

## new products

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Andreas Mandelis

## Focus on test and measurement

### Irradiance uniformity measuring tool

Oriel, part of Newport Corp, has announced a new photovoltaic tool for measuring the uniformity of irradiance at the sample plane of solar simulators. Equipped with a single metal test platen, it is compatible with English and metric table mounts and with all three test standards: the International Electrotechnical Commission (IEC), ASTM International, and the Japanese Industrial Standards (JIS). The system is designed to correctly place the test detector head in 17 predetermined positions as defined by JIS standard C8912 or in 64 equally spaced positions as defined by IEC method 60904-9. Oriel's tool assists in alignment to provide uniform irradiance after a lamp installation or replacement. It employs a user-friendly interface, a manual test, and a built-in procedure guide. The intuitive MUMS software package provides 2D and 3D surface plots to attain optimum XYZ positioning for irradiance uniformity. *Oriel Instruments, 150 Long Beach Boulevard, Stratford, CT 06615, <http://www.newport.com/oriel>*

### Optical surface profiler

Bruker Corp's AcuityXR is a new optical surface profiler measurement mode combining hardware and software. It enables select ContourGT noncontact, 3D optical surface profilers to break the optical diffraction limit and deliver improved lateral spatial resolution. Nanoscale applications, including semiconductor, medical, and precision machining, have surface features and

defects with dimensions that limit detection or identification due to the diffraction limit. Bruker systems equipped with AcuityXR have shown resolution of features below 130 nm in width while preserving the wide field of view and high performance benefits of non-contact, 3D optical surface profiling. With AcuityXR, dimensional repeatability on narrow structures has been shown to improve by more than a factor of five, demonstrating a metrology benefit to the technology in addition to its ability to reveal exceptionally fine features. *Nano Surfaces Business, Bruker Corporation, 2650 East Elvira Road, Tucson, AZ 85756, <http://www.bruker-axs.de>*

### Ethernet data acquisition module

Data Translation has introduced the DT8824 ultrahigh-resolution Ethernet (LXI compliant) data acquisition module. Its front-end design offers simultaneous sampling of up to four fully isolated 24-bit inputs. By means of proprietary ISO-Channel protection, each analog input is galvanically isolated from any other input and has its own return path that further enhances noise immunity. According to the company, the performance is 20 times more accurate than any other measurement solution. Features of the DT8824 include four simultaneous analog inputs at throughput rates of up to 4800 Hz per channel; a high-resolution 24-bit analog input subsystem for superior signal accuracy; optional signal sampling ranges of  $\pm 10$  V with programmable gains of 1, 8, 16, and 32; Ethernet operation that allows for local or remote monitoring; and a comprehensive software CD for making measurements quickly and easily. *Data Translation Inc, 100 Locke Drive, Marlboro, MA 01752-1192, <http://www.datatranslation.com>*

### Thermal desorption workstation

A new temperature programmed desorption workstation from Hidden Analytical is a complete turnkey station for UHV TPD studies. It is suitable for quality control and for research applications such as photovoltaics, metallurgy, and thin-film studies. The sample heating stage is fully programmable to 1000 °C. The system features high sensitivity and data collection rates in excess of 500 points/s. The integrated thermal analysis software provides complete control

## Mass Spectrometers for advanced research applications

### GAS ANALYSIS



**QGA**  
Quantitative Gas Analyzer

### THIN FILM ANALYSIS



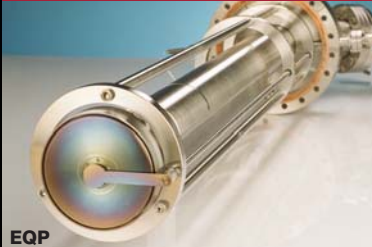
**TPD Workstation**  
Temperature Programmed Desorption

### SURFACE ANALYSIS



**SIMS Workstation**  
Secondary Ion Mass Spectrometry

### PLASMA DIAGNOSTICS



**EQP**  
Mass and Energy Ion Analyzer

**HIDEN**  
ANALYTICAL

for further details of Hidden Analytical products contact:

