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Photonics Prism Awards Finalists Offer Solutions for Pollution, Manufacturing, Brain Imaging, More



Sensors for monitoring environmental toxins and detecting explosives, powerful new lasers for manufacturing, and tools for noninvasive imaging deep inside the brain are among finalists in nine categories for the 2013 Prism Awards for Photonics Innovation sponsored by Photonics Media and SPIE. "Each year, the quality of entries is higher and the competition keener," said SPIE CEO Eugene Arthurs. "The awards celebrate the wide reach of photonics as an enabling technology and the innovation power of our community. Photonics inventions help create valuable new jobs in communications, health care, security, manufacturing and entertainment."

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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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Photonic Nanocrystals Convert Sunlight to Solar Steam

Light-capturing nanoparticles so efficient at turning sunlight into heat have been shown to produce solar steam from nearly frozen water. Inventors of the new technology expect its first uses to be for sanitation and water purification in developing countries rather than for electricity generation.

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Mechanical Oscillator 'Interprets' Optical Signals

In quantum computing, getting different quantum systems, or nodes, to talk to each other is a significant challenge because each system communicates with photons of distinct wavelengths, or colors. But a "dark mode" that converts an optical field, or signal, from one color to another may advance efforts to build and connect quantum computers.

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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.

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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Theorists Propose Using Heat to Power QCLs

What if you could use the heat generated in a quantum cascade laser – something that normally causes the lasing to turn off – to power the device instead?

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Controlling Caustics Choreographs Light

A new algorithm based on a well-known natural optical phenomenon called the caustic effect makes it possible to "paint" images using light and a curved surface. The technique holds potential for automobile headlights, projectors and architectural applications.

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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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Featured White Paper



Mechanical Considerations for Fiber Stress and Strength Degradation in Fused Silica Optical Fibers

Polymicro Technologies, Sub. of Molex, Inc.

Synthetic fused silica optical fibers have excellent tensile and bend strength performance when fabricated with a protective polymer buffer layer. The expected lifetime can be estimated based on the fiber design parameters and expected stresses seen in operational use. The statistical model used to determine the lifetimes can be used to calculate targets for minimum bend requirements for use in the customer's system design.

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Industry Events

ASCB 52nd Annual Meeting - December 15 - 19, 2012 - San Francisco, CA
Visit us at booth 1201



ASCB is the premier international cell biology meeting for scientists and students in academia, industry, government and higher education. Engage with more than 3000 poster presentations and attend over 100 scientific sessions, science discussion tables, symposia and minisymposia sessions, workshops and a Frontier symposia that will synthesize current, exciting progress in the field. The 2012 event features will also include an exhibit of more than 350 companies, education initiative forums, a postdoc/student town hall council meeting and keynote presentations by US Secretary of Energy Steven Chu and Arthur D. Levinson, chair of Genentech Inc. and Apple Inc.

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