Wednesday, July 26, 2017

BIOPHOTONICS

BRINGING LIGHT TO THE LIFE SCIENCES®

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.

Probe Delivering Optoelectronic Stimulation May Strengthen Understanding of Spinal Cord

A rubber-like fiber that can flex and stretch with the human spine while delivering both optical impulses and electrical connections for stimulation and monitoring of the spine could be used in the study of spinal cord neurons and potentially to help restore spinal cord function. A team of researchers has created a hybrid probe that maintains low optical transmission losses in the visible range and that can stand up under strains exceeding those occurring in mammalian spinal cords.

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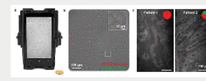
Smartphone Fluorescence Microscopy Allows Cost-Effective Molecular Diagnostics

Lack of diagnostic tools in resource-limited settings remains one of the major obstacles to disease diagnosis and treatment in the developing world. Imaging and sensing devices based on smartphones have emerged to provide cost-effective, field-portable and robust diagnostic systems to meet global health and related biomedical challenges, both in developing and developed countries.



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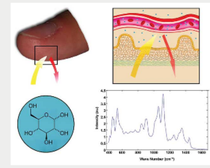
Spectroscopy and the Holy Grail

Researchers have long pursued a noninvasive way to measure blood glucose. Spectroscopy checks off all the right boxes for the technology behind a noninvasive monitor. Spectroscopic probes are pain-free and typically do not harm the body. The technology is reliable. And it can lend itself to the kind of miniaturization required for a wearable. But the prize remains elusive. To get a clearer picture of the reasons why this is so — and why spectroscopy particularly holds so much promise — we reached out to three experts in field.



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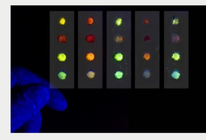
In Case You Missed It

New Material Could Improve People's Health and Reduce Pollution

A material that holds the key to cheap, fast and portable new sensors for a wide range of chemicals has been developed by chemists at the University of Texas at Austin. The innovation could drastically reduce the costs associated with cleaning accidental chemical spills, remediating old industrial sites, detecting radioactive contamination in drinking water and operating medical and research imaging devices.



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3D-Printed Patch Mends Hearts

A new 3D-laser-printed patch has been developed that can help heal scarred heart tissue after a heart attack.

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Plasmonic Sensor Improves Detection of Cancer Biomarkers

A novel plasmonic sensor has demonstrated the ability to detect the presence of the cancer biomarker carcinoembryonic antigen (CEA) to the magnitude of one nanogram per milliter. The device combines two sensing methods to achieve a sensor design that shows an interactive plasmonic-photonic resonance effect.

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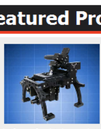
Featured Products



Light Sheet Microscopy (oSPIM)

Applied Scientific Instrumentation Inc.

ASI's Oblique Single Illumination Microscope (oSPIM) is an excellent platform for high resolution light sheet microscopy for samples mounted in standard coverslip-bottom culture dishes. The oSPIM is a single-view light sheet system where the illumination light sheet is generated at an oblique angle using an oil immersion objective below the sample dish.

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Lumencor's 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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High-Speed Imaging with rapidFLIM

PicoQuant GmbH

Fluorescence Lifetime Imaging (FLIM) is a versatile microscopy method enabling the investigation of biochemical and physical processes, detecting changes in the local environment of the sample, molecular interactions, or conformational changes via Förster Resonance Energy Transfer (FRET).

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Powerful Femtosecond Fiber Lasers

TOPTICA Photonics Inc.

The FemtoFiber ultra series is TOPTICA's third generation of ultrafast fiber lasers. These lasers provide powerful femtosecond pulses with a ultra-high reliability. The systems use SESAM-mode locked ring fiber oscillators (patented design), followed by a high-power fiber amplifier.

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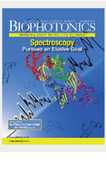

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