NEW PRODUCTS

Focus on photonics, 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

Flexible spectrometer

Offering higher performance than its predecessors, the Varius spectrometer now available from Avantes is designed to meet the needs of a wide variety of applications. The Varius is offered in two product variations: One has either a 2048- or a 4096-pixel detector, USB 3 high-speed data transfer, and a replaceable slit to customize throughput and resolution. The other, the industrial OEM version, has a stainless steel electromagnetic-compatible housing and is optimized for integration into products or systems. The Varius offers superior stray-light performance of 0.1–1% (with a typical value of 300 lines/mm and a blaze 300 nm at less than 0.3%); a high signal-to-noise ratio of 375:1 and 365:1, respectively; and a symmetrical Czerny–Turner optical bench design. Its wavelength range is 190–1100 nm and its dynamic range is 4500. Applications include use in research laboratories, radiometry, thin-film-coating deposition, semiconductors, leaf measurement, and chlorophyll analysis. ***Avantes BV**, Oude Apeldoornseweg 28, 7333 NS Apeldoorn, the Netherlands, www.avantes.com*

Direct-injection mass spectrometry

Syft has unveiled its selected-ion flow-tube mass spectrometry (SIFT-MS) technology, Syft Tracer. According to the company, the innovation in direct-injection MS offers advancements in sensitivity, performance stability, reproducibility, and repeatability. It is suitable for use in the various analytical applications and industries that require fast time to data, high throughput, and continuous operation. SIFT-MS applies precisely controlled chemical ionization reactions to detect and quantify trace amounts of volatile organic compounds and inorganic gases. It delivers real-time, chromatography-free direct analysis of compounds that traditionally require intensive sample preparation, including even complex matrices and high-humidity samples. It analyzes compounds that cannot be easily targeted by traditional chromatographic methods, such as formaldehyde, hydrogen sulfide, ammonia, ethylene oxide, and nitrosamines. SIFT-MS is designed to be accessible to nontechnical users and generates data that are easy to interpret. ***Syft**, 68 St Asaph St, Christchurch 8011, New Zealand, www.syft.com*

Laser diodes at 670 nm

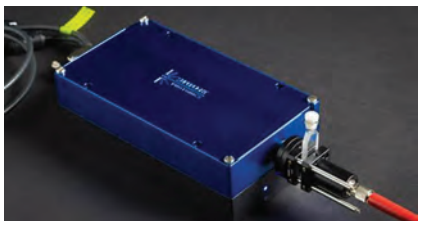
Toptica Eagleyard has announced that its miniTA (tapered amplifier) and miniECL (external cavity laser) diodes are now available at 670 nm. Housed in a new, optimized hermetically sealed butterfly package, the miniTA has 14 thick pins to enhance the power supply. It now comes with an evaluation board. Like other laser diodes in the product family that emit different wavelengths, the 670 nm miniTA features integrated thermal management and beam collimation. High optical single-mode power up to 1 W and high amplified spontaneous emission suppression make it suitable for applications such as spectroscopy, quantum technologies, the life sciences, and atomic clocks. The single-frequency 670 nm miniECL has a 40 mW output. Because of its hermetically sealed package, the miniECL is robust and typically has a super-fine linewidth of 100 kHz for high precision. Wavelengths between 650 and 1100 nm can be customized upon request. The integrated beam collimation, thermoelectric cooler, and thermistor contribute to ease of use. The miniECL is suitable for use in spectroscopy, quantum technologies, metrology, the life sciences, and atomic clocks. ***Toptica Eagleyard**, Rudower Chaussee 29, 12489 Berlin, Germany, www.toptica-eagleyard.com*

Time-correlated single-photon counter

PicoQuant has developed the PicoHarp 330 event timer and time-correlated single-photon counting unit for state-of-the-art photonics research. Made for applications with up to three channels, the PicoHarp 330 offers flexible channel configuration and synchronization and supports a wide variety of single-photon detectors. Users can choose between edge triggers and constant-fraction discriminators. The PicoHarp 330 is equipped with either one or two identical synchronized yet independent detection channels, providing the choice between 1 + 1 or 1 + 2 channels for input and synchronization purposes. It offers a time resolution of 1 ps and high timing precision of 2 ps rms/channel, with 3 ps rms between channels. High data throughput via the USB 3 interface allows count rates of up to 85×10^6 counts/s/channel. Because of the ultrashort dead time of 680 ps, multiple photons can be detected per cycle. The PicoHarp 330 features 65 536 histogram bins/input channel, with a minimum width of 1 ps. Over 4×10^9 counts (32 bits) can be collected per bin. ***PicoQuant**, Rudower Chaussee 29, 12489 Berlin, Germany, www.picoquant.com*

