Wednesday, February 26, 2020

BIOPHOTONICS

BRINGING LIGHT TO THE LIFE SCIENCES®

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PHOTONICS MEDIA

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.

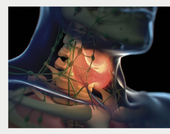
Hyperspectral Remote Sensing, Field Spectrometry Monitor Environment

Spectroscopic measurements play a crucial role in several environmental applications and serve as one of the predominate techniques for remotely monitoring Earth's surface. Spectroscopy makes it easier to identify raw materials as well as contaminants to determine the presence of molecular compounds, found in the water, on the ground, or in the air.

Read Article

Raman Spectral Cytology Helps Diagnose Thyroid Cancer

If Raman spectroscopy can identify individual cells from various types of thyroid nodules based on unique differences in their spectra, Raman scattering could potentially be a new modality in cytopathology to improve thyroid cancer diagnosis. Researchers at the University of California, Davis set out to measure the effectiveness of this technique by performing a study using thyroid nodules with known diagnoses. These nodules were dissociated into single cells and prepared for single-cell Raman spectroscopy measurements.



Read Article

Medical Lasers, Confocal Microscope Among 2020 Prism Award Finalists

A line of lasers devised for neurosurgery. An FDA-cleared semiconductor laser for treating glaucoma — smaller and less expensive than others on the market. These technologies were among the 27 finalists for the 2020 Prism Awards, in categories ranging from communication, vision technology, and the life sciences to transportation, quality control, and health care. Nominees within biophotonics-related categories are listed below.

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Featured Products

Light Sheet for Cleared Tissue

Applied Scientific Instrumentation Inc.

The ct-dSPIM is a flexible and easy-to-use light sheet microscopy configuration optimized for imaging large cleared tissue samples. The sample is mounted on a motorized XYZ stage and imaged via stage scanning.

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Custom Colored Glass Filters

Opticology Inc.

For over 20 years we've designed and supplied custom Colored Glass Filters for research and industry. Offering precision, calibrated density and bandpass filters with optional AR coatings in any size or shape. We provide free engineering design assistance with every order. Stock components are available.....

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New Lasers for Life Science and Quantum Technologies

HUBNER Photonics

HÜBNER Photonics is proud to announce an expansion of the Cobolt 06-01 Series of plug and play modulated lasers. The expansion includes twelve additional wavelengths covering 405 nm – 975 nm, as well as higher powers on several existing wavelengths: 405 nm with 365 mW, 445 nm with 400 mW, 457 nm with 400 mW, and 515 nm with 150 mW.

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CELESTA Light Engine

Lumencor Inc.

Lumencor's Celesta Light Engine delivers exceptional brightness and speed. This laser-based, solid-state illuminator is designed to support today's most demanding multidimensional fluorescence microscopy applications.

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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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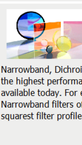

Alluxa Ultra Series Filters and Coatings

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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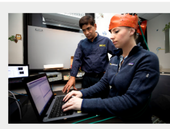
In Case You Missed It

Portable Concussion Detector Uses Infrared Light to Measure Brain Metabolism

A new approach to detecting concussion utilizes a laser to deliver infrared (IR) light pulses to the brain, where the light interacts with cytochrome C oxidase (CCO), a mitochondrial enzyme important to brain metabolism. CCO is known to decrease when cells are in distress. Measuring CCO "can tell us if the tissue is healthy and is metabolizing or 'eating' properly," Ioulia Kovelman, associate professor at the University of Michigan, said.



Read Article

Lensless On-Chip Microscopy Platform Shows Slides in Full View

Guoan Zheng, a University of Connecticut (UConn) professor of biomedical engineering, has published his findings on a successful demonstration of a lensless on-chip microscopy platform in Lab on a Chip. Zheng suggests his platform eliminates several of the most common problems with conventional optical microscopy while providing a low-cost option for the diagnosis of disease.

Read Article

Fluorescent Imaging Helps Identify Lung Cancer Lesions During Surgery

A tumor-highlighting technology called OTL38 enhances the visualization of lung cancer tissue through near-infrared imaging, providing surgeons with a significantly better chance of finding and removing more cancer than previously possible. The results of a phase 2 clinical trial for OTL38 were presented at the 56th Annual Meeting of The Society of Thoracic Surgeons, Jan. 25-28, 2020, in New Orleans. Six institutions participated in the trial — the University of Pittsburgh, the University of Pennsylvania, Harvard University, Cleveland Clinic, Leiden University, and the University of Texas MD Anderson Cancer Center.

Read Article

Webinars

Raman Spectroscopy: Theory, Practice, and Applications

Wed, May 6, 2020 1:00 PM - 2:00 PM EDT

This webinar, presented by Hamamatsu Corp., will review the basic theory behind normal, resonant, and surface-enhanced Raman scattering. It will discuss the hardware required in a working Raman spectrometer; describe data analysis and presentation; and give examples of common applications. In addition, it will examine some of the market challenges and solutions. You will learn about the basic setup of a Raman spectrometer, performance trade-offs associated with hardware limitations, and the factors that influence the choice of the illumination laser.

Register Now

Next Issue:

Features

Optogenetics, Fiber Lasers, Digital Microscopy

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *BioPhotonics*. Please 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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