Thursday, May 26, 2022

This Week in PHOTONICS

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.: Top Stories

Researchers Deploy Metasurface Tech to Design Encryption Devices

Researchers from the University of St. Andrews in Scotland developed a metasurface-based device that produces multiple distinct holographic images depending on the surrounding medium and the wavelength of light used. The ability to store information that is only retrievable with the right set of keys — such as a certain light wavelength combined with wet conditions — could be further developed to design simple yet effective encryption devices.

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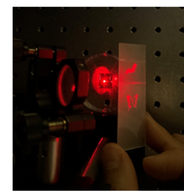

Laser Endomicroscopy Enables Lung Cancer Detection in Real Time

Researchers at the Abramson Cancer Center at the University of Pennsylvania have developed a method to detect lung cancer at the cellular level in real time during biopsy. The method ensures earlier detection of cancer cells that may have been too small to detect using existing technology.

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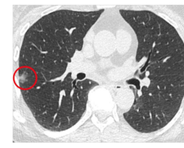

Partnership Advances Metal 3D Printing for Auto Series Production

Twelve partners from industry and research have met their goal of enabling at least 50,000 components per year to be cost effectively manufactured using the laser powder bed fusion process. The collaborators spearheaded a project that has led to the integration of digitally networked and fully automated 3D-printing lines into the automotive industry.

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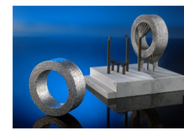

.: Featured Products & Services

Superresolution Microscopy Poster

Photonics Media

With interest in the superresolution microscopy field growing rapidly, the editors of BioPhotonics magazine — in collaboration with acknowledged experts — created a poster with readers in mind that is suitable for lab, classroom and office.

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Ultrafast Fiber Lasers with <50 fs

HUBNER Photonics GmbH

HÜBNER Photonics' VALO Aalto femtosecond fiber lasers have pulse durations of <50 fs and peak powers of >2 MW from compact and stable turn-key systems. The lasers have very attractive features for applications in bioimaging, spectroscopy and micro-machining.

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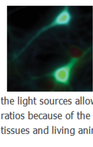

Advances in LED Illumination for Fluorescence Imaging

Thu, Jun 2, 2022 10:00 AM - 11:00 AM EDT

LED illumination for fluorescence microscopy systems has progressed significantly. Kavita Aswani Ph.D. describes the latest advances in illumination for fluorescence imaging, from near-UV to NIR fluorophores. LED illumination systems are successfully replacing traditional arc lamps in calcium imaging applications and producing equivalent results with the convenience of LEDs. IR versions of the light sources allow imaging of the popular ICG (indocyanine green) and IR800 dyes. They provide high signal to-noise ratios because of the low background in the NIR region. NIR wavelengths also allow for greater depth penetration in thicker tissues and living animals. Presented by Excelitas Technologies Corp.

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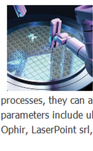

Laser Measurement Solutions for Materials Microprocessing Applications

Wed, Jun 15, 2022 11:00 AM - 12:00 PM EDT

Mark Slutzki, a product manager at Ophir, shares innovative solutions for the challenges that accompany materials microprocessing applications. Those who use lasers in these applications, such as drilling via holes in PCBs, organic LED display lift-off, and cutting smartphone cover glass, are faced with many challenges. While the combination of laser parameters enables new and innovative processes, they can also cause unexpected damage to the measurement tools used to keep the process stable. These parameters include ultra-short pulse duration, high repetition rates, short wavelengths, and many others. Sponsored by Ophir, LaserPoint srl, and DataRay Inc.

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.: All Things Photonics

Nobel laureate **Donna Strickland** joins **Francois Légaré** and **Heide Ibrahim** from the Advanced Laser Light Source Laboratory (ALLS), located outside Montreal. The panel discusses the specifications of the ALLS laser systems, their functionality, and their applications in molecular imaging, agriculture, and metrology. **Jan Lagerwall,** head of the Experimental Soft Matter Physics group at the University of Luxembourg, introduces nonconventional applications for liquid crystals, including in sensing, machine vision, and more.

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