

NEW PRODUCTS

Focus on photonics, spectrometry, and spectroscopy

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. For all new products submissions, please send to ptpub@aip.org.

Andreas Mandelis



Plug-and-play time-resolved spectrometer

PicoQuant's latest luminescence spectrometer, the FluoTime 250, is a compact, robust system designed to make it easy for users to acquire time-resolved data. Because of the system's series of comprehensive software wizards, even novice users of the fully automated device

can perform complex measurements, such as fluorescence decays and time-resolved anisotropy studies, in a short time. Advanced users have full access to all instrument capabilities through a point-and-click interface or integrated scripting language. The spectrometer supports both time-correlated single-photon counting and multichannel scaling data acquisition, and it covers lifetime ranges from picoseconds to milliseconds. With the addition of an optional monochromator, the FluoTime 250 can measure time-resolved emission spectra. **PicoQuant**, Rudower Chaussee 29, 12489 Berlin, Germany, www.picoquant.com

Near- to mid-IR tunable light source

The Carmina tunable IR light source covers an IR and mid-IR wavelength range from 2.15 μm to 15 μm , which is the widest of any laser system on the market, according to the manufacturer APE Angewandte Physik & Elektronik. That wide tuning range and the source's high resolution and sensitivity are achieved with an optical parametric oscillator and difference-frequency generation architecture. The combination of 300 cm^{-1} broadband and 20 cm^{-1} narrowband emission makes the Carmina suitable for the two complementary nanoscale IR techniques: scattering near-field scanning optical microscopy and atomic force microscope IR spectroscopy. A pulsed mode consisting of a burst with a 50% duty cycle is included for AFM-IR applications. The light source is suitable for use in near-field imaging and spectroscopy of organic and inorganic samples. **APE Angewandte Physik & Elektronik GmbH**, Plauener Str 163–165, Haus N, 13053 Berlin, Germany, www.ape-berlin.de



Chemical imaging and spectral analysis system

According to Agilent, its compact 8700 laser direct IR (LDIR) system represents a new approach to chemical imaging that will bring greater clarity and higher speed to pharmaceutical, biomedical, food, and materials science studies. With its quantum cascade laser technology, rapid scanning optics, and intuitive Agilent Clarity software, the system provides fast, high-definition (HD) chemical imaging and accurate analysis of the composition of tablets, laminates, tissues, polymers, and fibers. The 8700 LDIR produces images free from laser coherence artifacts and provides HD images of large areas. Its automated operation, with no need for liquid nitrogen, makes HD chemical imaging accessible to operators at all levels of expertise in academic and commercial facilities. **Agilent Technologies Inc**, 5301 Stevens Creek Blvd, Santa Clara, CA 95051, www.agilent.com



Soft x-ray to extreme-UV spectrometer

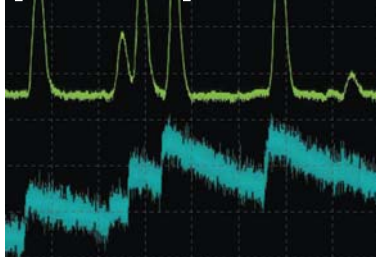
McPherson now offers its model 251MX high-energy flat-field spectrograph with three diffraction gratings that cover the spectrum from 8 eV to more than 2000 eV, or wavelengths of 150–0.5 nm. The laminar groove profile of the gratings helps keep a high-energy spectrum clean and more easily interpretable, especially at short wavelengths. The gratings are designed for grazing-incidence optical beams. A shallow 1.5-degree grazing-incidence angle improves efficiency for high-energy photons at wavelengths below 5 nm. The model 251MX is optimized for high-energy photons, including soft x ray and extreme UV (EUV). According to the company, it is easy to use and delivers reliable performance for water window imaging, high-harmonic-generation laser spectroscopy, x-ray plasma diagnostics, EUV lithography, optical characterization, metrology, and calibration. **McPherson**, 7A Stuart Rd, Chelmsford, MA 01824, www.mcphersoninc.com



