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OPTICS NEWSLETTER

The latest news, features, and product developments in optics and optical fabrication – brought to you by Photonics Media. Manage your Photonics Media membership at Photonics.com/subscribe.

Supermode Optical Resonator Moves Beyond Conventional Cavities

Researchers in the lab of Federico Capasso at Harvard University's School of Engineering and Applied Sciences developed a supermode optical resonator. Prior to the work, resonators — and the two reflective mirrors inside them — controlled the intensity and frequency of light, but not its mode, which determines the shape and manner in which photons flow through space and time.

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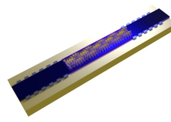

Metamaterials Advancement Will Enable Extreme Photon Manipulation

An experiment performed by a team led by Andrea Alù, distinguished professor of physics at the CUNY Graduate Center and founding director of the CUNY Advanced Science Research Center Photonics Initiative, has demonstrated time reflections of electromagnetic signals in a tailored metamaterial. Combined with tailored spatial interfaces, the discovery offers the potential to open new directions for photonic technologies, as well as new ways to enhance and manipulate wave-matter interactions.

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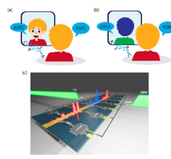

Dual-Property Coating Combats Fog and Reflections at Once

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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C-Flex Pivot Bearings-Metal Flexures

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Infinite life, no backlash, superior technology, environmentally friendly, metal flexures. Lubrication free, frictionless movement means the C-Flex pivot is ideal in applications where outgassing could contaminate optics. Many applications use C-Flex pivots where constant predictable spring rate and the need for immunity to problems of starting vs moving torque are solved.

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TRIOPTICS GmbH

TRIOPTICS presents two new enhancements to the OptiSurf® center thickness measurement system: a three times shorter measurement time and the new LensGage upgrade module, which enables determination of the center thickness without needing to know the refractive index of the material.

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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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Fast Photonics Alignment System

PI (Physik Instrumente) LP, Motion Control, Air Bearings, Piezo Mechanics

The F-142 XYZ photonics aligner can reduce alignment times by up to 99%. Its high-performance motion controller comes with embedded advanced alignment algorithms. Featuring zero-wear air bearings, and direct drive motors, the system is well suited for 24/7 operation and is cleanroom compatible.

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.:More News

Large-Aperture Metalens Images Lunar Surface

Researchers at Penn State have developed a metalens that is large enough to be put into a telescope, and used the optic to image the moon's surface. The metalens, which the researchers used to create a metalens telescope instrument, works in the near-infrared range with nearly diffraction-limited focal spot sizes and a high peak focusing efficiency of 80.84% at 1450 nm experimentally.

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Diffractive Optical Network Enables Snapshot Multispectral Imaging

UCLA researchers led by Aydogan Ozcan and Mona Jarrahi have developed a multispectral imaging technology capable of turning a monochrome sensor into a multispectral one. Rather than the traditional absorptive filters used for multispectral imaging, the technology uses a diffractive optical network to form 16 unique spectral bands periodically repeating at the output image field of view to form a virtual multispectral pixel array.

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Researchers Combine Two Light-Trapping Methods in Single Device

Researchers from the University of Maryland's Joint Quantum Institute (JQI) combined the qualities of two methods for light-trapping — whispering-gallery mode (WGM) and photonic crystals — in a hybrid device called the microgear photonic crystal ring. The device holds implications for nonlinear optics, where light interacts with the matter it travels through to produce new colors and directions, and is in the area of cavity quantum electrodynamics.

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Optical Tweezer System Conducts High-Accuracy Cell Screening

Researchers from the Single-Cell Center of the Qingdao Institute of Bioenergy and Bioprocess Technology (QIBEBT) of the Chinese Academy of Sciences have proposed an optical tweezer-assisted pool-screening and single-cell isolation (OPSI) system that could be used to screen bacterial and cancer cells. Tests showed the system achieved a 99.7% purity of sorting target cells of bacteria, yeast, and humans.

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.: Upcoming Webinars

External Light Sources for Co-Packaged Optics: Applications and Beyond

Tue, May 9, 2023 1:00 PM - 2:00 PM EDT

The networking and computing application landscape is evolving to be cost effective, bandwidth dense, and power efficient. These new requirements bring optics and electronic processors closer together in a single package or more commonly, as co-packaged optics (CPOs). The co-packaged optics arrangement works well for all other transceiver parts, except for the lasers. Lasers are better suited to be placed outside the package inside external light source (ELS) enclosures to support these new applications. Erman Timurdogan, Ph.D. of Lumentum discusses various external light source solutions with emphasis on performance and cost reduction.

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