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. For more information about a particular product, visit the website at the end of the product description.

Lawrence G. Rubin

Focus on Laboratory Equipment

Ductless Fume Hoods

Purair ductless fume hoods from Air Science USA have been designed to protect laboratory personnel from harmful powders and chemical vapors through the use of HEPA (high efficiency particulate air) filters and advanced activated carbon filtration techniques. The main filter can be chosen from 14 types of carbon, which include specialty media for vapors of organics, solvents, acids, mercury, and formaldehyde. The Purair line consists of six models with a face velocity of 100 ft per minute and air flows from 145 to 440 cfm. Models are available with an inter-filter testing port for filter saturation detection, a spillage tray that can be removed without dismantling the entire unit, and other options. Widths of the units range from 75 to 1750 cm, all with depths of 70 cm and heights of 121 cm. *Air Science USA LLC, P.O. Box 62296, Fort Myers, FL 33906, http://www.air-science.com*

See www.pt.ims.ca/6089-131

Microfluidics Systems

Cascade Microtech has introduced its L-series microfluidics metrology systems for use in life science research. Microfluidics technology enables the movement of microscopic and nanoscale drops of fluids through channels on a microelectro-mechanical system (MEMS). Micofluidics devices can accurately control minute volumes of fluid. The company's two new core products are the L-series MFP and EBP microports. The MFP (microfluidic port) provides flexibility and convenience for elecro-osmotic flow and electrophoresis experimentation and does not require test fixtures or manifolds. The EBP (electrode-bio port) offers a high-voltage electrode application for electro-osmotic pumping and electrophoresis with a safe interface to in-device or standalone electrodes; it is noncorrosive to solutions and reagents. *Cascade Microtech Inc, 2430 NW 206th Avenue, Beaverton, OR 97006, http://www.cmicro.com*

See www.pt.ims.ca/6089-132

Scanning Electron Microscope

Carl Zeiss SMT has released the new SUPRA 40 series of ultrahigh-resolution field-emission scanning electron microscopes (FESEM). The units are based on the latest version of the company's Gemini FESEM column, which delivers nanoscale-resolution imaging over the entire voltage range of the instrument without the need for adjustments. Compared to the company's earlier models of FESEMs, the SUPRA 40 offers higher stability, an

overall 20% increase in resolution for both high- and low-voltage applications, and a large, motorized eucentric specimen stage. In addition to the standard model, also available is the SUPRA 40VP with variable pressure for real topography imaging of nonconducting specimens, and the SUPRA 40WDS, which accommodates fully focusing wavelength-dispersive and energy-dispersive spectrometers. *Carl Zeiss SMT Inc, One Zeiss Drive, Thornwood, NY 10594, http://www.smt.zeiss.com*

See www.pt.ims.ca/6089-133

X-Ray Metrology for Semiconductors

Bede Scientific's family of BedeMetrix-F tools offers fully automated x-ray metrology for high-volume semiconductor manufacturing. The series of robotic tools is customized for different wafer sizes, degrees of automation, and clean-room environments,

See www.pt.ims.ca/6089-38

See www.pt.ims.ca/6089-39

but shares a common cabinet, x-ray source, detector, specimen stage, and software. The latest variant of the BedeMetrix-F tool delivers nondestructive, high-speed thickness measurement on patterned wafers through combined x-ray reflectivity (XRR) and x-ray fluorescence (XRF), for an extended thickness measurement range of 1 nm–100 μm on a wide range of material types. Small-spot x-ray optics provides measurement on test pads and in scribe lines down to 100 μm for XRR and 30 μm for XRF. *Bede Scientific Incorporated, 14 Inverness Drive East, Suite H-100, Englewood, CO 80112, http://www.bede.com*
See www.pt.ims.ca/6089-134

Particle Image Analyzer

Malvern Instruments has announced the Morphologi G2, a new high-sensitivity particle image analyzer that incorporates the latest Nikon CF160 optics and a high-resolution digital camera to deliver data on particle size and shape as well as images. The instrument measures particle size across a wide range from 0.5 to 1000 μm using circle equivalent diameter, and performs shape analysis to determine and quantify even subtle differences between particles. The Morphologi G2 produces microscope-quality images and statistically significant data through the rapid analysis of hundreds of thousands of particles. Its ability to see and record images of all particles allows visual verification and detection of such phenomena as broken particles, agglomerates, and the presence of fine particles. *Malvern Instruments Inc, 10 Southville Road, Southborough, MA 01772, http://www.malvern.co.uk*
See www.pt.ims.ca/6089-135