**info@hiddeninc.com**  
**www.HiddenAnalytical.com**

of experimental protocols, including sample temperature, analyzer parameters, and data acquisition and display. The TPD analysis routines include peak integration and peak deconvolution, with real-time data views in 3D illustrating species evolved with both temperature and time. The system is UHV compatible, with a fast sample load lock and an easy-glide magnetic transfer mechanism for vacuum integrity. *Hidden Analytical, 420 Europa Boulevard, Gemini Business Park, Warrington, WA5 7UN, UK, <http://www.hiddenanalytical.com>*

## Spectral irradiance meter

Konica Minolta Sensing Americas and B&W Tek have released a thermoelectrically cooled miniature spectral irradiance meter, the SpectraRad, for industrial and laboratory light measurement applications. It is equipped with a USB 2.0 interface; has a right angle, fiber-optically coupled cosine corrector; and is irradiance calibrated against a NIST traceable tungsten light source. The BWSpec software provides for the characterization and measurement of many lighting devices and systems. Standard software features include timeline recording, data smoothing, illuminance (lux), chromaticity, color temperature, and externally triggered pulsed light capturing. The SpectraRad is suitable for lamp and LED characterization, photostability testing, photobiology, and photochemistry. *B&W Tek Inc, 19 Shea Way, Newark, DE 19713, <http://www.bwtek.com/spectrarad.html>*

## Germanium photon detectors

The Ortec Products Group of Ametek Inc has added the GEM-MX models to

its Profile GEM series of P-type coaxial high-purity germanium photon detectors. They offer improved low-energy response in a coaxial detector of large-dimension crystals. According to the company, the addition of the MX models to the Profile series makes it possible to choose the optimum detector for a specific sample type and geometry based on crystal dimensions and the thickness of radiation entrance windows. The GEM-MX models have a useful energy range from below 10 keV to 3000 keV and beyond. They are supplied with a standard high-transmission carbon-fiber window in an aluminum end cap. The combination of a thin front radiation entrance window with a coaxial crystal of large dimensions results in an HPGe detector with greater versatility that is useful for counting both Marinelli samples and filter samples placed on an end cap in a single detector. *Ortec Advanced Measurement Technology Inc, 801 South Illinois Avenue, Oak Ridge, TN 37831-0895, <http://www.ortec-online.com>*

## RF signal generator

The new SG384, a 4-GHz RF signal generator from Stanford Research Systems, uses an innovative architecture—rational approximation frequency synthesis—to deliver ultrahigh-frequency resolution of 1  $\mu$ Hz, low phase noise, and versatile modulation capabilities. The standard model SG384 produces sine waves from DC to 4.05 GHz. An optional frequency doubler extends the frequency range to 8.10 GHz. The SG384 offers various modulation capabilities, including amplitude, frequency, phase, pulse, and sweeps. It has an internal modulation source, which produces sine, ramp, saw,

square, and noise waveforms, and an external modulation input. Unlike traditional analog signal generators, the SG384 can sweep continuously from DC to 62.5 MHz. For frequencies above 62.5 MHz, each sweep range covers more than an octave. *Stanford Research Systems Inc, 1290-D Reamwood Avenue, Sunnyvale, CA 94089, <http://www.thinksrs.com>*

## Laser power and energy software

The Ophir Laser Measurement Group has introduced a new version of StarLab, its laser measurement software that converts a PC into a multichannel laser power and energy station. It incorporates Microsoft COM Object technology, a programming language-neutral way of implementing objects across applications. Ophir's COM Object, OphirLM-Measurement, is used by developers to create reusable software components and to link these components together to build applications for tools that are used with laser systems without having access to the tool hardware. For example, an OEM can integrate Ophir power meter products into its system software using OphirLM-Measurement, a Thermopile sensor, and Juno, Ophir's compact USB module that connects any of the company's smart laser sensors—thermal, pyroelectric, and photodiode—to a PC USB port. *Ophir-Spiricon LLC, 60 West 1000 North, Logan, UT 84321, <http://www.ophirop.com/laser-measurement>*

## Flat-panel display testing

The 308 FPD spectrophotometer from Craic Technologies can be attached to a

## Struggling with your Charged Particle Experiment? Maybe it's your detector.

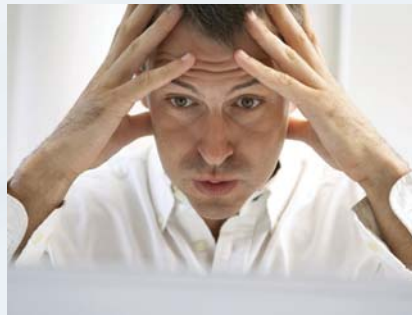
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probe station or microscope to analyze the color and relative intensity of individual pixels of flat microdisplays.



