

NEW PRODUCTS

Focus on test, measurement, quantum metrology, 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



Pulse processing unit for quantum computing

Quantum Machines has developed a cloud infrastructure for universal quantum computing that is based on its new pulse processing unit (PPU), Hadamard. Integrated with the company's OPX Quantum Orchestration Platform—a

scalable solution for the control and operation of quantum computers—the PPU facilitates the execution of advanced quantum computing algorithms and enables quantum error correction in real time. The multicore PPU consists of classical logic gates that constitute a unique, highly specialized processor architecture. Each of the 18 pulser cores generates the pulses that operate the qubits, receives the data from the qubits, and enables the algorithm to run efficiently. According to the company, since the new PPU-powered OPX platform runs on the time scales of the qubits, it can orchestrate protocols that were not previously possible in real time and, thereby, significantly speed up run times. *Quantum Machines*, Yigal Alon St 126, Tel Aviv-Yafo, Israel, www.quantum-machines.co

Wideband EMI testing in real time

Rohde & Schwarz now offers a hardware extension that it says will allow its ESW EMI test receiver to operate at the fastest speed and provide the largest bandwidth in the industry, while maintaining a high dynamic range and measurement accuracy. To shorten measurement time and provide a more careful analysis of interfering signals, the fast-Fourier-transform bandwidth of the ESW EMI test receiver can be increased to 350 MHz with the ESW-B350 option and to 970 MHz with the ESW-B1000 option. The 970-MHz-wide spectrum is measured in real time; users benefit from a truly gapless spectrogram. Infrequent emissions can be observed over a much longer time and are detected with a much higher probability. All emissions, even the shortest pulses, from equipment under test going through a duty cycle are recorded over a broad spectrum of 970 MHz. *Rohde & Schwarz GmbH & Co KG*, Muehlhofstrasse 15, 81671 Munich, Germany, www.rohde-schwarz.com



Digital wideband-transceiver test solution



Keysight has launched a digital wideband-transceiver test solution designed to reveal the true RF performance characteristics of mixed-digital RF devices. Defense radars, satellite communications, and the 5G cellular network all use phased-array antennas to meet performance and versatility requirements to millimeter-wave frequencies. Keysight's test solution compares digital and RF signals between device input and output and measures the transmitter and receiver responses independently of other test instrumentation. It comprises Keysight hardware and software, such as the N52xxB PNA/PNA-X vector network analyzer, VXG vector signal generator, S94601B device-measurement eXpert software, and S94610B digital wideband-transceiver analysis software. According to the company, its test solution maintains high measurement accuracy of gigahertz bandwidth in millimeter-wave frequencies and can enable users to accelerate the design cycle. *Keysight Technologies Inc*, 1400 Fountaingrove Pkwy, Santa Rosa, CA 95403-1738, www.keysight.com

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Benchtop NMR spectrometer

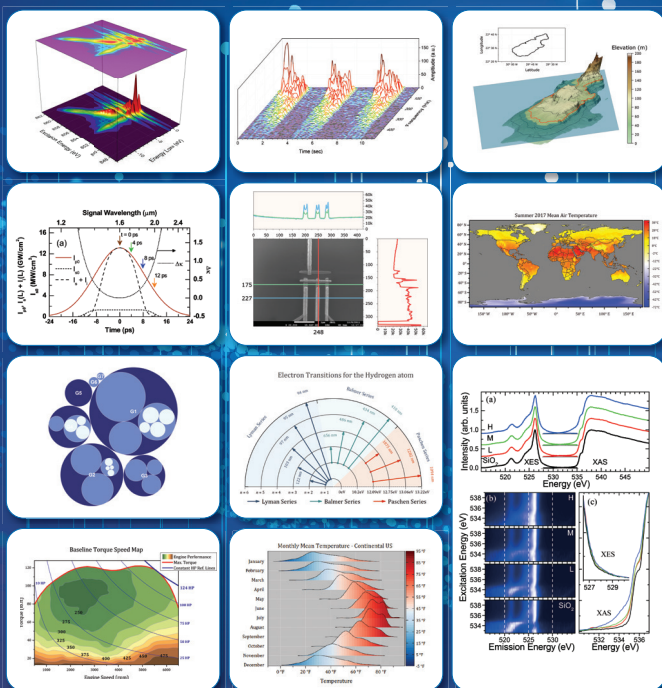
New capabilities for Oxford Instruments' X-Pulse broadband benchtop NMR spectrometer increase its ease of use, throughput, and remote-working capability while reducing costs. The combination of the new X-Auto automatic sample changer, which allows up to 25 samples to be preloaded, and new functionality in the SpinFlow 3.1 software ensures that users can add individual experiments or long queues to each sample with a few simple clicks. By reordering experimental queues, short-duration experiments can be prioritized to quickly determine whether longer-duration ones should be continued, which maximizes efficiency. Advanced modular architecture makes the X-Pulse a fully

configurable, upgradable, and cost-effective instrument for core science, advanced analytical research, quality-control optimization, and teaching. **Oxford Instruments plc**, Tubney Woods, Abingdon OX13 5QX, UK, <https://nmr.oxinst.com>



