

This Week In PHOTONICS

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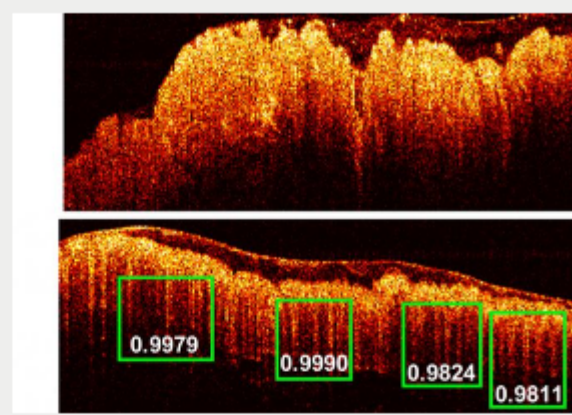
Meet the Editors

Photonics West – Wednesday, February 5, 3:00 p.m. | Booth 658/659

Top Stories

Machine Learning, OCT Combine for Early-Stage Colon Cancer Detection

Researchers at Washington University in St. Louis are developing a deep learning-based pattern recognition (PR)-OCT system that will automate image processing and provide accurate, computer-aided diagnosis of colorectal cancer potentially in real time. The technique combines OCT and deep learning to detect patterns in the images of normal and abnormal tissue samples.



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Squeezing Improves LIGO's Sensitivity to Quantum Noise

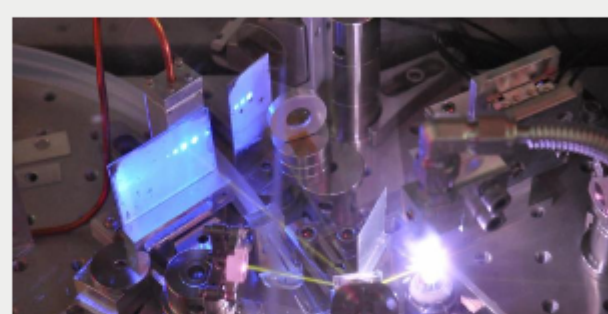
A new instrument called a quantum vacuum squeezer is helping LIGO — the Laser Interferometer Gravitational-Wave Observatory — to detect gravitational wave signals nearly every week. Just a year ago, LIGO was picking up gravitational waves about once a month.



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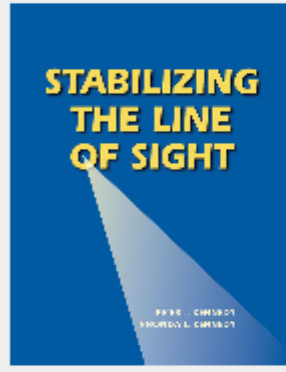
New Laser Technique Captures Dynamic Processes of Quantum Materials

A new extreme-ultraviolet (UV) laser source, developed at the University of British Columbia (UBC), enables time-resolved photoemission spectroscopy, a technique for visualizing electron scattering processes at ultrafast timescales.



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Featured Products



Stabilizing the Line of Sight

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In *Stabilizing the Line of Sight*, authors Peter J. and Rhonda L. Kennedy provide a methodology and an example for executing a successful end-to-end line-of-sight (LOS) design. Comprehensive in scope, this book will give readers a better understanding of the relationships between the various engineering disciplines that are required for successful LOS control.

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Canon Surface Reflectance Analyzer

Canon U.S.A. Inc., Industrial Products Div.

Canon RA-532H, Surface Reflectance Analyzer (goniophotometer), is a compact, portable device capable of measuring 4 surface appearance conditions in a single pass: Gloss, Haze, Image Clarity (IC), and BRDF (Bidirectional Reflectance Distribution Function). Additionally, Canon has released its own new parameter, "Scattering" parameter, overcoming the shortage of both IC and DOI (Distinctiveness of Image) when evaluating matte and textured surfaces as well as orange peel surface.

