpot analysis uses one of four techniques: FTIR (contact and/or noncontact modes with 10–40 μm discrimination), laser-induced Raman (typically 1- μm spatial resolution and high depth discrimination), and fluorescence microscopy. As an option to the Lab IR with its 0.3-m focal length, the company offers the Lab IR HR, a high-resolution instrument with 0.8-m focal length. *Jobin Yvon Inc, 3880 Park Avenue, Edison, New Jersey 08820, <http://www.jyinc.com>*

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X-Ray Tube Analyzer

EDAX has announced the Alloy Checker x-ray tube analyzer, which incorporates a miniature x-ray tube operating at 35 keV. The Alloy Checker classifies, identifies, matches, and provides concentrations of alloys within seconds; it also collects a spectrum of the sample. The unit incorporates a personal device assistant computer to make the graphical user interface user friendly. A comprehensive standards library pre-loaded in the instrument allows out-of-the-box analysis of metals. The Alloy Checker can perform, store, and analyze more than 10 000 assays in a three-shift operation, making it useful on the manufacturing line for process control or on the dock for quality control. *EDAX Inc, 91 McKee Drive, Mahwah, New Jersey 07430, <http://www.edax.com>*

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UV-Visible-NIR

Spectrophotometers

Varian has launched the Varian Cary 4000/5000/6000i and Deep UV series of spectrophotometers. The instruments are outfitted with the company's new optical isolation system that incorporates an optics casting mounted on a vibration-isolated armature; the casting floats independently from the spectrophotometer cover and sample compartment. With the company's Plug and Go lamp management feature,

lamps are easily replaced and pre-aligned. The Cary 4000 covers the wavelength range 175–900 nm. The model 5000 uses the company's PbSmart detector technology to extend the range to 3300 nm. The model 6000i offers indium gallium arsenide detection to provide up to ten times better sensitivity at IR wavelengths compared to lead sulfide sensors. The Cary deep UV is said to be the first research-grade UV-visible spectrophotometer taking measurements to 157 nm and beyond. *Varian Inc, 3120 Hansen Way, Palo Alto, California 94304-1030, <http://www.varianinc.com>*

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Thermogravimetric Analyzer

Thermo Cahn's VersaTherm is a thermogravimetric analyzer (TGA) that allows users to measure high mass, high volume samples in corrosive or high vacuum (to 10^{-5} torr) gas environments. The VersaTherm incorporates the company's electromagnetic null-type balance and is constructed of gold-plated corrosion-resistant balance components and a chemically inert



polymeric chassis. The TGA can handle sample masses up to 100 g with a sensitivity of 1 μg and volumes up to 35 mL, and can operate up to 1100°C. Gas flow rates and programmed gas mixing and switching (up to two gases) can be controlled by software. The VersaTherm uses the company's Synergy interface for coupling with an FTIR or mass spectrometer for which highly concentrated samples are acquired, which allows identification of trace level components. *Thermo Cahn/Thermo Haake, 5225 Verona Road, Madison, Wisconsin 53711, <http://www.thermocahn.com>*

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Depth-Measuring Microscope

Titan Tool Supply has introduced a new depth-measuring microscope with a miniature color-video viewing system. The model ZDM-1 microscope and model TMCVS color monitor can be connected directly to any video recorder, computer, or color printer.

The z-axis vertical measuring displacement microscope is designed to measure minute variations in height; such measurements are useful in many industries. The desired accuracy of the depth measurement determines the magnification used—100, 200, or 400 $\times$ —all with a very shallow depth of field. The viewing-system monitor features 89 000 pixels and sits on a ball swivel joint for easy positioning. The CCD color camera has 450-line scanner resolution, fine adjustment focusing, and an automatic white balance and iris feature. Optional fiber optic illumination allows the user to focus on the top or the bottom of the part being viewed. *Titan Tool Supply Inc, 68 Comet Avenue, Buffalo, New York 14216, <http://www.titantoolsupply.com>*

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X-Ray Analysis Software

Pro-Trace, a modular addition to Philips Analytical's SuperQ XRF software family, offers a new solution for calculating net intensities in trace element analysis. Pro-Trace is designed to run on the company's MagiX, MagiX PRO, and MagiX Fast systems, which are capable of measuring elemental concentrations down to 0.1 ppm. However, at such low concentrations, peak-to-background ratios can fall below 1:1, where conventional algorithms for background correction are usually ineffective. Pro-Trace is based on a series of advanced algorithms for accurate background determination and corrections for matrix effects, spectral overlap, and low-level impurities. A key element in Pro-Trace's analytical technique is the use of specially prepared blank specimens and calibration standards, available as an option. *Philips Analytical, 12 Michigan Drive, Natick, Massachusetts 01760, <http://www.analytical.philips.com>*

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New Literature

The High Performance Laboratory Balances catalog from Ohaus features balances for basic weighing and moisture analysis, with high resolution and high capacity, for applications from portable to analytical. *Ohaus Corp, 19A Chapin Road, PO Box 2033, Pine Brook, New Jersey 07058, <http://www.ohaus.com>* ■

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