With the company's QDI Film-Pro software, it can measure thin-film and cell-gap thickness. It can also be configured for imaging, allowing for testing of many aspects of

displays with a single instrument. The 308 FPD enables users to measure spectra, colorimetry, light intensity, and film thickness on the micron scale. The smallest pixels are now on the order of 10  $\mu\text{m}$  across; the 308 FPD provides the ability not only to measure the color and intensity of the entire display but also to perform pixel-to-pixel comparisons and map out the spectral variations within a single pixel. Designed for the production environment, the 308 FPD can incorporate automated measurement capabilities, touch-screen controls, easily modified processing recipes, and data analysis tools. *Craic Technologies Inc, 948 North Amelia Avenue, San Dimas, CA 91773, <http://www.microspectra.com>*

## Temperature sensor module

Dexter's new MD series temperature sensor module IR thermometer can be used for noncontact temperature measurements. The sensor is integrated with signal conditioning that reliably produces a calibrated linear digital temperature output in a plug-and-play package with many options. Programmable outputs and flexible power requirements yield a turnkey solution for medical, industrial, commercial, and consumer applications. Also available is an evaluation kit supporting the module. It allows users to configure the module quickly for different temperature ranges, optics, and other material properties or sensor components to meet specific application needs without incorporating additional hardware. The PC and the evaluation board communicate via USB. *Dexter Research Center Inc, 7300 Huron River Drive, Dexter, MI 48130, <http://www.dexterresearch.com>*

## Optical strain gage sensor

The optical strain gages (SGs) from HBM are based on fiber Bragg gratings.

For its type K-OL and K-OR optical SGs for stress analysis, HBM now provides the K-OTC sensor, which can be used to compensate for the temperature response of optical SGs. When the strains are relatively small and the differences in temperature are high, it is essential to compensate for the temperature sensitivity of optical SGs. The K-OTC, which is based on an optical SG applied to an aluminum sensor body, is attached to the measurement object so that although temperature compensation does take place, no mechanical strain is transferred. The K-OTC therefore measures only the thermal dilatation of the aluminum and the temperature-dependent signal change of the fiber Bragg grating. That allows the signal of the actual optical SG to be compensated by computation. *HBM Inc, 19 Barlett Street, Marlborough, MA 01752, <http://www.hbm.com>*

## Noncontact inductive sensor

Kaman's KD-2306, a noncontact linear displacement measuring instrument, offers resolution down to 10 nm and speeds up to 50 kHz. Features include multiple high-gain output with easy calibration and synchronization. Based on balanced bridge, inductive eddy current technology, Kaman's KD-2306 makes high-precision static and dynamic measurements and supports ambient, moderate temperature and cryogenic-rated sensors. Applications range from laboratory work to production and process automation. The KD-2306 includes the electronics, sensor, and interconnecting cable and can sense both ferrous and nonferrous metal targets. The system complies with the Restriction of Hazardous Substances directive and conforms with European Community safety, health, and environmental requirements. Standard sensing ranges are from 0.02 to 2.4 inches, with 0.01% full-scale resolution or better and nonlinearity as little as 0.25% FS. Included are terminal input and output interconnects for 15–30  $V_{dc}$  input power, optional 0–5  $V_{dc}$ , 0–10  $V_{dc}$   $\pm 5 V_{dc}$ , 4–20 mA output, and synchronization cables for multiple channel operation. *Kaman Precision Products/Measuring, 3730 Sinton Road, Suite 100, Colorado Springs, CO 80907, [www.kamansensors.com](http://www.kamansensors.com)*



## Take a Look Inside

Terahertz radiation is unique in offering the ability to **look** into traditionally opaque materials, or to identify chemical substances by their spectroscopic fingerprint. Terahertz instrumentation is already found in homeland security, quality control, non-destructive testing and advanced research.

And quite often you will find TOPTICA's technology **inside**.

## Terahertz @ TOPTICA

- ▶ fs-fiber lasers  
high bandwidth THz spectroscopy
- ▶ cw THz systems  
high resolution spectroscopy
- ▶ Synview all-electronic systems  
THz/mm-wave imaging



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