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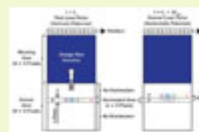
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PHOTONICS spectra

Highlights from the **December 2013** issue of Photonics Spectra



Time-Resolved SRS Spectroscopy Facilitates Combustion Research

A new spontaneous Raman scattering spectroscopy technique uses an intensified EMCCD sensor to perform time-resolved combustion diagnostics. To perform successful time-resolved spontaneous Raman scattering spectroscopy in combustion, one critical aspect is the implementation of a temporal optical gating scheme to reject optical background, thus increasing signal-to-noise ratio.

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NIR Helps Lower Costs, Optimize Processes

Economic volatility continues to put pressure on manufacturers, increasing the focus on cost reduction and process optimization across applications. To make improvements in these areas, a solid understanding of the materials and overall process is required through decisive metrics. Generally, increased data comes at a higher cost, at least when considering standard chemical analyses. To decouple this trend, many companies are turning to NIR spectroscopy to provide the real-time data needed to optimize their processes at a lower cost.

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Designing Fiber Amplifiers for Short and Ultrashort Pulses

Fiber amplifiers are in some respects ideal for amplifying short and ultrashort pulses. But serious limitations arise, particularly from nonlinearities, and many aspects must be checked for optimized amplifier systems designs. In several respects, rare-earth-doped fibers appear to be the ideal gain media for amplifying short and ultrashort pulses. In the form of double-clad fibers, they can easily and efficiently turn over average powers of hundreds of watts or even more while preserving an excellent beam quality.

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InP PICs Enable High-Efficiency Optical Transceivers

Indium phosphide-based photonic integrated circuits (PICs) eliminate optical loss between different functional elements and use high-efficiency optical modulators to enhance performance. They are indispensable in the development of the small-form-factor, high-power-efficiency pluggable (SFP+) transceivers operating at 10 and 100 Gb/s for optical communications.

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Photonics Is About to Get Flatter

Two-dimensional materials could soon provide useful photonic solutions for our 3-D world. Graphene - a single layer of carbon - might find a home in displays, detectors and modulators. Along with other monolayer materials such as molybdenum disulfide, it could improve optical communication links, sensors and other devices. Commercial manufacturing of these flat materials is a challenge, but there are claims of successful solutions.

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Products from this Issue



N-725 Z-Axis Positioner

PI (Physik Instrumente) L.P.,
Piezo Nano Positioning
PI (Physik Instrumente) is offering the N-725 optical axis nanopositioning system for high-resolution microscopes.

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MAJOR Series Digital Photodiode Sensors

Laser Components USA, Inc.
The MAJOR series of digital photodiode sensors from Laser Components USA Inc. features automatic amplification adjustment, averaging, time stamp and temperature protocol.

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100K-W Laser Power Meter

Ophir - Spiricon LLC, Photonics
The 100K-W laser power meter from Ophir Photonics measures high-power 100-kW lasers for industrial materials processing applications such as thermal ablation, heavy-section welding and metal forming, and for military directed-energy applications.

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Sapphire Waveplates

Meller Optics, Inc.
Meller Optics Inc. has introduced low-order sapphire waveplates for changing the polarization state of high-power IR and visible lasers from linear to circular, and vice versa.

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Real-time Profiling for Focusing, M2, Divergence & Alignment

DataRay Inc.

Beam intensity profiling is an essential tool in many aspects of photonics. The precise intensity distribution in a focused laser beam is critical in many applications: flow cytometry, laser printing, medical lasers, and cutting lasers are just a few examples. Intensity profile measurements can characterize and improve a product or process, leading to substantial cost and time savings that can pay for the measurement instrument many times over. This white paper describes how the unique, patented, real-time multiple z-plane XYZTF capabilities of the BeamMap2 slit-scan profiler can speed and simplify laser assembly alignment.

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