

This Week in PHOTONICS



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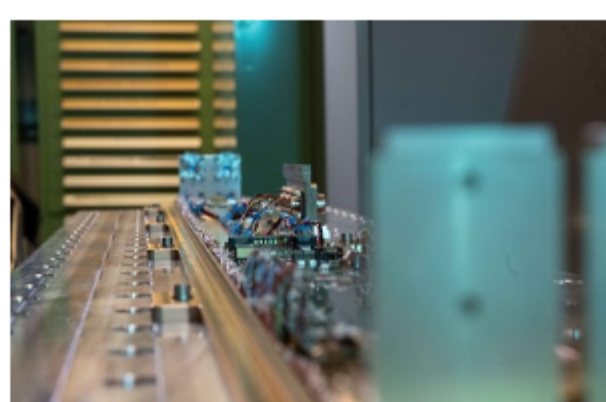
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.: Top Stories

In-Space Laser Power Beaming Experiment Enters Orbit

The U.S. Naval Research Laboratory (NRL) completed its launch of the Space Wireless Energy Laser Link (SWELL), an experiment to demonstrate laser power beaming in space as part of the scheduled U.S. Department of Defense Space Test Program H9 mission to the International Space Station (ISS). SWELL is one of several experiments that launched aboard the SpaceX Dragon cargo vehicle to the ISS on March 14. The SpaceX Dragon spacecraft arrived at the ISS March 16.

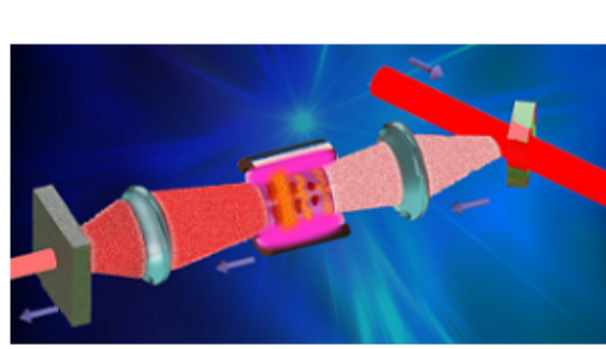
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Wavefront Shaping Improves Tissue Imaging for Disease Detection

Researchers at Caltech led by professor Lihong Wang are translating the process of wavefront shaping to medical engineering, showing the potential of the technique to provide sharply focused images of biological tissue to detect cancer below the skin. The researchers used a photorefractive crystal to cancel out the distortion of light caused by the tissue. The photorefractive crystal acts as a mirror, maintaining the quality of the wavefront (that is, the shape of the lightwave passing through the tissue) by reversing the distortion it undergoes.

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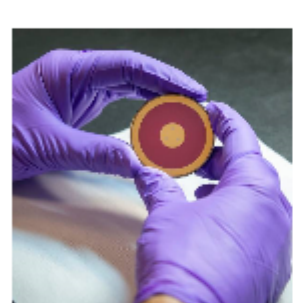
Dual-Property Coating Combats Fog and Reflections at Once

Researchers from the Fraunhofer Institute for Applied Optics and Precision Engineering IOF (Fraunhofer IOF) and Friedrich Schiller University Jena developed an optical coating system that combines antifogging (AF) and antireflective (AR) properties. The dual-property technology could help boost the performance of lidar systems and cameras, such as those used in autonomous vehicles.

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Deposition Sciences Inc. (DSI)

DSI's photolithography capability produces patterned thin film coatings on substrates up to 6 inches. DSI's processes enable high placement accuracy, accurately maintained coating spectral properties at the smallest geometries, and two-sided patterning capabilities with sizes as small as 20 μm .

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Pulsed Laser Spectrum Analyzer

Bristol Instruments Inc.

The 772B-MIR Laser Spectrum Analyzer is for pulsed lasers operating from 1 to 12 μm . It measures wavelength to an accuracy of ± 10 parts per million, and bandwidth and longitudinal mode structure to a resolution of 4 GHz, providing the ideal solution for scientists and engineers who need to know the spectral properties of their pulsed mid-IR lasers.

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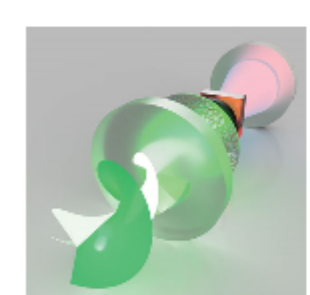
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.: Upcoming Webinars



Recent Advancements in Structured-Light Lasers

Thu, Apr 6, 2023 1:00 PM - 2:00 PM EDT

Structured light provides the ability to tailor light within all of its degrees of freedom, including amplitude, phase, and polarization. There are many approaches to tailoring light, from using external tools that include spatial light modulators, geometric phase liquid crystal, and metasurface devices to at-the-source approaches that include bulk, microchip, and fiber lasers. Andrew Forbes, Ph.D.,

outlines the recent advancements in structuring light at the source, from orbital angular momentum and beyond. From concepts to applications, he highlights the current challenges and possible future trends.

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Machine Vision with Collaborative Robots

Wed, Apr 12, 2023 1:00 PM - 2:00 PM EDT

Guiding a robot with 2D or 3D vision increases flexibility and reduces cost in many different industrial robot applications. As collaborative robots, or cobots, gain popularity, they bring new possibilities to incorporate machine vision in the work cell. Josh Person of FANUC America Corp. focuses on how machine vision and collaborative robots work together for a wide range of applications. Cobots

support unique solutions for real-world problems. Adding vision to a cobot provides yet another tool to help customers improve production processes, gain efficiencies, reduce floor space requirements, and stay competitive. Sponsored by Metaphase Technologies and Hamamatsu Corporation.

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.: All Things Photonics

Three-and-a-half months after December 2022's breakthrough experimental result that yielded fusion ignition, **Jean-Michel Di Nicola**, chief engineer of laser systems at the National Ignition Facility (NIF) and acting program co-director for laser science and system engineering at Lawrence Livermore National Laboratory, provides an update on sustained progress in fusion science. Di Nicola takes listeners inside NIF, and he offers his insights on next steps in big science.

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