

This Week in PHOTONICS



Picometer Resolution

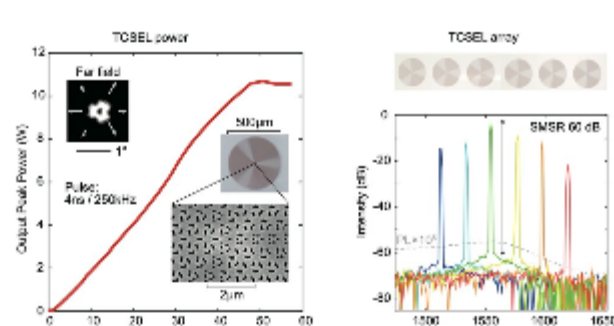
Powered by Virtually Imaged Phase Arrays (VIPAs), LightMachinery's HyperFine spectrometers offer single shot, picometer resolution laser spectrum analysis.



.: Top Stories

Topological Cavity Widens Surface-Emitting Lasers' Functionality

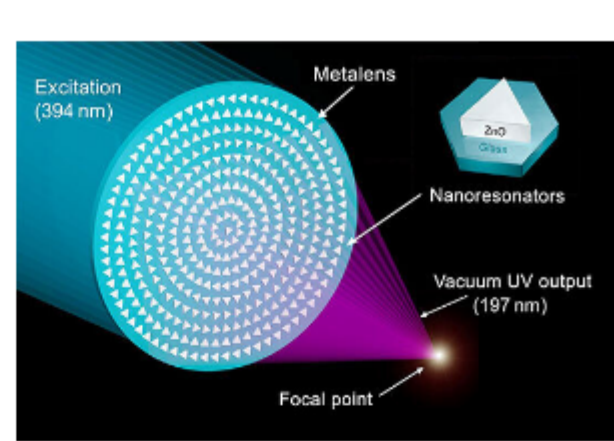
Researchers at the Institute of Physics of the Chinese Academy of Sciences have incorporated a topological cavity into the design of a surface-emitting laser to create a device that addresses the challenge of simultaneously increasing output power and beam quality in semiconductor lasers — a principal bottleneck.



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VUV Metalens Cuts Complexities for Semiconductor Manufacturing

Rice University researchers have developed a metalens that transforms incoming longwave UV light (UVA) into a focused output of vacuum UV (VUV) radiation. VUV is used in semiconductor manufacturing, photochemistry, and materials science. Historically it has been costly to work with, in part because it is absorbed by almost all types of glass used to make conventional lenses.



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Winners of Innovation Award for Laser Technology Crowned in Aachen

PRIMES GmbH, a beam diagnostics company that develops measuring devices that enable reliable recording of beam parameters and ongoing documentation of beam properties for quality assurance purposes, is the first-place winner of the 2022 Innovation Award for Laser Technology. PRIMES took the award for its ScanFieldMonitor (SFM). The measurement principle used in the SFM enables the measurement of laser beam parameters during the movement of a scanned vector.



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.: Featured Products



871 Series Laser Wavelength Meter

Bristol Instruments Inc.
Bristol's popular 871 system measures laser wavelength at a sustained rate of 1 kHz, the fastest available. It also measures wavelength to an accuracy as high as ± 0.0001 nm. By combining proven Fizeau etalon technology with automatic calibration, the most reliable accuracy is ensured for the most meaningful experimental results.

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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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The largest optical sciences meeting in North America
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.: Upcoming Webinars

Optical Solutions for Spectroscopic Water Analysis
Thu, May 19, 2022 1:00 PM - 2:00 PM EDT
Light can be used in many ways to understand, study, and spectroscopically characterize the components that may exist in water. Stephane Butron and Erik Mesa of Hamamatsu Corp. discuss the various markets that benefit from such measurement, the photonic tools currently available to perform such measurement, and how users can select tools for specific applications. They then present a live demonstration that shows how measurement can be done with Hamamatsu Photonics K.K.'s spectrometers and xenon flash lamp modules. Presented by Hamamatsu Corp.

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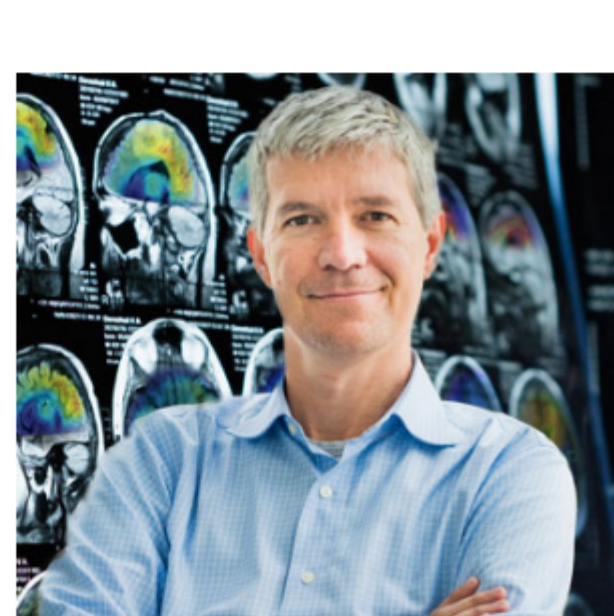
Embedded Vision Application Development for Everyone
Tue, May 31, 2022 11:00 AM - 12:00 PM EDT
As the use of artificial intelligence (AI) and machine learning innovates the approach to vision-based solutions, so too must manufacturers of embedded vision systems innovate the development process of applications. Kevin McCabe shares how IDS Imaging, Inc. is embracing this shift with the IDS NXT embedded vision platform. Equipped with this new, fully customized and flexible development environment, a broad set of user groups can intuitively design their own applications. Using this embedded vision platform saves time and costs when commissioning and setting up individual image processing applications with AI. Presented by IDS Imaging, Inc.

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.: All Things Photonics

David Boas, director of the Boston University Neurophotonics Center, is our guest. The episode introduces techniques including functional near-infrared spectroscopy (fNIRS), laser speckle contrast imaging, optical coherence tomography (OCT), and interferometric diffuse correlation spectroscopy, with expert insight on the advances and neurophotonics applications for each method. Boas is founding editor-in-chief of the journal *Neurophotonics* published by SPIE, and he is founding president of the Society for Functional Near-Infrared Spectroscopy — a technique with practical application in wearable technology.

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