

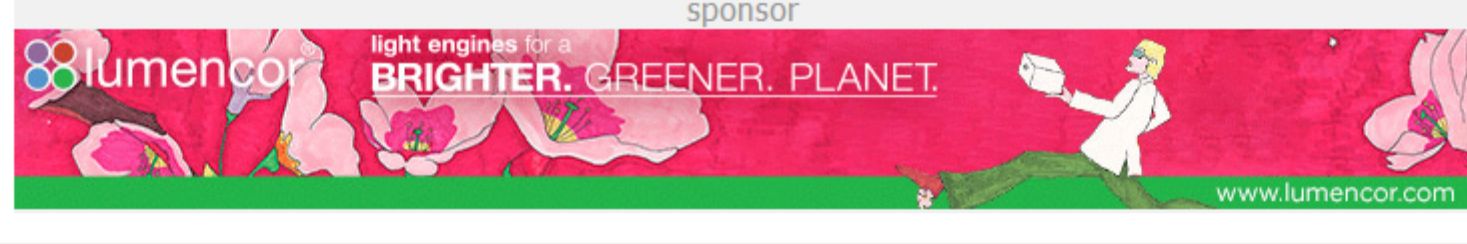
BIOPHOTONICS

BRINGING LIGHT TO THE LIFE SCIENCES®

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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.



AO-OCT Comes into Focus

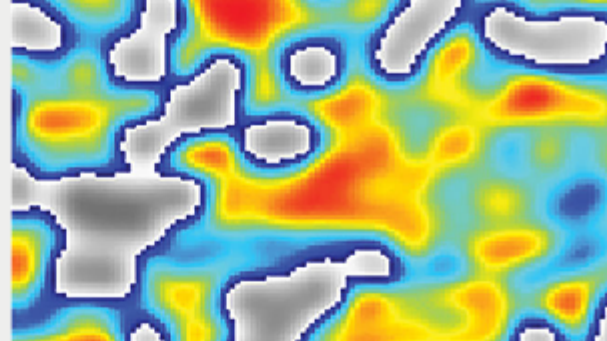
Adaptive optics technology is often used to correct for wavefront distortions imparted when light travels through complex optical systems, enhancing image resolution and facilitating diffraction-limited optics. It has played a particularly prominent role in ophthalmic imaging, where retinal tissue imaging is limited by inherent aberrations in the eye.



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Dual Imaging Method Holds Promise as a Tool for Cancer Diagnostics

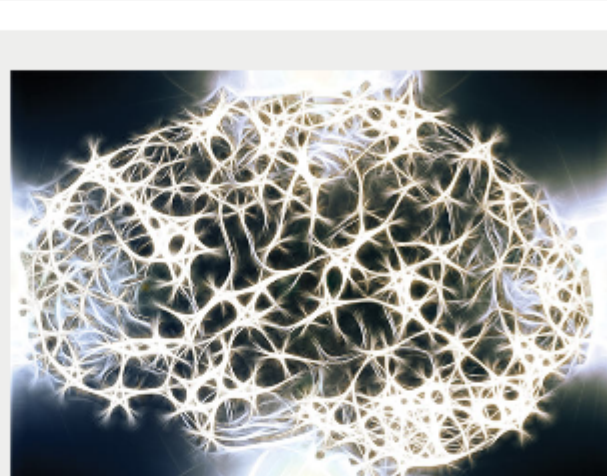
Since Bell Labs first described the photoacoustic effect — the conversion of light to sound — in the late 1800s, researchers have explored the principle for medical imaging purposes. Over the past decade, advancements in lasers, ultrasound transducers, and tomographic reconstruction techniques have prompted immense growth in photoacoustic imaging, a hybrid imaging technology that uses a short-pulse laser to excite tissue.



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Novel Multiphoton Imaging Techniques Reveal Brain's Secrets

Two-photon microscopy has surpassed confocal imaging for the study of intact, living tissue. In essence, two or more low-energy, long-wavelength photons generated off a Ti:sapphire or ytterbium fiber femtosecond laser are absorbed simultaneously by fluorophores expressed in a tissue of interest. The technique allows for wide imaging windows, deep specimen penetration, reduced photobleaching and photodamage, and pinpoint light focusing.



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Featured Products



The Next Generation Comes to Light

Lumencor Inc.
Lumencor's new Spectra III Light Engine.

- Breadth: Eight spectrally optimized sources for DAPI, CFP, GFP, YFP, Cy3, mCherry, Cy5, Cy7 excitation
- Power: ~500mW / output, ~4W total
- Control: Exceptional power and wavelength stability
- Stability: Exceptional reproducibility
- Ideal for quantitation
- Ease of use: Small, cool, pre-aligned, Mercury-Free
- Applications: Fluorescence microscopy among others, OEM customization upon request

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Electrically Tunable Lens (ETL)

Applied Scientific Instrumentation Inc.
ASI's ETL is a versatile element for a variety of microscopy applications.

The ETL can adjust the focal plane of a stationary microscope objective, replacing a focus stage. Using a bare tunable lens introduces significant optical aberrations, but combining the tunable lens with a 4f relay lens system reduces the aberrations to an acceptable level for many applications.

