NEW PRODUCTS

Focus on analytical equipment, spectroscopy, and spectrometry

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 its description. Please send all new product submissions to ptpub@aip.org.

Andreas Mandelis

Stabilized 488 nm laser for Raman spectroscopy

Hübner Photonics has added model 08-NLD 488 nm to its Cobolt 08-01 series of high-performance, single-frequency, narrow-linewidth lasers. The series, which covers the broad 405- to 1064-nm range, is designed to meet the requirements of high-resolution Raman spectroscopy applications. The 08-NLD 488 nm offers high wavelength stability of less than 1 pm (over 8 h, ±3 °C), spectral bandwidth of less than 1 pm, and spectral purity of greater than 40 dB. It features fully integrated electronics in a single compact package and delivers 40 mW output power. Cobolt lasers are manufactured using proprietary HTCure technology. According to the company, the resulting hermetically sealed package improves the lasers' reliability under varying environmental conditions. ***Hübner Photonics Inc**, 2635 N 1st St, Ste 202, San Jose, CA 95134, https://hubner-photonics.com*

High-purity water analyzer

The TOC-1000e online total organic carbon analyzer from Shimadzu Scientific Instruments provides high sensitivity and low detection limits, which can reach 0.1 μg/L. It is suitable for industries that require highly purified water, including pharmaceuticals, semiconductors, food and beverages, and precision equipment manufacturing. According to the company, the TOC-1000e analyzer is the first to use a mercury-free excimer lamp in the smallest and lightest casing available. The excimer lamps emit high-energy 172-nm-wavelength light by inducing a dielectric barrier discharge within a xenon gas. New Active-Path technology transfers energy from the lamp to the sample. It efficiently irradiates the sample inside the lamp with UV light to reliably oxidize organic matter. ***Shimadzu Scientific Instruments Inc**, 7102 Riverwood Dr, Columbia, MD 21046, www.shimadzu.com*

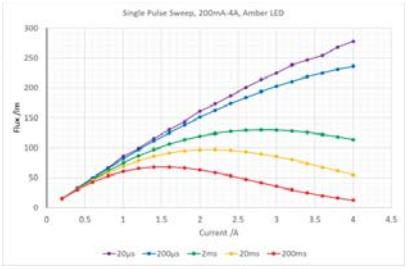
Software for multiple-scope analysis

To facilitate research during the COVID-19 pandemic, Tektronix has enhanced its TekScope PC software to allow users to remotely view and analyze data from up to 32 channels from multiple scopes simultaneously in the same interface. The company claims that unlike other available software, the Multi-Scope Analysis feature on TekScope lets users remotely control the acquisition settings on all scopes, rather than requiring them to set up each scope individually. Because up to 32 channels can be debugged together, the high-resolution solution can catch very fast glitches across many channels at once, and analysis is accelerated. TekScope is compatible with data taken from all Tektronix scopes, so users can leverage Tektronix's familiar user interface and analysis features no matter which scope they use. ***Tektronix Inc**, 14150 SW Karl Braun Dr, PO Box 500, Beaverton, OR 97077, www.tek.com*

Integrated test instrument

Keysight has launched its portfolio of Smart Bench Essentials (SBE) laboratory products, which includes four instruments—a triple-output power supply, an arbitrary function generator, a digital multimeter, and an oscilloscope. They are linked by a single graphical interface with data management and analysis capabilities. The reliable, capable SBE products are suitable for university teaching laboratories, which require an environment conducive to sharing and maximizing learning. They can facilitate the blending of remote and in-person learning technologies, a trend accelerated by the COVID-19 pandemic. Their compactness and stackability make them suitable for designing and testing products in small manufacturing businesses. Keysight's PathWave BenchVue application software complements the SBE series, which also offers the optional PathWave Remote Access Lab and PathWave Lab Manager software. ***Keysight Technologies Inc**, 1400 Fountaingrove Pkwy, Santa Rosa, CA 95403-1738, www.keysight.com*

