

new products

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Lawrence G. Rubin

Focus on nanoscience and technology

AFM imaging and analysis software

Agilent Technologies has introduced Pico Image, a modular atomic force microscope imaging and analysis software package that analyzes image data and generates dynamic, highly detailed surface analysis reports. Each Pico Image document consists of a set of frames containing surfaces, profiles extracted from surfaces, the results of applying filters and other operators, analytical studies, and 2D and 3D parameters that conform to international standards. Real-time 3D imaging provides excellent visualization, and videos of flight paths over a surface can also be integrated into the presentation. The software contains three performance levels, offering feature sets that meet the needs of basic, advanced, and expert users. Particle analysis and statistics options are available. *Agilent Technologies Inc, 5301 Stevens Creek Boulevard, Santa Clara, CA 95051, <http://www.agilent.com>*
See www.pt.ims.ca/16299-131

Fluorescence filter set

Semrock Inc and Invitrogen Corp (Carlsbad, California) have jointly announced two new products that work optimally together: the Molecular Probes Qdot 625 nanocrystal fluorescent label and the Semrock BrightLine fluorescence filter set. The new label-filter combination allows the ultimate in brilliant imaging or quantitation. Qdot products exhibit revolutionary imaging performance that comes from their nanocrystal structure com-

bined with a customizable surface. The Qdot labels are not only bright but also inherently photostable, making them ideal for Semrock's no-burnout optical filter technology. The new optical filters in this set have high transmission and steep edges coupled with an optimized and narrow emission passband to match the 625-nm Qdot nanocrystal while achieving minimal crosstalk from neighboring crystals. *Semrock Inc, 3625 Buffalo Road, Suite 6, Rochester, NY 14624, <http://www.semrock.com>*
See www.pt.ims.ca/16299-132

Raman and AFM microscopy

WITec's alpha500 and alpha700 microscopy series combine confocal Raman microscopy for 3D chemical imaging and atomic force microscopy for automated, high-resolution structural imaging on large samples. A piezo-driven scan stage with a travel range of 150 mm × 100 mm for the alpha500 and 350 mm × 300 mm for the alpha700 allows multiarea and multipoint measurements or overview scans on an arbitrary, user-defined number of measurement points. Instru-



ment functions include an integrated autofocus and an automatic AFM-tip approach. In the Raman imaging mode, a complete spectrum is acquired in as little as 760 μ s at each image pixel. Differences in chemical composition will be apparent in the image and can be analyzed with a spatial resolution down to 760 nm. AFM operation is available by simply rotating the objective turret. *WITec Instruments Corp, 101 Tomaras Avenue, Savoy, IL 61874, <http://www.witec-instruments.com>*
See www.pt.ims.ca/16299-133

Silicon nitride AFM probes

The HYDRA series of silicon nitride probes for atomic force microscopes (AFMs) is available from Nanoscience Instruments. The new series is specifically designed for imaging soft materials such as biological and polymeric samples. The probes combine low-stress, Si_3N_4 cantilevers with sharp Si tips that have radii of less than 10 nm. They are offered in various spring con-

stants for applications ranging from highly sensitive force curve measurements to soft contact mode and gentle fluid tapping mode measurements. The probes are available with a V-shaped or rectangular Si_3N_4 cantilever; the V-shaped model comes with either a narrow or wide cantilever, and all models are supplied with an optional backside gold reflex coating. HYDRA AFM probes are manufactured by Applied NanoStructures (Santa Clara, California). *Nanoscience Instruments Inc, 9831 South 51st Street, Suite C119, Phoenix, AZ 85044, <http://www.nanoscience.com>*
See www.pt.ims.ca/16299-134

Laser scanning microscopy software

Carl Zeiss has developed ZEN 2007, an integrated suite of digital imaging software that reduces the complexity of the user interface without diminishing the range and scope of the functions available in the company's LSM 5 family of laser scanning microscopes. The ZEN interface is organized into three zones that follow the typical workflow of experiments. Image acquisition and microscope control tools are in the left-hand toolbar, which can be adapted to each user's personal requirements. File management tools are located in the right-hand toolbar. ZEN's center pane is optimized for displaying and interacting with the acquired image data, through which navigation has been made much easier. The color and brightness of ZEN's input fields and pushbuttons produce an improvement in contrast. *Carl Zeiss MicroImaging GmbH, 07740 Jena, Germany, <http://www.zeiss.de/ZEN>*

See www.pt.ims.ca/16299-135

Nanothermal analysis

Anasys Instruments has released the nano-TA2, an accessory—comprising hardware, software, and probes—that enables a number of commercially available atomic force microscopes to perform nanothermal analysis, heated tip microscopy, and scanning thermal microscopy (SThM). With a significant improvement in the noise levels and higher-resolution electronics, the device extends the capabilities of the company's nano-TA system by adding local temperature mapping via the SThM mode. The nano-TA2 incorporates greater con-

trol, which enables the accessory to obtain heating rates up to 100 times higher than its predecessor and improved performance in slower temperature ramps. The



SThM probes have a maximum temperature of 160 °C, a resolution of better than 0.1 °C, and a lateral resolution of less than 100 nm. *Anasys Instruments*, 25 W. Anapamu,