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Compact OEM OCT spectrometer

Wasatch Photonics has expanded its Cobra optical coherence tomography (OCT) spectrometer product line with a new spectrometer that OEMs can easily integrate into OCT imaging systems. Despite its small size, it delivers performance comparable to that of the company's flagship Cobra-S OCT spectrometer. The small, lightweight Cobra OEM is optimized for 800 nm spectral-domain OCT imaging. It is suitable for ophthalmology and eye surgery, materials processing and laser welding, and industrial inspection of surface topology and microelectronics packaging. The Cobra OEM OCT spectrometer is offered in multiple bandwidths centered at 840 nm, each matched to commercially available superluminescent diode light sources. The spectrometer can be read at speeds of up to 250 kHz using Wasatch Photonics' rapid-access software development kits for C++, C#, LabVIEW, and MATLAB. The Cobra OEM uses a high-efficiency optical design optimized for high sensitivity and low roll-off and leverages Wasatch Photonics' patented technology for volume-phase holographic gratings. **Wasatch Photonics**, 808 Aviation Pkwy, Ste 1400, Morrisville, NC 27560, <https://wasatchphotonics.com>



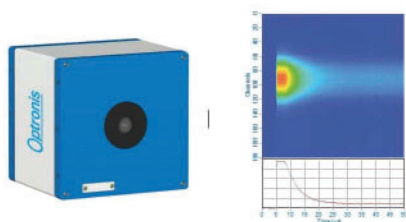
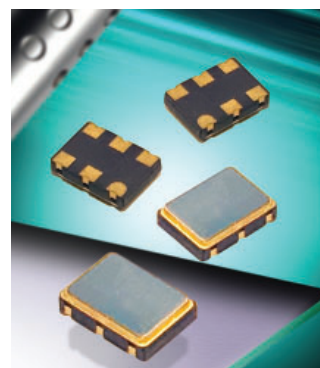
Vacuum transducer for harsh environments

Thyracont has enlarged its USB transducer range by adding the model VSC43USB, a compact transducer with a chemical-resistant ceramic sensor and FKM (fluorocarbon elastomer) sealing. It is resistant to dirt and suitable for rough industrial environments. The VSC43USB measures vacuum pressure independent of gas type. It offers an extended measuring range for absolute pressure of 2000 mbar to 1 mbar and for relative pressure of -1060 mbar to 1200 mbar, which makes it appropriate for a broad range of applications. The robust ceramic sensor displays precise results immediately, without a warm-up period. Since it offers a short response time—a maximum of 20 ms—it can improve production-process efficiency. The USB interface allows for a

plug-and-play connection to all common computers and Android smartphones, so the measured vacuum can be displayed quickly and precisely, and no separate power supply is required. **Thyracont Vacuum Instruments GmbH**, Max-Emanuel-Str 10, 94036 Passau, Germany, <https://thyracont-vacuum.com>

Mini temperature-compensated oscillators

Saelig has launched a range of surface-mount temperature-compensated crystal oscillators (TCXOs) that offer a frequency stability of as low as ± 2.5 ppm. Made by frequency specialist Euroquartz, the EM211T TCXO series is available with CMOS outputs in frequencies of 10–60 MHz. The standard output frequencies available are 12, 20, 24, 25, 26, 40, 50, and 60 MHz. The components are housed in a standard-format six-pad 2.0 mm $\times$ 1.36 mm surface-mount-device ceramic package with a hermetically sealed metal lid. The EM211T series oscillators are suitable for use in applications that require high accuracy and a miniature footprint, such as embedded and portable systems. With low-voltage CMOS output into a 15 pF load, frequency-dependent tolerances of ± 2.5 ppm to ± 10 ppm are available over a temperature range of -40 °C to 85 °C. Typical single-sideband phase noise at 25 °C is between -85 dBc/Hz and -154 dBc/Hz for a 50 MHz frequency output. **Saelig Company Inc**, 71A Perinton Pkwy, Fairport, NY 14450, www.saelig.com



Solid-state streak camera

Optronis has unveiled what it says is the world's first commercially available solid-state streak camera. Designed to enable detailed scientific investigations in the field of ultra-fast processes, the semiconductor-based S3C-1 may open up new application possibilities in significant growth fields such as plasma research, detonics, microfluidics, and the analysis of fast micrometer-level movements in MEMS. Compared with vacuum-tube-based streak cameras, the S3C-1 is more compact, more robust, and less costly. Also, measurements are now possible where no suitable trigger signal was previously available. A time window of 100 ns to 10 ms can be selected for acquisition, and the time resolution is close to 1 ns. The camera can perform continuous recording. With its compact size of 12 cm $\times$ 12 cm $\times$ 10 cm and light weight of less than 2 kg, the S3C-1 is suitable for studying fast physical phenomena in areas not feasible for tube-based cameras. **Optronis GmbH**, Ludwigstrasse 2, 77694 Kehl, Germany, <https://optronis.com>

