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Photonics Prism Awards Finalists Offer Solutions for Brain Imaging, More



Tools for noninvasive imaging deep inside the brain, sensors for monitoring environmental toxins and detecting explosives and powerful new lasers for manufacturing are among finalists in nine categories for the 2013 Prism Awards for Photonics Innovation, a competition recognizing new products and inventions that break with conventional ideas, solve problems and improve life through the generation and application of the essential technologies of optics and photonics.

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A 3-D Light Switch for the Brain

A new tool that delivers precise points of light to living brain tissue in three dimensions could one day help treat Parkinson's disease and epilepsy; it could even aid in the understanding of consciousness and how memories form.

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Single-Cell Imaging Clarifies How Cells Tell Time

A new imaging approach offers the first real-time visual evidence of how cells know when to enter the next phase of their development.

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Photoswitch Affects Nerve Cells in Eye, Brain

Light-sensitive molecules that stimulate a neural response in the cells of the retina and brain could be the first step toward overcoming degenerative eye diseases or quieting epileptic seizures.

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Polymer Lens Nearly Identical to Human Eye Lens

A multilayered polymer gradient refractive index (GRIN) lens inspired by the human eye could one day provide a more natural alternative to implantable eye lenses and consumer vision products.

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In this week's edition of the industry's premier weekly newscast: We'll reveal the finalists in the 2013 Prism Awards; we'll also look at some research stories, including QCLs powered by heat, a photoswitch that affects nerve cells, and exploiting the caustic effect to produce images. Hosted by Photonics Media's Laura Marshall and Ashley Rice.

Laser Revascularization Method Could Help Where Bypasses Can't

Transmyocardial laser revascularization fell somewhat out of favor in the 1990s, but recent developments have inspired new research into the technique. Following up on promising research done in Europe, planned studies in the US will combine TMR with stem cells to spur new blood vessel growth.

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Probes Watch Your Heart Skip a Beat

While many cases of cardiac arrhythmia are harmless, others can lead to loss of heart function, breathing and consciousness, which can be dangerous and even fatal. Optical mapping studies are providing important insights into the mechanistic origins of cardiac arrhythmias such as atrial fibrillation.

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Choose the Right Light Source

To take detailed images of biological structures, fluorescence microscopy relies on intense light. Whether a gas discharge lamp, laser or LED, the light source influences the resolution of the pictures - and any damage that a sample can suffer in the course of imaging.

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Opportunities Abound in Biological Spectroscopy

The market is expanding as the technology continues to develop, according to industry insiders. Spectroscopy allows us to analyze the world around us on an ever-smaller scale and with ever-better resolution. *BioPhotonics* recently spoke with a few leaders in the industry to get a taste of what the market is like now and where it will go in the near future.

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Biophotonics Products



FluoView FV1200 Laser Scanning Confocal Microscope
 Olympus America Inc.



LED Cold Light Source
 SCHOTT AG, SCHOTT Lighting and Imaging



HDTV Low-Noise sCMOS Camera
 Photonic Science Ltd.



Sunscreen UV Transmittance Analyzer
 LabSphere, Inc.

Industry Events

1st International Biophotonics Meeting in Israel - December 9 - 11, 2012 - Tel Aviv, Israel



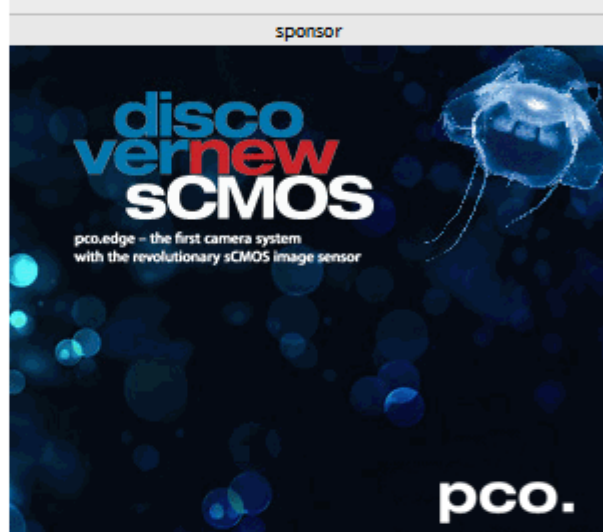
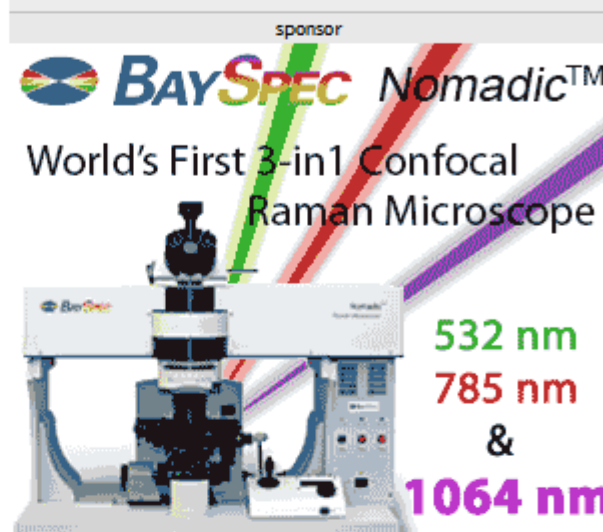
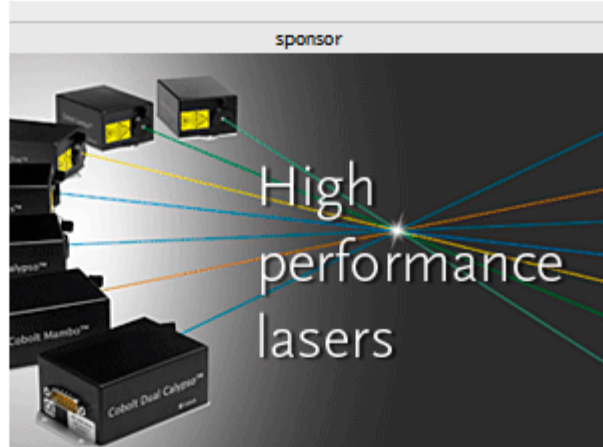
Supported by SPIE, the 1st International Biophotonics meeting in Israel (BPI2012) will gather globally renowned scientists from around the world, Israeli scientists and clinicians, as well as industrialists and entrepreneurs. This group will present their work and discuss open issues in the field, while exposing the up-to-date research at the frontier to local students, researchers, and industrial research and development representatives. The meeting aims to strengthen connections and trigger bi-national and multi-national research collaborations. Keynote speaker will be Steven L. Jacques (Oregon Health & Science University, Depts. of Biomedical Engineering & Dermatology). Conference invited speakers include Irving Bigio, Boston University; Daniel Palanker, Stanford University and Gabriel Idan, Given Imaging.

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