

Monthly newsletter focusing on how light-based technologies are being used in the life sciences. Includes news, features and product developments in lasers, imaging, optics, spectroscopy, microscopy, lighting and more. Manage your Photonics Media membership at Photonics.com/subscribe.

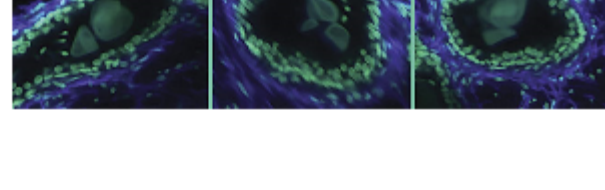


PRODUCTS FOR HIGH RESOLUTION LIGHT SHEET MICROSCOPY
Perfect for super resolution microscopy applications.



Light Sheet Microscopy Enables 3D Pathology

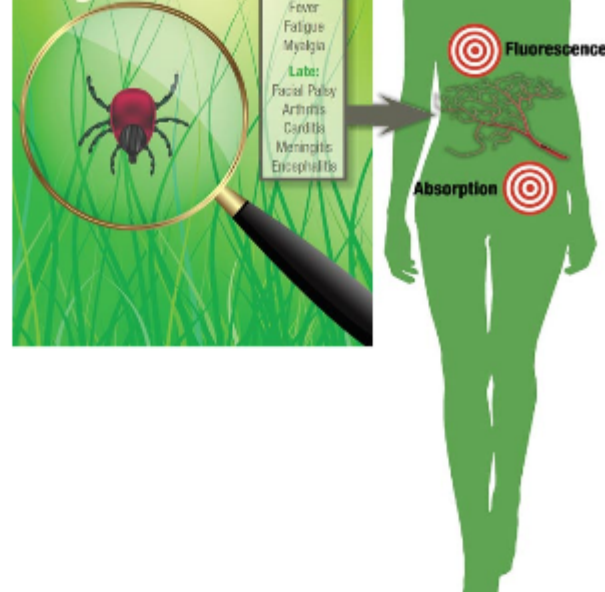
Researchers are currently developing light sheet microscopy methods to provide a fast and effective technique that preserves 3D samples and opens the door for downstream data processing and machine learning for computer-assisted interpretation of specimens. Through innovative microscope designs and methodology, 3D pathology moves closer to clinical applications as an efficient and gentle technique for high-speed 3D imaging that can reveal important structural and molecular content in clinical specimens.



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Plasmonics and Microfluidics Speed Detection of Lyme Disease

When a person develops Lyme disease from a tick bite, identifying the tiny culprit can be challenging. The insect itself is difficult to see in the grass or forested area it comes from before burrowing into the person's skin. The symptoms of the disease, which afflicts hundreds of thousands each year, however, become clear to those stricken — ranging from fever and arthritis to damage to the nervous system. Fortunately, new testing modalities made possible by optical technology may soon enable clinicians to see changes far smaller than insects in grass — to peer inside a person's system and identify disease antibodies within his or her blood, and expedite the process of reaching a diagnosis that historically may have taken weeks after infection.



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Optical Tweezing Inspires Nanoscopic Trapping Method

Researchers from the University of Technology Sydney (UTS) have deployed the existing principles of optical tweezer technology, which enables the manipulation and assemblage of nanoparticles, as a base for a technique that allows them to manipulate particles possessing the same refractive properties as those of the background environment in a given setting.



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.: Vision Spectra Conference



Presentation: "Shrinking Pixels and Growing Sensors: Two Approaches for Increasing Resolution"

Presented by: Greg Hollows, Edmund Optics

The drive for continuous innovation in machine vision results in a constantly increasing demand for higher resolution. Sensor manufacturers can take two main approaches to meet demand: They can either shrink pixels, or increase sensor size. Both options come with tradeoffs, in terms of sensor performance, and with the imaging optics used with them. Because of fundamental limitations in the pixel size that can be successfully used with traditional imaging optics, the sizes of the sensor and mounting interface must increase to accommodate demands for higher resolution.

Greg Hollows, vice president of the Imaging Business Unit at Edmund Optics in Barrington, N.J., goes into the meaning of this trend for lenses; the challenges the trend introduces for builders of machine vision systems; and solutions for getting the most out of sensors and lenses.

The inaugural Vision Spectra Conference runs July 20 - 22. Registration is free for the event, which is offered exclusively online. For more information and registration, please visit www.photonics.com/vsc2021. Continued coverage of this inaugural event will also be available on vision-spectra.com and Photonics.com leading up to the conference.

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.: Featured Products



KeyLight™ OEM Microscopy Light Source

Phoseon Technology Inc.

KeyLight™ illumination sources for fluorescence microscopy are the perfect solution to integrate into your equipment. Phoseon's proprietary LED solutions offer intense, broad-spectrum wavelengths for various colors from UV through visible into the infrared.

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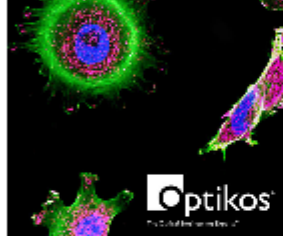
Think BIG: Go Small with XENON's X-1100 Benchtop Research System

XENON Corp.

You have discoveries to make, theories to be proven, and challenges to overcome. Who'd have thought that the Pulsed Light tool to provide such big answers could come in such a small package. The X-1100 Benchtop Pulsed Light System is XENON's ground-breaking research tool...

