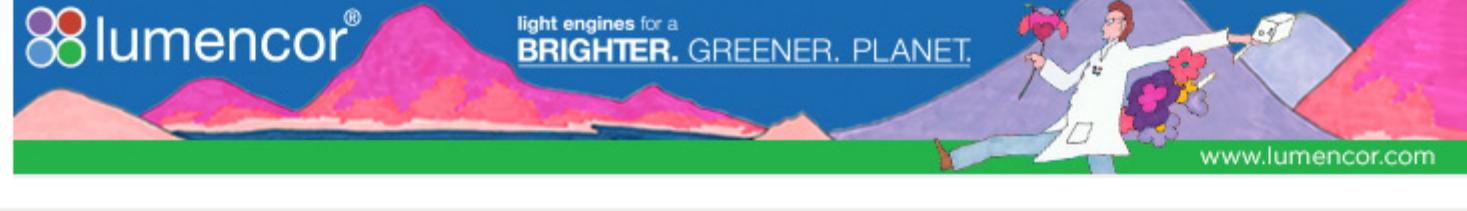


BIPHOTONICS

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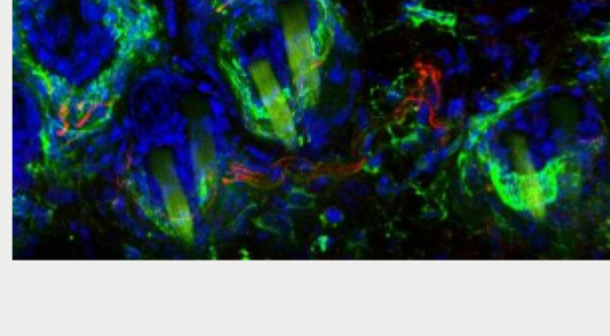


Monthly newsletter focusing on how light-based technologies are being used in the life sciences. Includes news, features and product developments in lasers, imaging, optics, spectroscopy, microscopy, lighting and more. Manage your Photonics Media membership at Photonics.com/subscribe.



Light-Based Approach Manages Chronic Neuropathic Pain

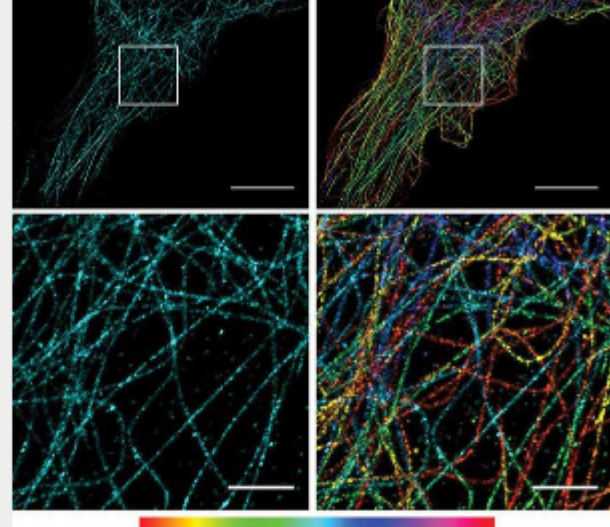
Researchers from the European Molecular Biology Laboratory (EMBL) Rome identified a specific population of nerve cells in the skin that are responsible for sensitivity to gentle touch. These are also the cells that cause severe pain in neuropathic patients. The research team developed a light-sensitive chemical that selectively binds to this type of nerve cell. By first injecting the affected skin area with the chemical and then illuminating it with NIR light, the targeted nerve cells retract from the skin's surface, leading to pain relief.



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Double-Helix Point Spread Function Delivers Precise Extended-Depth Microscopy

Light microscopy is a powerful method used in many scientific disciplines, including the life sciences, to visualize finer details in samples. The use of fluorescence enables specific targeting and labeling of biomolecules and other chemicals. However, in light microscopy there are trade-offs between the time it takes to acquire an image, the resolution of the resulting image, and photobleaching or damage to the sample. Recent developments in the field have pushed these limitations.



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Point-of-Care Optics Helps Halt the Spread of Infectious Diseases

Early diagnosis is the critical starting point to a better outcome for a patient. Medical experts and health care companies around the world recognize the value of developing ways to diagnose infectious diseases noninvasively at the point of care (POC), particularly in developing countries and rural areas where medical screening can be nonexistent. Many believe that readily available optical componentry that can be scaled up for volume production provides the best route to success.



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Featured Products



Dual Light Sheet Microscopy

Applied Scientific Instrumentation Inc.
ASI's Dual Selective Plane Illumination Microscopy for Cleared Tissue (ct-dSPIM) is one of many light sheet microscope configurations possible using our modular components.

This flexible and easy-to-use Selective Plane Illumination Microscopy (SPIM) implementation allows for dual views of large samples.

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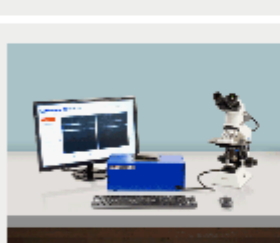


It Just Keeps Getting Better....

Lumencor Inc.
Lumencor's new SOLA SE nIR Light Engine with added Cy7 excitation.

- Breadth: UV + visible + nIR light: 350–760 nm
- Brightness: ~ 4.0 W optical output
- Control: Light on/off and graduated intensities
- Ease: No maintenance, no consumables, mercury-free

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Introducing the Lumedica OQ PathScope

Lumedica
Lumedica is proud to introduce the newest member to its low-cost OCT imaging OQ Series lineup: The OQ PathScope. OCT (Optical Coherence Tomography) is a valuable bench tool for pathology teams that want to process and analyze their histological sections with a smarter, more efficient workflow.

