Wednesday, October 11, 2023

PHOTONICS spectra
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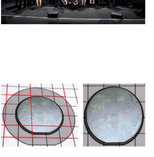
Berthold Leibinger Awards Honor Laser Research at the Limits



In 2000, Berthold Leibinger, the man who brought laser technology into Germany's TRUMPF Group, established the Innovation Award — expressed in native German as the "Innovationspreis" — to honor outstanding R&D in the field of laser technology. Next to this prestigious award, the Berthold Leibinger Zukunftspreis was added in 2006 to recognize scientists driving fundamental laser research to new heights.

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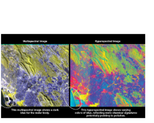
How AI Is Advancing the Manufacture of Photonic Systems



Many trends in the manufacture of photonic systems are well known: miniaturize and integrate components, scale-up batch sizes, and, increasingly, expand automated and sustainable manufacturing. At the same time, quality control remains a priority but faces ever more challenges, such as zero-defect production or full traceability. Maintaining these goals calls for a "detect/predict/prevent/repair" approach based on comprehensive sensor networks that monitor every step in the production chain as well as complex software to make use of the data that these networks produce. Artificial intelligence is critical to success.

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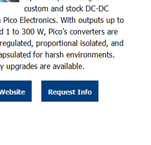
Spectroscopy Rides a Rising Tide of Water-Monitoring Applications



In 2018, when California became the first state to pass legislation requiring the measuring of microplastics in drinking water supplies, it essentially set off a competition that would pit photonic technologies against one another as well as nonphotonic counterparts. To determine which technologies could most precisely, consistently, and cost-effectively measure microplastics, California's State Water Resources Control Board, or State Water Board, recruited 22 laboratories to evaluate several analytical methods.

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.: Featured Products & Services

QFC Connector

Coastal Connections

Coastal Connections has produced thousands of Space Flight Cables over the past 15 years for government labs, defense contractors, and commercial companies. Our cables are used in lidar, free space laser communications, and other applications. The QFC connector is compatible with standard FC connectors.

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Custom and Stock DC-DC Converters

Pico Electronics Inc.

Optimize your designs with custom and stock DC-DC converters from Pico Electronics. With outputs up to 10,000 VDC and 1 to 300 W, Pico's converters are programmable regulated, proportional isolated, and ruggedized encapsulated for harsh environments. Optional military upgrades are available.

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Aspheric Imaging Mirrors

Spectrum Scientific Inc. (SSI)

Spectrum Scientific's optical replication process offers high specification aspheric mirrors at a lower cost than traditional volume manufacturing as well as allowing the incorporation of mounting or alignment features onto the mirror itself, improving stability and reducing assembly and alignment costs.

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Complementary Pulse Outputs

Highland Technology Inc.

Rise and fall times under 100 picoseconds and two ranges of programmable delay and pulse widths make the single channel externally triggered T240 ideal for driving seed lasers in pumped fiber systems and RF applications, including fast-pulse modulation, phase shifting, and harmonic generation. Other applications include time-domain characterization and modeling, semiconductor test, and system cable/timing trims.

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LIGHT: Introduction to Optics and Photonics, Second Edition

Photonics Media

Offering a comprehensive treatment of the subject as well as key applications, and employing minimal math, LIGHT: Introduction to Optics and Photonics was written with readers in mind.

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IR Filters for Thermal Imaging

Spectrogon US Inc.

Spectrogon manufactures infrared filters and windows with high transmission, high rejection outside the passband, while maintaining excellent coating uniformity for thermal imaging and gas detection applications such as cryogenically cooled IR detectors and uncooled microbolometers.

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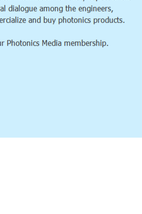
.: In Case You Missed It

Complex Frequency Waves Compensate for Optical Loss in Superimaging



Superlenses made of plasmonic materials and metamaterials can image features at the subdiffraction scale. However, intrinsic losses restrict the image resolution of superlenses, hindering their widespread use. To compensate for optical loss in superimaging systems, researchers at the University of Hong Kong (HKU) devised a way to provide virtual gain. To do so, they synthesized excitation waves of complex frequency, based on measurements at real frequencies. By illuminating materials with synthetic frequency waves, the researchers were able to implement virtual gain experimentally and retrieve subwavelength features. The multifrequency approach from HKU could provide a practical solution to overcoming the intrinsic losses of plasmonic systems used for imaging, sensing, and nanophotonic circuits.

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Tomography Technique Images Thick Bio Samples at High Resolution

The ability to image complex biological tissues is essential for many biological studies and clinical diagnostic applications. However, capturing detailed 3D images of thick biological samples is difficult, due to multiple light-scattering in the samples.

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OLEDs Could Be Solution to Electrically Driven, Organic Semi Lasers

Researchers at the University of St. Andrews demonstrated an electrically driven, organic semiconductor laser using a new approach that could improve the performance of this class of laser and further the development of ultrafast, organic optoelectronics applications. The researchers used indirect OLED pumping to power the laser. They built an integrated device structure that efficiently coupled an OLED that had very high light output with a polymer-based, distributed feedback laser.

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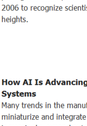
.: Upcoming Webinars



A Behind-the-Scenes Look at Creating Quality Parts Using Laser Welding

Tue, Oct 31, 2023 10:00 AM - 11:00 AM EDT

To create successful welds, many parameters must be kept within specifications, including laser power at the workpiece, beam quality, focal plane, hitting the seam, cleanliness of parts, gap between parts, welding speed, and machine accuracy. Some parameters need to be checked pre-processing to avoid scrap. Others should be measured during the process to avoid failures. In this webinar, Ophir and Lessmüller Join forces to offer a full picture of the measurements needed during the laser welding process. Presented by Ophir and Lessmüller Lasertechnik.

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Features

Attosecond Photonics, Automotive Lighting, On-Chip Lasers, Filters for Laser Absorption Spectroscopy, and Laser Safety

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