

BIOPHOTONICS

BRINGING LIGHT TO THE LIFE SCIENCES®



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.



From the Editor's Desk



Photonics Variety Spices Up the Sciences

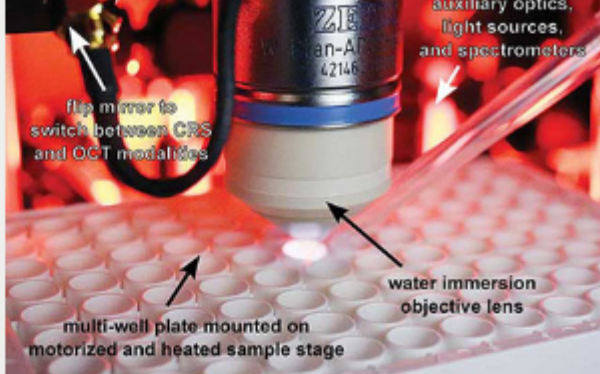
JAMES SCHLETT, EDITOR

The British science historian Jacob Bronowski once pointed out that where Leonardo da Vinci was fascinated with nature's "variety, its infinite adaptability, the fitness and the individuality of all its parts," Isaac Newton, in contrast, found great pleasure in astronomy because of "its unity, its singleness, its model of a nature in which the diversified parts were mere disguises for the same blank atoms." However, despite his affinity for unity, Newton would doubtlessly be impressed with the variety of photonics technologies for which his theories on light laid the foundation in the 17th century.

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Beyond OCT: New Interferometric Imaging Techniques in Biomedicine

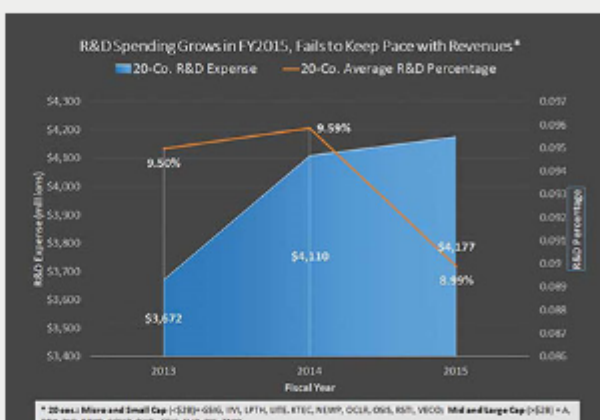
Optical coherence tomography (OCT) began its commercial history in 1996 as a revolutionary technology for imaging retinas to help diagnose eye diseases, including glaucoma, macular degeneration and diabetic retinopathy. Now a mainstay in ophthalmology offices, OCT technology has expanded its reach to numerous other biomedical applications, including cardiology, IVF and oncology.



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Biophotonics-Related Companies' FY2015 R&D Spending Growth Loses Steam

Research and development spending at many biophotonics-related companies failed to keep pace with revenue growth in their 2015 fiscal years, according to analysis of financial reports issued by 20 publicly traded companies and tracked by Photonics Media for this new quarterly column.



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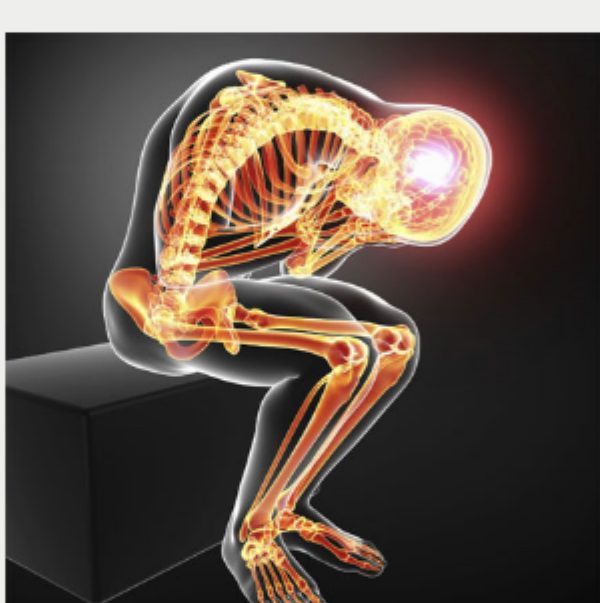
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In Case You Missed It

Optogenetics Shows Promise in Treatment of Chronic Pain

Optogenetics may someday provide doctors with a noninvasive, highly focused way to treat chronic pain. By making the cells responsible for pain transmission sensitive to light, the technique may be able to target, desensitize and reduce bioelectric activity in these cells.