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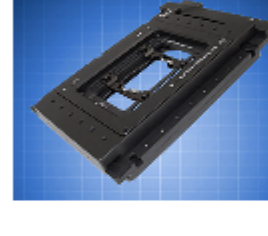
From Concept to Volume Production — You Can do it all with Optikos

Optikos Corporation

Medical Devices and Diagnostics From Concept to Volume Production—You Can Do It All With Optikos.

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Ultra Precise Piezo-Z Focus Stage

Applied Scientific Instrumentation Inc.

The stage is capable of XY resolutions down to the 10-20 nm and Z resolutions to the 1nm range. It is able for use with rapid z-sectioning and autofocus systems. It prevents focus drift when used with our CRISP system.

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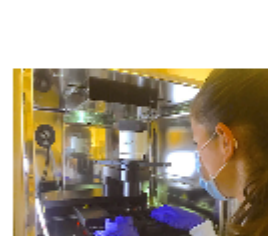
Optical Biomedical Imaging

Photonics Media

At last, a reference work has been compiled that offers in one place a broad survey of technologies, applications and markets for optical biomedical imaging, as only Photonics Media could produce it.

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Automated Live Cell Imaging in Your Incubator

Etaluma Inc.

Etaluma's LS720 fully automated three-channel inverted fluorescence microscope produces the highest quality time lapse movies for live cell imaging experiments. Able to operate on the benchtop with an on-deck incubation chamber or entirely within a cell culture incubator...

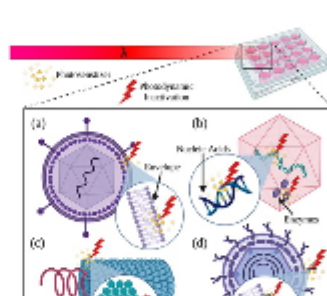
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.: In Case You Missed It

Antibodies Boost Photodynamic Therapy's Efficacy

In photodynamic therapy, photosensitizers composed of dyes and other light-reacting compounds are typically administered intravenously or are applied topically to the area where treatment is needed; they are then absorbed by microbes or cancer cells. When light is applied, the compounds react, forming reactive oxygen species — toxic oxygen molecules that kill the cancer cells or pathogen. Adding antibodies to photodynamic therapies can bolster their efficacy, according to research conducted by Texas A&M University and the University of São Paulo.



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DNA Origami Supports Applications In and Beyond Life Sciences

A European research team developed a dye- and DNA programming-based approach for counting molecules present within individual complexes. The approach supports biomedical and life sciences applications, as well as those involving OLEDs, solar cells, and soft matter — such as photovoltaics and liquid crystals.

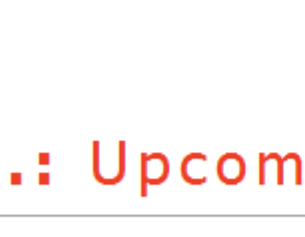
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Fluorescent Sensor Identifies Psychiatric Drugs

A genetically encoded biosensor to detect hallucinogenic compounds could be used to aid in the discovery of treatments for mental illness, in neuroscience research, and to detect drugs of abuse. A team at the University of California, Davis developed the sensor, called psychLight, which can be used to look for pharmaceutical potential without the side effect of hallucinations.

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.: Upcoming Webinars



European Photonics Manufacturing Services Funded by EC

Wed, Jun 30, 2021 8:30 AM - 11:00 AM EDT

In this webinar, representatives for preeminent EU acceleration initiatives present ongoing projects supported by the European Commission, helping companies to access photonic technologies supported in Europe to improve manufacturing in numerous. Moderated by EPIC, this event showcases ten initiatives and their goals for products in widespread application areas ranging from architectural lighting to automotive, from healthcare to consumer electronics. Presented by the European Photonics Industry Consortium (EPIC).

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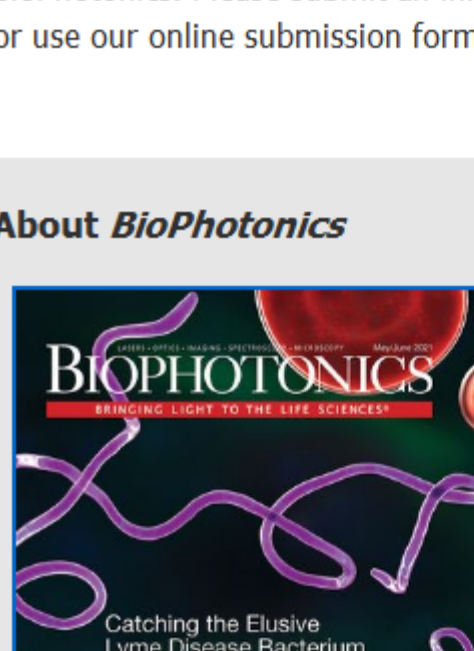
.: Next issue:

Features

Optical Coherence Tomography, Liquid Sensors, Quantum Cascade Lasers, and more.

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *BioPhotonics*. Submit an informal 100-word abstract to Senior Editor Doug Farmer at Doug.Farmer@Photonics.com, or use our online submission form www.photonics.com/submitfeature.aspx.

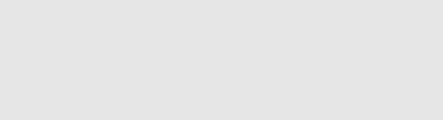
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