Barrier Isolator

The Baker Co has introduced the SterilSHIELD barrier isolator that provides a contained, positive-pressure work area for pharmacy applications. SterilSHIELD uses a high-performance airflow system that produces optimum protection from particulates and extends filter life. It creates a HEPA-filtered unidirectional airflow that purges airborne particles from the work area while preventing outside contaminants from entering the chamber; the filter cross section covers 100% of the work area. The main chamber pressure is positive to the

room and slightly more positive than the pass-through interchange to maintain aseptic conditions in the main chamber. The model SS600 is 6 ft wide and offers a three-glove position; the model SS500 has a width of 5 ft with a two-glove position in the main chamber. *The Baker Company, P.O. Drawer E, 161 Gatehouse Road, Sanford, ME 04073, http://www.bakerco.com*
See www.pt.ims.ca/6089-136

Noncontact Dispensing System

Hernon Manufacturing's RotoCoater is a noncontact dispensing unit designed to apply sealant, adhesive, and other precision dispensing solutions to a bore. The system uses a small air motor to spin a dispersion cup, which is inserted into the bore. The company's Sureshot valve then delivers to the cup a metered amount of material that evenly coats the inner surface of the bore. The RotoCoater allows for quick cycle times and can apply a controlled bead to any size or shape recess that cannot be normally accessed by standard dispensing tools. The size of the dispense bead is widely alterable and easy to control. The RotoCoater can be used as part of a stock dispensing system for a single-bore application or for applying material to multiple bores simultaneously. *Hernon Manufacturing Inc, 121 Tech Drive, Sanford, FL 32771, http://www.hernonmfg.com*
See www.pt.ims.ca/6089-137

Photogrammetry System

Geodetic Systems has released the V-STARS/E4X digital photogrammetry system, a portable 3D-coordinate measurement system for industrial applications. It can be used for part and tool inspection, part building, surface measurement, reverse engineering, and bridge block measurements. The new system includes a Nikon D2X camera that has been reengineered by the company to provide advanced calibration techniques and has been transformed into a high-accuracy photogrammetric camera. The camera features a 12-megapixel color CMOS sensor, an LCD screen, and viewfinder, and works directly with V-STARS 4.4 software for 3D-data acquisition and analysis with very fast image and point processing. The camera uses compact flash cards and can store images in random access memory. Digital photographs can be transmitted to a computer via an optional wireless interface. *Geodetic Systems Inc, 1511 Riverview Drive, Melbourne, FL 32901, http://www.geodetic.com*
See www.pt.ims.ca/6089-138

Crystallography Diffraction System

Rigaku/MSC has announced the SCXmini, a benchtop small-molecule crystallography diffraction system designed to make single-crystal diffraction a routine laboratory method

and teaching tool in the same way that NMR and FTIR did more than a decade ago. The combination of the company's advanced Mercury 2 CCD detector, a simplified goniometer, a sealed-tube x-ray source, and automated software enables the system to provide colleges, universities, and industry with access to molecular-structure determination. The company's goal in the development of the SCXmini has been to surpass the minimalist expectations associated with teaching instruments. Equipped with an optional low-temperature system, the instrument can serve as a routine tool with exceptional small-molecule data quality for use by inorganic and organometallic chemists in research and industry. *Rigaku/MSC Inc, 9009 New Trails Drive, The Woodlands, TX 77381, http://www.rigakumsc.com*
See www.pt.ims.ca/6089-139

Geiger-Mueller Radiation Detector

The palmRAD 1621M Geiger-Mueller detector from Berkeley Nucleonics Corp (BNC) can detect and measure gamma radiation and then alert the operator through a vibrational or audible alarm. BNC's radiation detectors offer two critical operation modes: The first incorporates a one-to-nine strength indicator scale for simple analysis of sources that are present; the second mode provides exposure-rate readings and accumulated dose information commonly found in dosimeters. The instrument's algorithm enables the user to adjust the settings to minimize false alarms in environments having high radiation levels without compromising the probability of detecting a source. The palmRAD 1621M has a detection energy range of 10.0 keV–20.0 MeV and stores event data in internal nonvolatile memory. *Berkeley Nucleonics Corporation, 2955 Kerner Boulevard, San Rafael, CA 94901, http://www.berkeleynucleonics.com*