Submicron IR particle spectroscopy

The featurefindIR automation solution from Photothermal Spectroscopy performs precise, rapid spectroscopic measurement of submicron- to millimeter-sized microplastics, contaminants, pharmaceuticals, and other particles in a single measurement session. FeaturefindIR makes optical photothermal IR (O-PTIR) spectroscopic measurements by using various image inputs. Those include single IR wavelength images, cross-polarized bright-field images for improved contrast of smaller features, and fluorescence images. Once the image is captured, featurefindIR's tools allow for precise particle selection based on size, image intensity, and other user criteria. FeaturefindIR's micro-chemical ID report automatically compares hundreds of user-selected spectra against an O-PTIR reference database, reports a hit quality index for each spectrum, and can provide the best chemical ID match for each one. For higher measurement productivity, featurefindIR supports the company's mIRage system's simultaneous IR+Raman measurement capability. ***Photothermal Spectroscopy Corp***, *325 Chapala St, Santa Barbara, CA 93101, www.photothermal.com*



Portable wideband laser

According to SuperLight Photonics, its recently introduced SLP-1000 is the first portable wideband laser. It serves as a smooth, wide-spectral-output light source for spectroscopy and medical and industrial imaging applications. The compact, rugged SLP-1000 is battery operated. It integrates a Menlo Systems seed laser with a Thorlabs-compatible screw thread. Based on the company's Patterned Alternating Dispersion technology, the SLP-1000 offers a high-quality, coherent, and stable spectral output of 400 nm at −3 dB and 1500 nm at −20 dB in the near-IR band at a repetition rate of 100 MHz with pulse durations of around 20 fs. The short pulse duration, owed to the highly efficient supercontinuum generators, allows for the use of lower pulse energies at the generator input. Pulse broadening needed for amplification, noise from amplifier stages, and additional optical components can thus be eliminated. The SLP-1000 provides high-quality nonlinear pulse compression for applications such as third-harmonic surface imaging and transient-absorption spectroscopy. ***SuperLight Photonics BV***, *Brandweerstraat 20, 7514 AE Enschede, the Netherlands, www.superlightphotonics.com*

Compact OPO and pump-laser system

Lumibird and GWU-Lasertechnik have released a new model pumping in their Peacock series of optical parametric oscillators (OPOs) and pump lasers on a single platform. The Peacock XT includes a Q-smart-type neodymium-doped yttrium aluminum garnet laser that pumps a state-of-the-art OPO at 355 nm. The whole unit is integrated in a single bench that can easily be inserted into a complex system. The Peacock XT is suitable for users who require a tunable nanosecond-pulsed laser source in the visible and near-IR ranges. It is tunable from 405 to 2850 nm, has fast shot-to-shot wavelength tuning across the entire range, is available in midband or broadband linewidths, and is robust, reliable, and easy to use. With its fully automated wavelength selection, real-time output energy control, and laser-beam-shaping capability, the versatile Peacock XT is appropriate for a wide variety of environments and for demanding applications in the spectroscopy, biotechnology, and medical fields. ***Lumibird***, *2 rue Paul Sabatier, 22300 Lannion, France, www.lumibird.com*

Spectrometer with high dynamic range

The OPAL-Luxe C16736-01 spectrometer from Hamamatsu Photonics has a very high dynamic range of 2 500 000:1 in the spectral range from 200 to 900 nm. To take full advantage of the high dynamic range, the spectral optics have been newly designed with high sensitivity and high wavelength resolution, while minimizing stray light. According to the company, the OPAL-Luxe is particularly effective when strong and weak signals are present simultaneously. Incorporating it into component analyzers that use the light absorption properties of substances in the UV to near-IR region allows for simultaneous analysis of the various components within a sample. Detecting trace amounts of impurities in substances without having to repeat measurements can increase efficiency in the quality control of chemicals. Since it can analyze plasma emissions with high accuracy, the OPAL-Luxe will also help advance plasma application research. ***Hamamatsu Corporation***, *360 Foothill Rd, Bridgewater, NJ 08807, www.hamamatsu.com* PT