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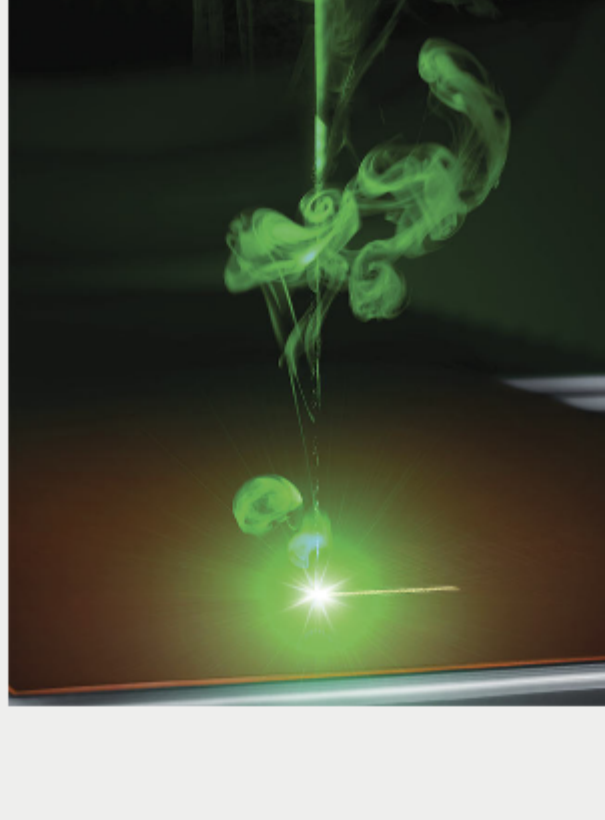
SPIE PHOTONICS WEST

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With Innovations, Lasers Boost Performance

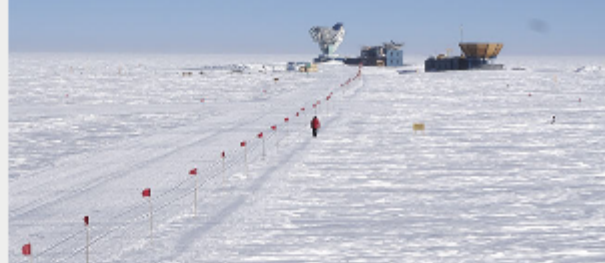
With their performance rising, semiconductor lasers may be able to best their fiber-based counterparts in a wide variety of applications. On the horizon are potential game changers, such as high-power blue laser diodes and organic laser diodes. But innovations are being made in fiber and other types of lasers as well. The overall result for these light source technologies is a drop in the cost per watt delivered, more wavelengths, higher power, and other improvements.



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Imaging the Oldest Light in the Universe with the BICEP Array

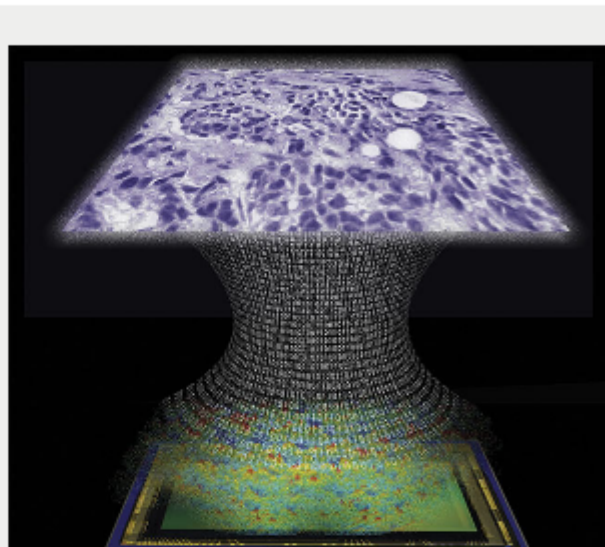
The field of experimental cosmology is unique among the physical sciences. It uses the entire observable universe as a laboratory, within which examinations of large-scale physical phenomena can help physicists answer some of the most fundamental questions in science. The concept that our universe originated in a hot Big Bang was first developed in the mid-1940s by George Washington University professor George Gamow. Gamow's theory was borne out by the discovery of the cosmic microwave background by Robert Wilson and Arno Penzias in the early 1960s.