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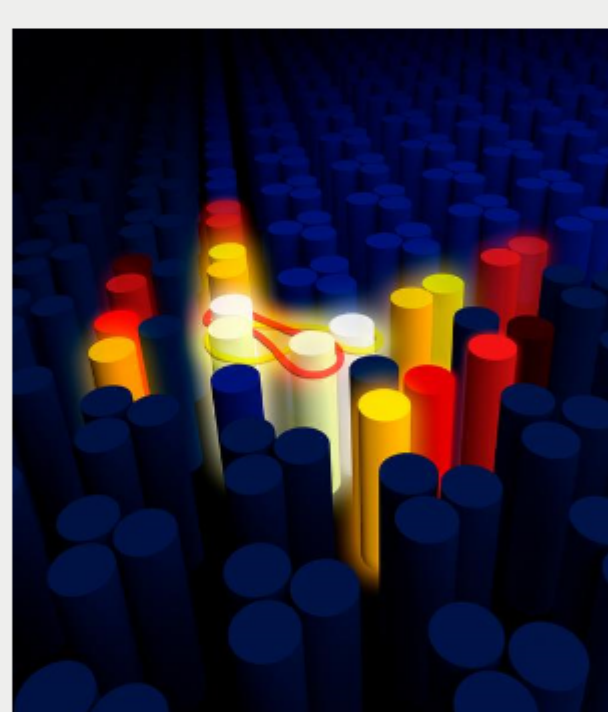
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More News

Higher-Order Topological States in Photonic Crystals Could Lead to Faster Data Transfer

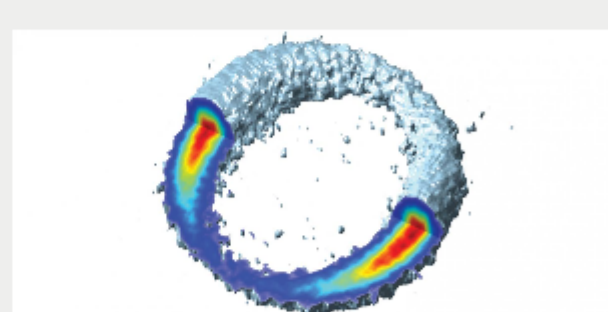
Research into topological photonic metamaterials, led by City College of New York, shows that long-range interactions in metamaterials can change the behavior of lightwaves, forcing the waves to localize in space. The study further shows that by controlling the degree of these interactions, the character of the lightwaves can be switched from propagating to trapped.



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ETH Zürich Study Offers Insight into How Photoelectrons Are Born

A sub-femtosecond study of linear photon momentum transfer during an ionization process, done by a team at ETH Zürich, could provide insight into the "birth" of photoelectrons. Existing studies provide information on time-averaged behavior, but not on the time-dependent aspects of the linear-momentum transfer during photoionization.



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More Headlines

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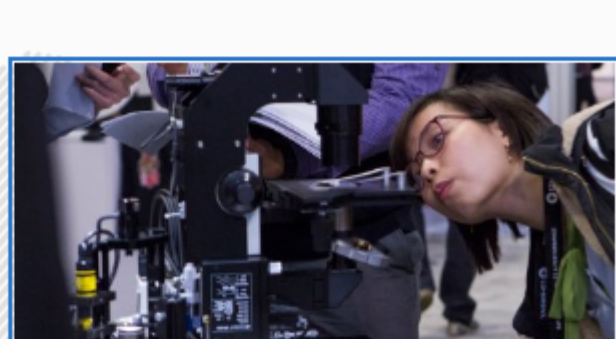
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Fiber Optic Array Characterizes Thunder-Induced Ground Motions [Read Article](#)

Industry Events

BIOS 2020
February 1-2, 2020 - The Moscone Center - San Francisco
Photonics Media Booth: 8367

Make plans now to attend BIOS, the largest biophotonics, biomedical optics, and imaging conference in the field. BIOS 2020 will feature six program tracks: photonic therapeutics and diagnostics; clinical technologies and systems; biomedical spectroscopy, microscopy, and imaging; neurophotonics, neurosurgery, and optogenetics; tissue optics, laser-tissue interaction, and tissue engineering; and nano/biophotonics. Conferences will include: Diagnostic and Therapeutic Applications of Light in Cardiology; Photonics in Dermatology and Plastic Surgery; and more.



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