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LED Illumination for Fura-2 Calcium Imaging

CoolLED Ltd.

Through partnership with The University of Strathclyde, CoolLED announces the latest leap forward in LED illumination for microscopy – the pE-340fura. The pE-340fura is a bespoke LED illuminator for Fura-2 imaging which also supports everyday fluorescence microscopy in a compact, affordable package.

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919P Series IR Thermal Detectors

Newport Corporation

The Newport 919P Thermopile Detector Series provides a full range of sensors to meet the power measurement needs for CW or pulsed lasers up to 10.6 um wavelength. They offer broadband, spectrally flat response, with the maximum power range up to 5000 Watts. These sensors are compatible with Newport 843-R series, 1919-R, 843-R-USB, and 1936-R/2936-R power meters.

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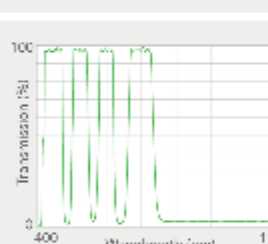
Optical Biomedical Imaging

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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1P/2P Super-Res TIRF Dichroic

IDEX Health & Science - Semrock Optical Filters

As multiphoton microscopy has increasingly become the norm within the microscopy community, the need to combine multiphoton and single-photon excitation has risen as a necessity for many emerging protocols.

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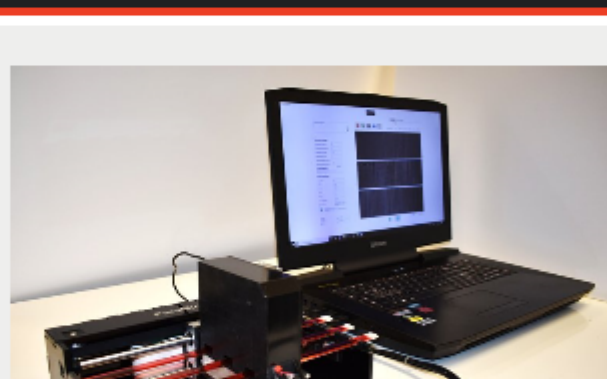
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In Case You Missed It

Mobile Device Uses Holographic Analysis, Deep Learning to Detect Parasites

Researchers ave developed an inexpensive, portable platform that can detect motile parasites in bodily fluids rapidly. Using the new platform, more than 3 milliliters (ml) of a bodily fluid sample can be imaged and analyzed within 20 minutes, providing a throughput that is orders of magnitude better than traditional optical microscopy-based examination.



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Scientists to Test Light Therapy as Relief from Side Effects of Cancer Treatment

University at Buffalo (UB) researchers have received part of a \$1.5 million grant to investigate light therapy as a replacement for prescription opioids in treating oral mucositis, painful ulcers, and swelling in the mouth that result from chemotherapy and radiation treatment for cancer.

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Max Planck Florida Institute Becomes ZEISS 'Labs@Location' Partner

The Max Planck Florida Institute for Neuroscience (MPFI) and the Germany-based microscopy company ZEISS announced a "labs@location" partnership agreement on Jan. 17. As a "labs@location" partner institution, MPFI will have access to state-of-the-art ZEISS technology before it is commercially available. MPFI is only the third institution in the U.S. to earn the labs@location designation.

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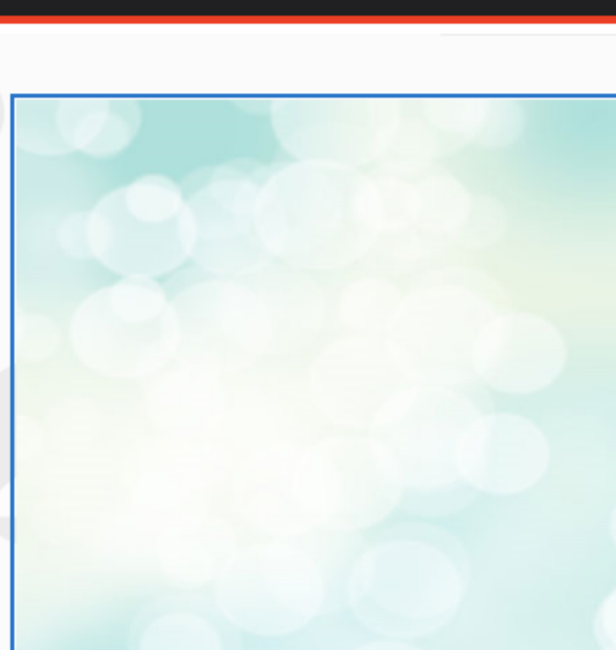
Webinars

Quantum Dots Are Making Displays Brighter and Photomedicine Better

Tue, Apr 23, 2019 1:00 PM – 2:00 PM EDT

In this webinar you will learn about the properties that make quantum dots (QDs) so desirable in displays, and the types of QD technologies that are most suitable for displays. It will cover strategies for implementing QDs in displays, challenges facing this technology, and QD-enabled displays in the future. In addition to displays, the use of electroluminescent (EL)-QD devices in photomedicine will also be discussed. This webinar is sponsored by Radiant Vision Systems.

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Features

Holographic Imaging, Light Therapy, Microscopy, Surface Plasmon Resonance

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