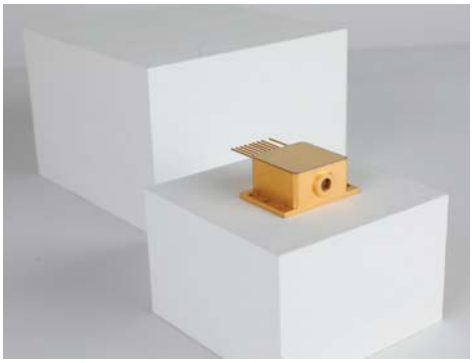
Testing high-power LEDs



According to Instrument Systems, optical measurement accuracy for high-power LEDs in advanced LED package designs requires spectroradiometers with minimum measurement times in the microsecond range and precise triggering to ensure the LED is correctly powered during the short integration time. The company's CAS 125 spectroradiometer with a CMOS sensor and specially tailored readout electronics for time-optimized control delivers minimum exposure times of 0.01 ms. An input/output interface permits synchronization with pulsed current sources or source measure units with hardware trigger capability. Exact synchronization reduces heating and minimizes total measurement time. Integral sensor temperature stabilization ensures a dark current behavior independent of ambient conditions for long-term stability even in environments with unstable temperatures. The CAS 125 is suitable for characterization of high-current-density LEDs, high-power LEDs with reduced heat-dissipation capability, and high-luminance LEDs. ***Instrument Systems Optische Messtechnik GmbH**, Kastenbauerstr 2, 81677 Munich, Germany, www.instrumentsystems.com*

Microfocus x-ray source

According to Excillum, at 700 W its MetalJet E1 delivers 10 times as much x-ray flux across a broad spectral range as a 30 W conventional tungsten-and-solid-anode microfocus source with the same 30 µm spot size. In the spectral range of 24–29 keV, where the characteristic emission lines of indium and tin are present, the flux advantage is as high as 70 times. The MetalJet E1 delivers 24 keV indium Kα emission for high-energy analytical applications, which makes it a suitable source for any microfocus application requiring shorter exposure times, higher throughput, or better signal-to-noise ratio. Despite running at a high thermal load, the MetalJet E1 does not require external water cooling. It can be operated remotely from any computer and maintains a positional stability of below 1 µm during continuous long-term operation. Applications include inspection and quality assurance in semiconductor, electronics, and battery manufacturing. ***Excillum AB**, Jan Stenbecks Torg 17, 164 40 Kista, Sweden, www.excillum.com*

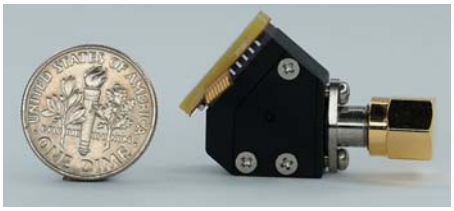


QCLs for gas detection

Photonic Solutions' series of narrow-linewidth Fabry–Perot quantum cascade lasers (QCLs) is now available in wavelengths from 10 μm to 17 μm, suitable for gas-detection applications. The uniMir lasers are manufactured by mirSense of Palaiseau, France, in high heat-load and turnkey configurations. The rugged, ultracompact QCLs produce up to 10 mW CW output power. The QCLs optimized for 10–17 μm operation are based on a new class of single-mode, distributed-feedback QCLs that use different III–V semiconductor materials to fabricate the active region of the lasers. Very tight linewidth drives high-sensitivity gas sensing. The QCLs enable mid-IR absorption spectroscopy to address the important class of aromatics known as BTEX (benzene, toluene, ethylbenzene, and xylenes). The detection of those toxic volatile organic compounds is important for environmental monitoring and safety. ***Photonic Solutions Ltd**, Unit 2.2 Quantum Ct, Research Ave S, Heriot-Watt University Research Park, Edinburgh EH14 4AP, UK, www.photonicsolutions.co.uk*