Digital gamma spectrometers

The Ortec Products Group of Ametek's Materials Analysis Division has added two advanced digital spectrometers for high-resolution gamma spectroscopy applications to its line of DSPEC 50 and DSPEC 50A digital spectrometers. The new DSPEC 50A and DSPEC 502A models include high-precision coincidence timing to simplify Compton suppression and cosmic-veto system configurations. According to the company, the coincidence-timing functions are simple to operate and offer high performance. The spectrometers feature 64 K analog-to-digital conversion gain for superior low-energy peak shape in broad-energy-range applications. Web-based interfaces permit custom application development and allow use of the DSPEC 50A and DSPEC 502A on computers running any operating system. **Ortec Products Group**, 801 S Illinois Ave, Oak Ridge, TN 37831-0895, www.ortec-online.com

charge sensitive preamplifiers



readout signals from:

pin photodiodes
CdTe/CZT semiconductor detectors
photomultipliers
proportional tubes
surface barrier/PIPS

shaping amplifiers detect femtojoule light pulses

Great for amplifying pulsed optical signals or pulses from nuclear radiation detectors. Our modules are designed to be plugged into your detection instrumentation. Evaluation boards and housings are available.

product specifications and application notes at:
<http://cremat.com>
Cremat Inc. West Newton, MA USA

Fixed grating spectrograph

According to Horiba Scientific, its Lumetta F/2 fixed grating spectrograph features the highest optical throughput in the compact spectrograph class. Lumetta is designed to optimally gather light from most fibers and high-angle scattering phenomena.

The imaging spectrograph can perform such advanced techniques as multitrack spectroscopy and fast hyperspectral imaging. With multitrack spectroscopy, it can measure multiple independent spectral channels, which either improves throughput for similar measurements on different samples or allows simultaneous measurement of different but complementary spectra, such as photoluminescence and absorbance, from the same sample. Lumetta's CCD, which is deep-cooled to -50°C , and its low-noise 16-bit electronics deliver high sensitivity for low-light applications. **Horiba Scientific**, 20 Knightsbridge Rd, Piscataway, NJ 08854, www.horiba.com



Camera for physics and astronomy

Andor, an Oxford Instruments company, has launched its Marana 4.2B-11 back-illuminated camera platform. Marana features 95% quantum efficiency, vacuum cooling down to -45°C , and high sCMOS sensitivity. According to Andor, it is the largest field-of-view sCMOS commercially available. Marana combines a 4.2 MP

array format with 11 μm pixels resulting in a large, 32 mm sensor diagonal. Its 48 fps rate makes the camera useful for high-time-resolution astrophysics—for example, in pulsar studies—and for dynamic quantum research experiments. Integrated with Andor's spectrograph range, Marana offers fast spectroscopy modes that can monitor rapid kinetic processes and reactions at thousands of spectra/s and allow for fast multifiber hyperspectral imaging applications. **Andor Technology Ltd**, 7 Millennium Way, Springvale Business Park, Belfast BT12 7AL, UK, <https://andor.oxinst.com>

Extreme-UV flat mirrors

Flat mirrors designed for extreme-UV (EUV) beam steering, coherent diffractive imaging, materials science research, and harmonic separation applications are now available from Edmund Optics. The precision EUV mirrors feature nearly ideal reflectivity at 13.5 nm. They are offered in two versions:

5° angle of incidence (AOI) mirrors suitable for use with unpolarized beams and 45° AOI for steering s-polarized beams. Their superior thermal stability results from a coating deposited on a super-polished single-crystal silicon substrate. The metal-semiconductor coating includes a molybdenum-silicon multilayer with a Si top layer. The mirrors have a surface flatness of $\lambda/10$ at 632.8 nm and 6.35 mm thickness. They exhibit a surface roughness less than 3 Å and greatly reduce incident light scatter.

Edmund Optics Inc, 101 E Gloucester Pike, Barrington, NJ 08007, www.edmundoptics.com



Femtosecond oscillators

Laser Quantum has added the Gecco Power and the Venteon Boost to its Gecco and Venteon femtosecond oscillator ranges. They are designed to maximize output power and pulse energy and to surpass the values achieved by other Gecco or Venteon laser models. The Gecco Power is a fully

equipped, compact femtosecond laser in a sealed enclosure. With an average power of greater than 1 W and a pulse duration of less than 20 fs, it is suitable for Raman spectroscopy and microscopy and amplifier seeding. The pulse energies for the Venteon Boost few-cycle pulse femtosecond laser are greater than 11 nJ, and the average output power is greater than 900 mW. The Fourier-transform-limited pulse has a duration of less than 10 fs. The Venteon Boost is suitable for applications such as two-photon microscopy, ultrafast time-domain spectroscopy, and asynchronous optical sampling. **Laser Quantum USA**, 47673 Lakeview Blvd, Fremont, CA 94538, www.laserquantum.com **PT**