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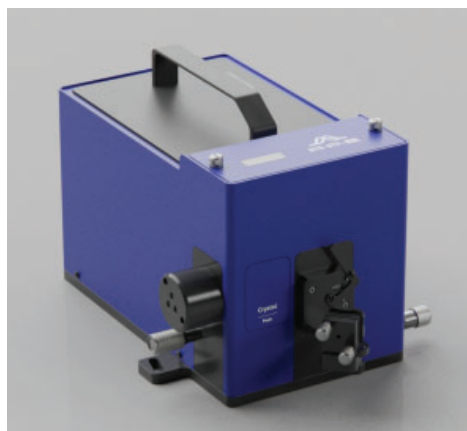
Power meter for laser-beam measurement

Miro Altitude, an advanced display device for laser power and energy measurements from Gentec-EO, features a 10-inch, high-resolution, anti-glare touch screen and a modern, intuitive user interface. It is housed in a strong, durable metal casing suitable for transport and field use. Three display modes include one that lets users check past data points without interrupting the current measurement session and another with extra-large digits that can be viewed from a distance. The Miro Altitude's XNR Anticipation feature can improve the natural response of detectors by a factor of 10, depending on the detector. That is especially useful for

power measurements in the kilowatt range, since the natural response of those detectors can be over a minute. Miro Altitude is compatible with all Gentec-EO detectors. Connection possibilities include Ethernet, RS232, external trigger, sync out, analog out, and USB-C. **Gentec Electro-Optics Inc**, 445 St-Jean-Baptiste, Ste 160, Quebec City, QC G2E 5N7, Canada, www.gentec-eo.com

Short-pulse measurement system

According to APE, the latest iteration of its autocorrelator product line, the pulseCheck NX, is easy to use and delivers state-of-the-art data processing and evaluation for analyzing, monitoring, and optimizing short-pulse laser systems. The NX provides plug-and-play capability via USB and Ethernet connections that enable integration into automated test and measurement environments. Low-noise analog electronics and fast digital components allow for excellent signal-to-noise ratios and seamless data transfer. Temporal resolution is down to 50 as. New analog signal-processing electronics and an 18-bit digital architecture ensure fast, reliable detection of details, a high dynamic range, and low latency. Tracking of measurement and quality parameters are among the time-saving data analysis tools in the included software; integrated fitting algorithms make it easier to evaluate data. **APE GmbH**, Plauener Strasse 163–165, Haus N, 13053 Berlin, Germany, www.ape-berlin.de



Multichannel event timers

PicoQuant has upgraded its MultiHarp multichannel event timers with a free gateway and software update. The addition of multifunction event filters that work in real time enables higher throughput. The new feature is particularly aimed at demanding applications that use information spread across several channels, such as coincidence counting in quantum sciences. Hardware-based event filters reduce the amount of data sent to a computer, which is important for experiments that require working at high count rates. Users can select

which channels are subjected to the filter, and the filter offers many degrees of freedom: The length of the coincidence time window can be set to up to 160 ns in steps of 5 ps, and the filtering order of coincidence events can be adjusted up to sixfold. The onboard filters can thus be used to obtain a data stream for efficient real-time coincidence analyses. The filter logic can also be inverted to eliminate bursts of events, coincidences, and the like. **PicoQuant**, Rudower Chaussee 29, 12489 Berlin, Germany, www.picoquant.com

Compact microspectrometer

According to Ocean Insight, its Ocean ST microspectrometer provides excellent UV response, high-speed spectral acquisition, and high signal-to-noise-ratio (SNR) performance for applications ranging from DNA absorbance to color measurement. At 42 mm × 40 mm × 27 mm and weighing 70 g, the Ocean ST microspectrometer is suitable for integration into devices and setups that require a very small instrumentation footprint. Despite its size, it delivers full spectral analysis at a performance level comparable to larger and more costly spectrometers. The Ocean ST microspectrometer is available in three models that span the spectral ranges 185–650 nm, 350–810 nm, and 645–1085 nm. Wavelength-appropriate options are offered for applications such as fluorescence measurement and plasma monitoring. Its rugged design and thermal stability make the Ocean ST suitable for both using in a laboratory and embedding into OEM instrumentation in challenging environments. **Ocean Insight**, 3500 Quadrangle Blvd, Orlando, FL 32817, www.oceaninsight.com