High-sensitivity trace-element analysis

Spectro Analytical Instruments, a unit of Ametek's Materials Analysis Division, has introduced the third version of its Spectrogreen analyzer for inductively coupled plasma optical emission spectrometry. The Spectrogreen TI features Spectro's twin interface, which automatically combines both axial and radial plasma views (looking both across and from end to end). It optimizes sensitivity, linearity, and dynamic range while avoiding matrix effects such as easily ionizable elements. The Spectrogreen TI delivers reliable, accurate analyses of trace and higher concentrations of elements in challenging matrices, such as certain wastewaters, soils, and sludges and organic, high-salt, and metal samples. It is suitable for routine elemental analyses in agronomy, consumer product safety, and environmental, pharmaceutical, chemical, petrochemical, and food applications. ***Spectro Analytical Instruments Inc**, 91 McKee Dr, Mahwah, NJ 07430, www.spectro.com*

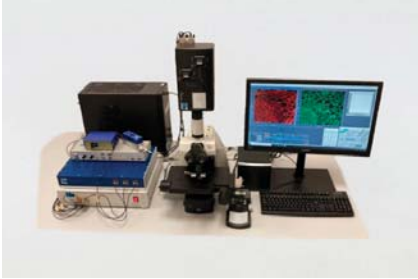


Ultracompact spectrometer modules

The latest addition to the Ibsen Photonics platform of ultracompact spectrometers is the Pebble VIS-NIR OEM model, which measures only 20×15×8 mm. At its core is a highly effective transmission grating manufactured by Ibsen. A key benefit of using a transmission grating inside Pebble is a high resolution of 8 nm across the full 500–1100 nm wavelength range. With a fast, very sensitive 256-pixel CMOS detector array and a large numerical aperture of 0.22 (low f-number of *f*/2.2), Pebble provides very high sensitivity for such a small spectrometer. Its pure transmission-based optics ensure good thermal stability and make it suitable for real-time measurements in the field. The cost-effective Pebble is suitable for use by integrators of handheld and portable multispectral instruments for biophotonics, medical, food, and precision agriculture applications based on fluorescence or absorbance measurements. ***Ibsen Photonics A/S**, Ryttermarken 17, DK-3520 Farum, Denmark, https://ibsen.com*

Small molecule analysis

Waters Corporation has released its Acquity RDa detector, a time-of-flight mass spectrometer (MS) for small molecule analysis in academia, pharmaceuticals, food, and forensics. Specific applications include impurity and food contaminant analysis, forced degradation studies, lipid screening, natural products and drug profiling, and general accurate-mass measurements. The compact Acquity RDa detector is quick to deploy and easy to operate. It features SmartMS technology that lets users accurately identify analytes and evaluate outcomes with robust, reliable workflows for routine applications. The detector operates on waters_connect, an open software platform that provides a complete audit trail for acquisition, processing, and reporting of data. It enables high standards of data integrity and compliance to 21 CFR Part 11 requirements. ***Waters Corporation**, 34 Maple St, Milford, MA 01757, www.waters.com*



High-performance FLIM system

The new generation of the Becker & Hickl DCS-120 fluorescence-lifetime imaging microscopy (FLIM) system features high temporal resolution, timing reproducibility, spatial resolution, and sensitivity. Its photon efficiency is nearly ideal, the company says. Fluorescence lifetimes can be detected down to 10 ps, and the decay data can be resolved into 4096 time channels, with a minimum time bin width of 405 fs. Pixel numbers as high as 4096 × 4096 are available. The system is offered in a confocal version with excitation by picosecond diode lasers or in a two-photon version with a titanium:sapphire or a femtosecond fiber laser. The DCS-120 FLIM system uses fast scanning by galvanometer mirrors, confocal or non-descanned detection, and FLIM by the company's multidimensional time-correlated single-photon counting technique. Data acquisition functions include precision dual-channel, multiwavelength, and time-series FLIM; laser wavelength multiplexing; and phosphorescence lifetime imaging. Data analysis is performed by next-generation SPCImage NG software. Applications of the new DCS-120 system include molecular imaging in live cells and tissues, protein-interaction experiments by fluorescence resonance energy transfer, and cancer cell identification. ***Becker & Hickl GmbH**, Nunsdorfer Ring 7-9, 12277 Berlin, Germany, www.becker-hickl.com* PT