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Alluxa
Alluxa Ultra Series Filters, including Narrowband, Dichroic, UV, IR, and Notch filters, provide the highest performance optical thin film solutions available today. For example, the Ultra Series Flat Top Narrowband filters offer the narrowest bandwidths and squarest filter profiles in the industry.

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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.

This collection is a practical resource for those engaged in the research and development of relevant technologies.

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Compact, Low Cost <30pm Resolution in the VIS and NIR

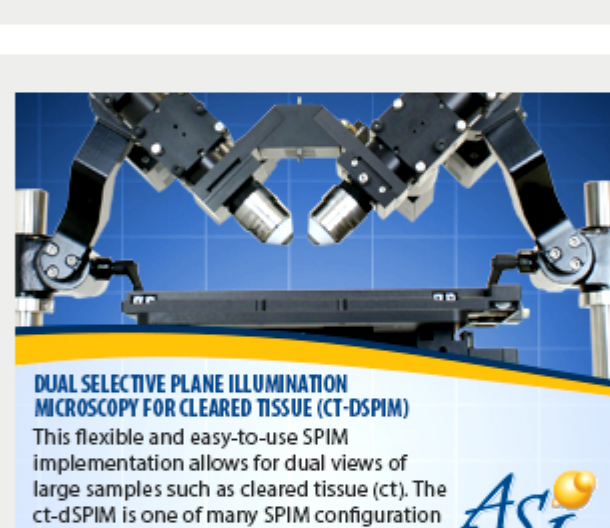
LightMachinery Inc.

The Hornet Spectrometer achieves the resolution of large grating spectrometers at a fraction of their cost and size while covering a larger wavelength range. Simple PC based software allows the user to review spectra in real time and save or export for more analysis.

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DUAL SELECTIVE PLANE ILLUMINATION MICROSCOPY FOR CLEARED TISSUE (CT-dSPIM)
This flexible and easy-to-use SPIM implementation allows for dual views of large samples such as cleared tissue (ct). The ct-dSPIM is one of many SPIM configuration possible using ASI's modular components.
www.asiimaging.com

In Case You Missed It

Hollow Glass WGR Improves Nanoparticle Detection

A newly fabricated whispering gallery resonator (WGR), in the form of a tiny glass bubble just a hair's breadth wide, has demonstrated the ability to detect the presence of minute particles more effectively than existing WGRs.



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Open Access to Medical Imaging Dataset Could Advance Computer-Aided Detection

Researchers announce the open availability of the largest CT lesion-image database accessible to the public. DeepLesion, created by a team from the National Institutes of Health (NIH) Clinical Center, could help foster the development of deep-learning approaches for computer-aided detection (CADE) and diagnosis (CADx).

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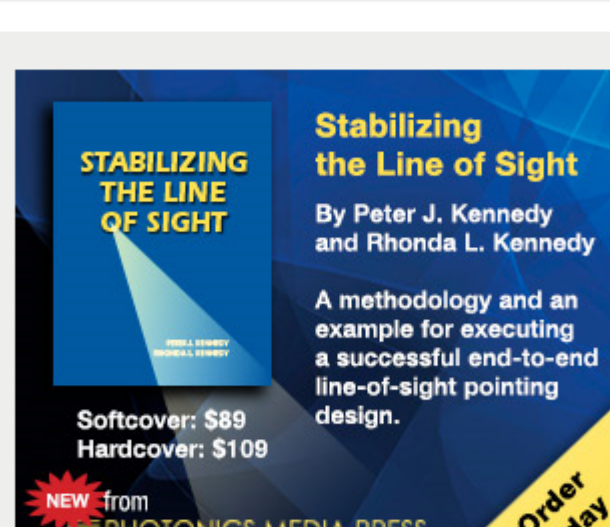
Portable Camera Module Could be Used at Home to Monitor Health

A compact eye fundus camera system has been developed that allows a user to photograph retinal images of the interior of the eye by using high-speed image-processing NIR light. At 2.3 mm², the system is small enough to fit on a smartphone.

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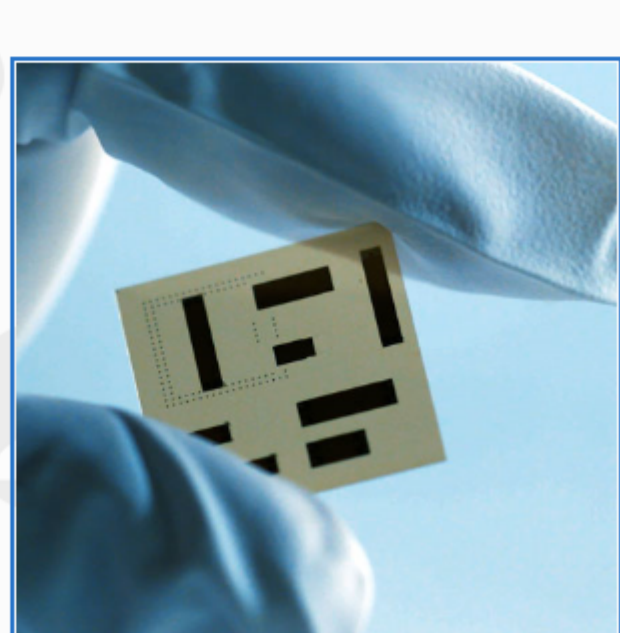
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