See www.pt.ims.ca/6089-140

Nitrogen Gas Generators

Parker Balston has released the NitroVap-1LV and -2LV nitrogen gas generators (with maximum flow rates of 200 and 350 standard liters per minute, respectively) that produce very dry, up to 95% pure, evaporator-grade nitrogen. Packaged so that each requires less than one square foot of bench space, the generators eliminate the inconvenience and cost of liquid N_2 dewar- and cylinder-gas supplies. Fed from a compressed air source with an inlet pressure of 60–150 psig, the N_2 generators incorporate a high-efficiency prefiltration system to remove all contaminants down to 0.01 μm from the compressed air. Hollow fiber membranes subsequently separate the clean air into a concentrated N_2 output stream and an oxygen-enriched permeate stream that is vented from the system. *Parker Hannifin Corp, 242 Neck Road, P.O. Box 8223, Haverhill, MA 01835-0723, http://www.parker.com*

See www.pt.ims.ca/6089-141

Static and Dynamic Light Scattering

Brookhaven Instruments' BI-9010AT card is a digital photon correlator and counter. Because it enables users to collect dynamic light-scattering data for particle sizing and static light-scattering data for molecular weight determination, the card is an excellent choice for studying gels, glass transitions, concentrated polymer solutions, and colloidal suspensions. The new card features auto- and cross-correlation modes, up to 522 software-selectable channels, a sampling time of 25–40 ns, a delay range of 25 ns–1310 s, and it automatically adapts to PCI and ISA bus computers. The BI-9010AT has a new digital signal processor in which all the circuits are embedded in a single, high-density chip that is reprogrammable in place. *Brookhaven Instruments Corporation, 750 Blue Point Road, Holtsville, NY 11742, http://www.bic.com*

See www.pt.ims.ca/6089-142

Meter, Mix, and Dispense System

DTIC Dispensing Technologies has introduced the EZ-mix VR variable ratio meter, mix, and dispense system, a piston-based, software-driven, positive displacement system that provides accurate mixing without the need to change gears or make other

mechanical adjustments. The new system features 0.1 mL repeatability and enables users of the new system to achieve variable ratio dispensing in 0.01 increments from 1:1 to 20:1 through the keypad; there is no pulsation or other detectable change in dispensing during changeover. The EZ-mix VR can be connected for filling to any size reservoir from disposable cartridges to 55-gallon or larger drums, and thus eliminates the delay while piston pumps refill with material from reservoirs. *DTIC Dispensing Technologies, 835 Sterling Road, P.O. Box 1204, South Lancaster, MA 01561-1204, http://www.disptech.com*

See www.pt.ims.ca/6089-143

Supplement to Optical Profilers

Veeco Instruments has developed the TTM (through transmission media) module to characterize samples through up to 3 mm of glass, sapphire, or other transmissive media by use of the company's Wyko NT series optical profilers. The new module enables high-resolution measurement of samples through protective packaging, environmental chambers, and other transparent material. Optical profiling (white light interferometry) is a standard technique for noncontact, 3D measurement of surface topography of MEMS and optical MEMS devices. Most devices perform differently once encased in their final packages, which often include a nitrogen atmosphere, vacuum, or other special environments, so the ability to test material through its packaging is an important advance.*Veeco Tucson Inc, 2650 East Elvira Road, Tucson, AZ 85706, http://www.veeco.com*

See www.pt.ims.ca/6089-144

On the Web

The *Temperature and Temperature/Humidity Mapping Guide* from Dickson Co is available online free of charge. It provides step-by-step instructions on how to create and maintain effective facility mapping programs for either regulatory compliance or for minimizing losses due to inventory spoilage. *The Dickson Company, 930 South Westwood Avenue, Addison, IL 60101, http://www.dicksonweb.com/article/article_26.php*

See www.pt.ims.ca/6089-145

Olympus Europa is running an animated Web special that takes the viewer through the applications and exceptional analytical capabilities of the company's new LEXT confocal laser scanning microscope. The viewer can then evaluate numerous application images in 2D and 3D. *Olympus Life and Material Science Europa GmbH, Wendenstrasse 14–18, 20097 Hamburg, Germany, http://www.olympus-europa.com*

See www.pt.ims.ca/6089-146

New Literature

UV Process Supply has issued its *Maintaining UV Curing Equipment* manual, which clearly explains how the various components in UV curing can cause complications and what can be done to avert common pitfalls. The manual is available through the website. *UV Process Supply Inc, 1229 West Cortland Street, Chicago, IL 60614-4805, http://www. uvprocess.com*

See www.pt.ims.ca/6089-147 ■