Wednesday, February 9, 2022

PHOTONICS spectra

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Monthly newsletter from the editors of Photonics Spectra, with features, popular topics, new products, and what's coming in the next issue. Manage your Photonics Media membership at Photonics.com/subscribe.

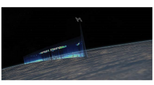
Quantum Cascade Lasers Shift from an Emerging to an Enabling Technology

QCLs have become a predominant source of coherent mid-infrared light, color center lasers, difference-frequency generation systems, optical parametric oscillators, and cryogenic lead-salt diode lasers in spectroscopic applications. They also find use in some higher-power applications where ruggedness and compactness are essential. As QCLs advance and applications accelerate, it may be helpful to revisit the basics underlying the technology.

Read Article

How Single-Photon Detection Powers Countless Applications

As the need for accuracy and precision has increased, optical measurement methods have increasingly become the go-to solution to getting the information we need. More specifically, single-photon detection has become increasingly critical to helping us reach required performance levels.



Read Article

Photonics Offers Clues to the Future of Forensics

Today, academic researchers and product developers alike continue to push the performance envelope of light-based methods, enabling investigators and crime labs to gain insights more quickly and safely, and with greater sensitivity, in both the lab and the field. End users are benefiting from more versatile instruments that combine various techniques, providing users with an analysis toolkit that can quickly analyze a wide variety of samples at once.

Read Article

.: Featured Products

Compact Laser Vibrometer

OmniSensing Photonics LLC

Built upon the photonics chip and all-in-one packaging technologies, the MV-H series compact laser vibrometer sensor (module) can perform precise noncontact vibration measurement from DC to 2.5 MHz. It can be widely used in automation production lines (i.e., laptop PC production line)...

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Alluxa Ultra Series Filters and Coatings

Alluxa

Alluxa Ultra Series Filters, including Narrowband, Dichroic, UV, IR, and Notch filters, provide the highest performance optical thin film solutions available today. For example, the Ultra Series Flat Top Narrowband filters offer the narrowest bandwidths and squarest filter profiles in the industry.

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IR Filters and Coatings

Umicore Electro-Optic Materials

Umicore manufactures precision infrared optical filters and coatings that are designed to perform to the highest industry standards. Specializing in custom design and complex coatings, our prototype design service delivers cost-effective solutions from R&D to full production scale-up requirements.

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High-Precision Aspherical Lenses & Acylindrical Lenses

CASTECH INC.

CASTECH offers CNC precision-polished aspherical and acylindrical lenses up to 200mm. Our aspheric lenses are iteratively ground and polished under a software supported computer-controlled processing procedure to provide better controlled quality to guaranty the high performance of each aspheric lens.

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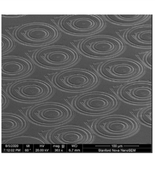
.: In Case You Missed It

Comb-Generated Quantum Light Will Help Prove or Dispel Quantum Theories

Researchers at Stanford University have observed the quantum properties of soliton frequency combs, opening the door to confirm quantum theories. According to the research team, the demonstration is one of the first to show how a miniaturized frequency comb can generate quantum light on a chip. The work supports broader explorations for quantum light using frequency comb and PICs for large-scale experiments, the researchers said.



Read Article

Solar Cell Simulator Advances Photovoltaic Efficiency

A differentiable solar cell simulator, newly developed by researchers at MIT and Google Brain, tells scientists which changes will provide the improvements they wish to make in a solar cell configuration. The new simulator computes the power conversion efficiency of an input photovoltaic design, and the derivative of the PCE with respect to any input parameters.

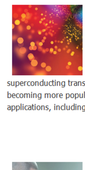
Read Article

Research Pinpoints Benefits of Varying Size and Shape of Classical VCSELs

A study conducted by the Bimberg Chinese-German Center for Green Photonics, Changchun Institute of Optics, Fine Mechanics, and Physics of the Chinese Academy of Sciences reported on the progress on multi-aperture VCSELs. The study showed that the development of such devices has created performance advantages such as larger temperature rollover, larger output power, and larger f3dB (the decisive parameter determining the bit-rate of communication).

Read Article

.: Upcoming Webinars



Single-Photon Detectors and Detection: SiPM, SPAD, SNSPD, PMT, TES, and Photon-Resolving Camera Technologies

Wed, Feb 16, 2022 1:00 PM - 2:00 PM EST

Slawomir Piatek, Ph.D., of NJIT and Hamamatsu overviews six types of single-photon photodetectors for low-light conditions: photomultiplier tubes (PMTs), single-photon avalanche photodiodes (SPADs), silicon photomultipliers (SiPMs), superconducting nanowire single-photon detectors (SNSPDs), superconducting transition edge sensor (TES), and photon-resolving cameras. All of these detector technologies are becoming more popular as developers and suppliers aim toward satisfying the increasing demand for 'modern' photonic applications, including quantum computing, lidar, dark matter detection, and more. Presented by Hamamatsu Corporation.

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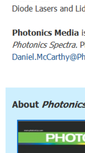

Emerging Technologies Changing Ophthalmology Access and Point of Care

Thu, Mar 17, 2022 10:00 AM - 11:00 AM EDT

This webinar — for those interested in visual optics, ophthalmology, and biomedical devices — introduces five technologies that are using optics, photonics, or imaging to redefine how patients are served along the point-of-care continuum, from diagnosis and treatment to surgical selection and correction. It also showcases how technologies are being applied to make tools more mobile and accessible, minimize workflows, and reduce the risks associated with COVID-19 to significantly improve both the patients' and the practitioners' experience. Presented by Luminate.

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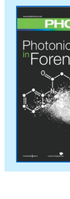
.: Next issue:

Features

Diode Lasers and Lidar, Scientific Imaging with CMOS Sensors, Optical Networks and 5G, and more.

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *Photonics Spectra*. Please submit an informal 100-word abstract to Daniel McCarthy, Senior Editor, at Daniel.McCarthy@Photonics.com, or use our online submission form www.photonics.com/submitfeature.aspx.

About *Photonics Spectra*



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