Suite B, Santa Barbara, CA 93101, <http://www.anasysinstruments.com>

See www.pt.ims.ca/16299-136

Microscope for cell imaging and analysis

PerkinElmer's UltraVIEW VoX system integrates confocal microscopy and software technologies for high-speed, high-quality cell imaging and analysis. The new system meets the need for 3D imaging capabilities, the fastest growing segment for confocal microscopy. It incorporates the latest developments in spinning disk technology—the CSU-X1 spinning disk head from Japan's Yokogawa Electric Corp—and software to visualize, measure, track, chart, and publish 4D multichannel images. The UltraVIEW VoX integrates a modular laser combiner in which up to six solid-state lasers with a wide range of wavelengths can be included. There is also an add-on FRAP (fluorescence recovery after photobleaching) PhotoKinesis unit for users to study the mobility of molecules in cells. *PerkinElmer Life and Analytical Sciences Inc*, 940 Winter Street, Waltham, MA 02451, <http://www.perkinelmer.com>

See www.pt.ims.ca/16299-137

Piezo-nanopositioner

Piezosystem jena has announced the nanoMIPOS 400 CAP, a digital version of the company's wide range of micro-objective focusing devices. The new positioner incorporates a capacitive measurement system and provides a travel of 450 μm with nanometer resolution. The special bidirectional nanoX flexure design allows for a high dynamic and extremely accurate guidance without parasitic motion. The integrated sensors guarantee long-term stable positioning, free of drift and hysteresis, and the digital controller enables in situ adjustment of the PID and

notch filter parameters and rise limitations. Stored in the positioner itself are automatic system calibration data that provide an identification of the nanoMIPOS 400 CAP. The device can easily be adapted to upright and inverted microscopes. *piezosystem jena Inc*, 54 Hopedale Street, Hopedale, MA 01747, <http://www.piezojena.com>

See www.pt.ims.ca/16299-138

Laser microscopy metrology

The LEXT OLS3100 from Olympus is a confocal laser scanning microscope for ultraprecise measurement and observation and features high reliability. With just one click of a button, 3D images can be captured. Time-consuming tasks, such as setting the upper and lower focal limits, are completed automatically. A captured image is rendered by the LEXT's high-power display capability. The new 3D handling technology enables step height, line width, and the distance between two points to be measured in a 3D image. With the microscope's image navigation tool, users can use the mouse to rotate and move the 3D image and scale it through 100 different levels. The LEXT integrates an apochromatic objective lens developed for confocal laser scanning microscopes with a 408-nm (near UV) laser light. *Olympus Europa GmbH*, Wendenstrasse 14-18, 20097 Hamburg, Germany, <http://www.olympus-europa.com>

See www.pt.ims.ca/16299-139

Vibration isolation system for AFMs

Halcyonics has introduced the Nano 20, an ultracompact, active vibration isolation system for use with entry-level atomic force microscopes, which are especially sensitive to low-frequency building vibration. The company's NanoControl technology is based on piezoelectric-type acceleration pickups, fast signal processing, and electrodynamic-type force transducers. The vibration isolation takes effect at 1 Hz and increases considerably from that frequency upward, so that above 15 Hz the Nano system achieves an isolation of 40 dB; 99% of the vibration is effectively isolated. With a load capacity of 0–8 kg, the Nano 20 provides maximum correction forces of $\pm 8\text{ N}$ vertically and $\pm 4\text{ N}$ horizontally. In addition to its high isolation from floor vibration, the system also dampens vibration when a user touches the equipment. *Halcyonics Inc*, 935 Hamilton Avenue, Menlo Park,

CA 94025, <http://www.halcyonics.de>

See www.pt.ims.ca/16299-140

Stage for microscope automation

Physik Instrumente is offering the P-737 PIFOC Piezo-Z-Stage, a high-performance, nanopositioning Z control system. Specifically designed for biotech research microscopes using deconvolution and 3D imaging techniques, the Z-stage features a travel of up to 250 μm , closed loop for precise nanometer motion, and a choice of an analog or digital controller. It also allows for millisecond sample settling that enables convenient Z-stack imaging with multiple objectives and very high throughput. Piezo-activated Z-drives can achieve higher focusing speed (typically in 5–10 ms) and resolution (typically 1 nm) than stepper-motor drives to provide higher-quality images in less time. The P-737 PIFOC is compatible with all major image-acquisition packages. *Physik Instrumente LP*, 16 Albert Street, Auburn, MA 01501, <http://www.pi-usa.us>

See www.pt.ims.ca/16299-141

New literature

Keyence America is offering a guide to digital microscopy. Its five parts cover lens techniques, network applications, digital focus and 3D images, digital image processing technologies, and 3D image capturing techniques. *Keyence Corporation of America*, 50 Tice Boulevard, Woodcliff Lake, NJ 07677, <http://www.keyence.com>

See www.pt.ims.ca/16299-142

Honeywell Sensing and Control has published its 2008 test and measurement catalog. It includes material on accurate, stable sensors, such as load cells, pressure transducers, accelerometers, and torque and displacement sensors. *Honeywell Sensing and Control*, 1985 Douglas Drive North, Golden Valley, MN 55422, <http://www.honeywell.com>

See www.pt.ims.ca/16299-143

On the Web

Voltaix has launched a new website that features an upgraded browse-and-search functionality and a more navigable design to allow customers easy access to information on the company's line of electronic chemicals for the semiconductor and photovoltaic industries. *Voltaix LLC*, P.O. Box 5357, North Branch, NJ 08876, <http://www.voltaix.com>

See www.pt.ims.ca/16299-144