

This Week in PHOTONICS

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LightMachinery
Excellence in Lasers and Optics



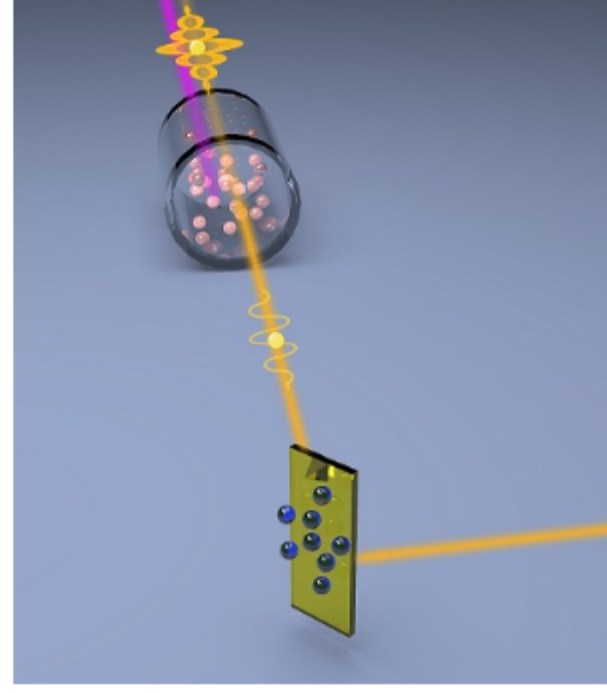
Hyperfine Spectrometer
A sub-picometer resolution spectrometer in a compact package.

:: Top Stories

Quantum Light Squeezes Out Noise

Researchers at the U.S. Department of Energy's Oak Ridge National Laboratory (ORNL) used quantum optics to advance state-of-the-art microscopy and, in doing so, chart a path to detecting material properties with greater sensitivity than is possible with traditional tools. The quantum microscope uses nonlinear amplifiers to generate a quantum light source known as squeezed light.

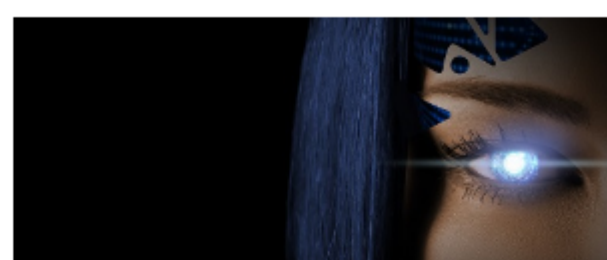
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Seeing Through Joyce's Eyes

Meet Joyce, a humanoid robot that has been under development for several months. Philosophically speaking, however, said Alessandro Gasparini, executive vice president of operations and chief commercial officer at ImmerVision, the project has been ongoing for 20 years.

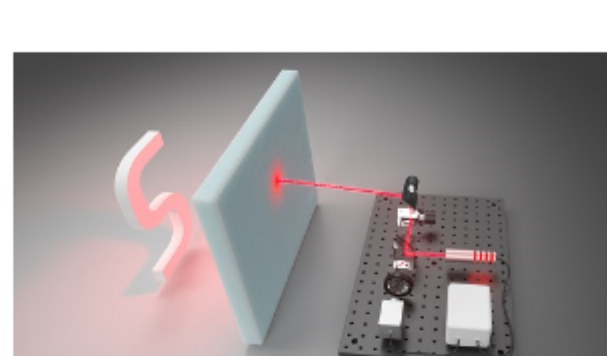
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Seeing Through Clouds and Fog with Lidar

Using a single-photon avalanche diode that can detect the arrival times of photons down to a single photon, with precision in the tens of trillions of seconds, researchers at Stanford University have developed a lidar system capable of seeing through opaque objects.

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:: Featured Products



HyperFine Brillouin Spectrometer

LightMachinery Inc.

The great challenge with Brillouin spectroscopy is that the scattered signal from the un-shifted wavelength of the laser can overwhelm the small Brillouin shifted return signal. LightMachinery has combined its leading-edge HyperFine spectrometer with a very narrow band tunable filter to suppress the bright un-shifted laser frequency.