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Optoacoustic Sensor Promises More Reliable Cardiological Diagnostics

A technique based on optical interferometry could enable ultrasonic methods to be used internally to gather information about the heart tissue. Until now ultrasonic methods have only been used externally, because the piezo electronic components necessary for internal use have not been sufficiently miniaturized to be inserted into the blood vessels.

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Optogenetic Technique Recovers Lost Memories in Alzheimer Mouse Model

An experimental optogenetics technique has been applied to a mouse model of Alzheimer's disease to rescue memories. The study revealed that spines — small knobs on brain-cell dendrites through which synaptic connections are formed — are essential for memory retrieval and that fiber optic light stimulation could be used to regrow lost spines, enabling the mice to remember a previous experience.

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Featured Products



FemtoFiber Dichro Series

TOPTICA Photonics Inc.
The FemtoFiber dichro series simultaneously divides two perfectly

synchronized laser beams at different wavelengths out of one box, even from the same aperture.

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LIDA Light Engine

Lumencor Inc.
Lumencor's LIDA light engine® works hand-in-hand with the latest monochrome

cameras to generate RGB color transmitted light images with unprecedented sensitivity, spatial resolution, speed and color fidelity.

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Dual Inverted SPIM

Applied Scientific Instrumentation Inc.
Applied Scientific Instrumentation has developed a new form of light sheet

microscopy with our collaborators in the scientific community.

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Precision High Voltage Amplifier

Advanced Energy Industries Inc.
The HVA series of DC-to-DC high voltage power supplies underlines the latest monochrome

filter/divider and linear HV switch to produce a high voltage amplifier (HVA).

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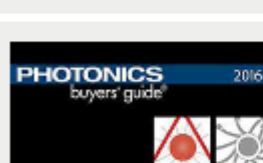


Ultra Fluorescence Filter Sets

Alluxa
Alluxa's ULTRA Series of fluorescence filter

sets are designed to provide the highest level of performance currently available for off-the-shelf products.

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New 2016 Photonics Buyers' Guide

Photonics Media
If you buy photonics products and services, you need the Photonics Buyers' Guide. Use code ES16 for a special offer!

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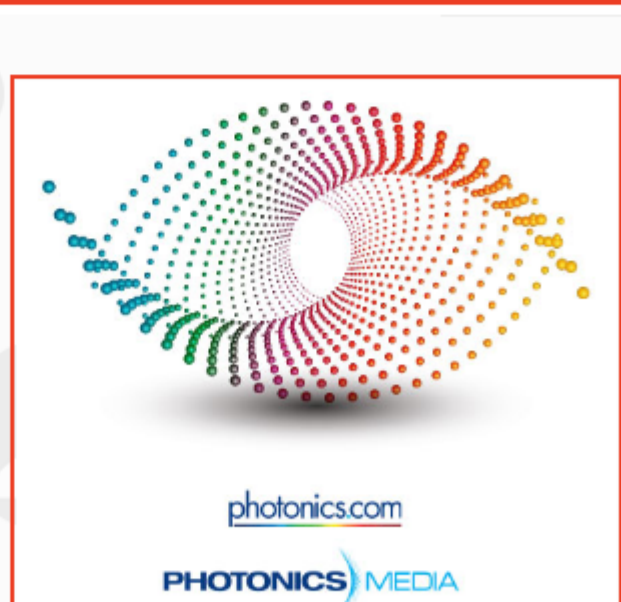
Webinars

Digital Conference: Photonics for Ophthalmology

Thu, Jun 9, 2016 12:00 PM - 3:15 PM EDT

Photonics Media invites you to join us for our upcoming digital conference, "Photonics for Ophthalmology." The event will feature several 15-minute online presentations on the use of light-based imaging and surgical techniques for diagnosing and treating eye conditions. Brief question-and-answer sessions will follow each presentation. Presentation topics include photo-mediated ultrasound therapy, ophthalmology lasers, intraocular lenses, photobiomodulation and various aspects of optical coherence tomography.

[Register Now](#)



Coming in June...

Features

Stereo Imaging; LED Light Therapy; Optimizing Laser Systems; Low-Coherence Interferometry

Photonics Media is currently seeking technical feature articles for publication in our magazines *BioPhotonics*. Please submit an informal 100-word abstract to Editor James Schlett at james.schlett@photonics.com or use our online submission form www.photonics.com/submitfeature.aspx

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