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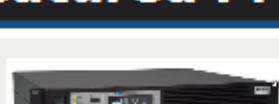
Advancements in Holography Usher In Sci-Fi-Inspired Devices

The 1971 Nobel Prize in physics was awarded to the Hungarian-British electrical engineer Dennis Gabor for inventing the field of holography. It wasn't until six years later, however, that the discipline would gain widespread recognition. In 1977, the movie "Star Wars" arrived in U.S. theaters, and the robot R2-D2 projected Princess Leia Organa saying the memorable words, "Help me, Obi-Wan Kenobi. You're my only hope." While Leia's projection technically was not a hologram but a volumetric light-field display (a technique used to bring back to the stage deceased entertainers such as Elvis Presley and Tupac Shakur), three-dimensional holograms have been inextricably linked with a vision of the future. Current applications in holography are poised to usher it in.



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Featured Products



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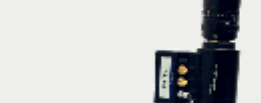


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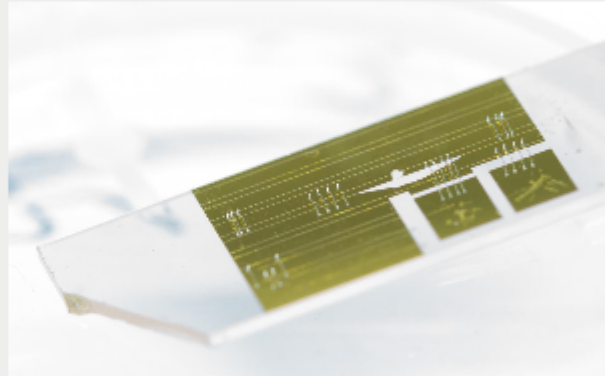
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In Case You Missed It

Compact IR Spectrometer Fits on a Chip

In an advance for smartphone spectroscopy, researchers at ETH Zurich have developed a chip about 2 square centimeters in size that can be used with a smartphone to analyze infrared (IR) light in the same way a conventional spectrometer would.



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Multiple Properties of Quantum Materials Probed Simultaneously at Nano Resolution

Researchers at Columbia University and the University of California, San Diego, have used a combination of measurement techniques to simultaneously examine the electrical, magnetic, and optical properties of quantum materials. The work was inspired by "multi-messenger" astrophysics, a technique that employs simultaneous measurements from different instruments, including infrared, optical, x-ray, and gravitational-wave telescopes, to deliver a more robust physical picture than would be possible using one form of measurement alone.

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Integrated Silicon Carbide Optical Switch Can Be Thermally Tuned

Researchers at Georgia Institute of Technology have integrated a microheater and a microring resonator onto a silicon carbide (SiC) chip, creating a photonic integrated chip that can be thermally tuned by applying an electric signal. The approach could one day be used to create a range of reconfigurable devices such as phase-shifters and tunable optical couplers.

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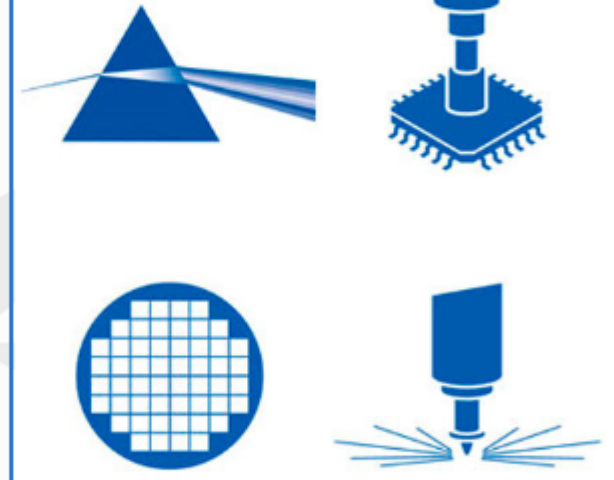
Webinars

Advancements in Precision Motion Control for Electro-Optical Manufacturing and Laser Control Processing

Wed, Jan 22, 2020 1:00 PM - 2:00 PM EST

With a focus on high-throughput/high-yield positioning and microrobotic solutions for leading-edge manufacturing, this webinar from Physik Instrumente (PI) will present the latest advancements in software, control algorithms, and motion systems hardware available to design engineers and scientists in the laser processing, optics, and photonics industries. Examples will include laser processing of substrates with nonuniform topologies and autonomous microrobotic and precision-positioning solutions for fast optimization in the manufacture of silicon photonic, laser electro-optic, lidar, and imaging-optic assembly and test.

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Features

Laser Cleaning Techniques, Infrared Sensors, Plasmonics, and more.

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