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Optical Filters for Point of Care

Delta Optical Thin Film A/S

Point of Care (PoC) instruments have various uses in medical diagnostics, including the detection of infectious diseases such as Covid-19. Our optical filters are all designed for the next generation of PoC instruments and they have been used in clinical applications in the biotech, biomedical, and drug discovery sectors.

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Fluoride, Silicon and Germanium Materials and Various Optical Elements

Qinhuangdao Intrinsic Crystal Technology Co. Ltd.

ICC is China's top 1 supplier of fluoride materials. ICC's CaF2 can be used in UV, IR, VIS, and lithography-grade optics. ICC can provide low background BaF2, mass production of MgF2 and LiF2 single crystal materials. The main Si and Ge supplier. ICC can grow optical-grade N-type, P-type silicon, and germanium single crystal material.

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Oscillation-Free Optical Fiber

heracle GmbH

The low-OH, step index fiber features Gaussian beam output, even intensity distribution, and the most minimal interference effect possible. Previous polyimide-coated fibers suffer from interference patterns due to Fabry-Pérot etalon formation at the cladding-coating interface.

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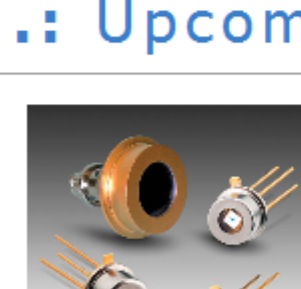
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:: Upcoming Webinars



Avalanche Photodiodes – Design and Applications

Tue, Sep 29, 2020 1:00 PM - 2:00 PM EDT

The webinar, presented by OSI Optoelectronics, will provide an in-depth discussion of avalanche photodiodes (APDs). Oleks Goushcha, Ph.D., Lead Scientist for Semiconductor Devices at OSI, will cover theoretical aspects of APD operation, structure, structure/function-related properties, and methods of various parameter measurements, in various modes of operation. He will also review current technology and applications, making this webinar educational and informative for engineers, researchers, and interested students.

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Infrared Photodetectors: Theory, Practice, and Applications

Wed, Sep 30, 2020 1:00 PM - 2:00 PM EDT

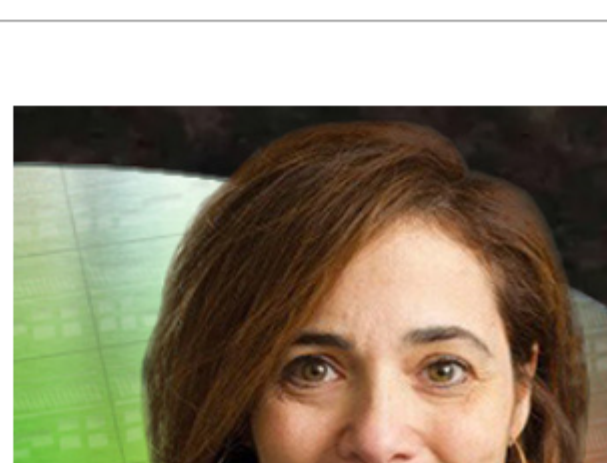
A great deal of information about the physical world, from the cosmos to DNA, comes to us in the form of infrared radiation (IR). One thing all modern applications have in common—such as automotive lidar, thermal-vision cameras, or communication network—is the need for IR detection. As new technologies for detection expand, choosing a suitable IR detector may be more difficult than before. In this webinar, presented by Hamamatsu Corporation, learn everything you need to know about IR detectors, including their structure, operation, and optoelectronic characteristics. The webinar will also discuss the process of selecting a suitable detector in the context of a given application.

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:: All Things Photonics

OSA Vice President-elect and silicon photonics pioneer Michal Lipson launches Season 2 of *All Things Photonics* with a discussion on the evolution of silicon photonics technologies, her professional influences, and the emerging role of silicon photonics in AR, quantum computing, and beyond. Later, she will be joined by Photonics Media Senior Editor Dan McCarthy for his thoughts on our industry's value chain and how we aim to reflect it in our flagship publication, *Photonics Spectra*.

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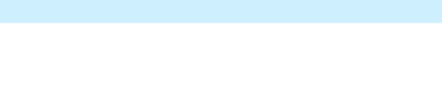


Michal Lipson photo courtesy of The Optical Society (OSA)



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