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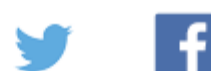
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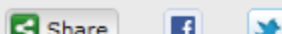
Thursday, January 8, 2015

Drug Fluoresces, Kills Cancer Under 1 Wavelength

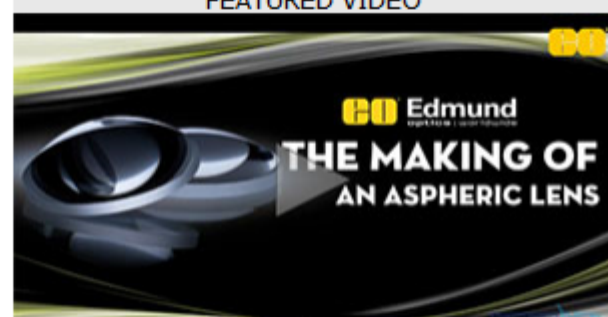


A combined imaging and phototherapy technique could help guide surgeons removing chemotherapy-resistant tumors — and kill any cancer cells the surgeons miss.

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FEATURED VIDEO



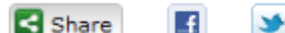
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\$30M DOE Program Seeks Photonic Methane Monitoring Solutions

Ten organizations will develop photonic gas monitoring systems under a \$30 million program coordinated by the U.S. Department of Energy's Advanced Research Projects Agency (ARPA-E).

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Lasers Enable Satellite-Data Tag Team

New laser data links could help satellites in disparate orbits communicate more effectively with one another, potentially benefitting disaster management here on Earth.

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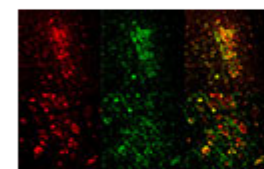
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Optogenetics Used to Induce REM Sleep in Mice



Optogenetic activation of certain brain cells could be used to induce rapid-eye-movement (REM) sleep, which is crucial for keeping both body and mind healthy.

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Sunlight Produces Hydrogen via 'Artificial Leaf'

The researchers said that large-scale networks of the mesh could be made using low-cost solution synthesis and vacuum filtration techniques. The hydrogen created by these mesh networks could fuel vehicles and power homes and businesses in an environmentally friendly way.

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Flir Gets \$27M Order for Threat Detection Systems

Flir Systems Inc. has received a \$27.1 million order for its integrated chemical, biological, radiological, nuclear and explosives (CBRNE) threat response system under a five-year contract with the U.S. Department of Defense.

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In this edition of the industry's **premier weekly newscast**: we discuss how optogenetics is advancing sleep research and how lasers are speeding up satellite transmissions. We also describe a government program fueling development of photonic methane sniffers, and take a look at the finalists for the 2015 Prism Award for industrial lasers.

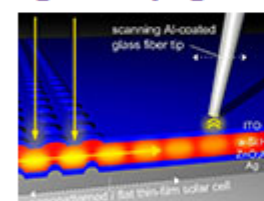
Defect Control Yields More Reliable Qubits

A team of researchers from several institutions has demonstrated photonic cavities with Q factors of up to 24,000 by carefully controlling the nitrogen vacancy (NV) centers within.

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Light Propagation Made Visible in Solar Cells



Near-field optical microscopy has provided a glimpse inside the workings of thin-film solar cells, potentially offering a route to optimizing them and other nanophotonic devices.

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Exelis to Adapt Lidar System Under \$3.5M NASA Contract

Exelis' remote sensing system uses a modulated CW laser to measure the difference in absorption in the atmosphere at two closely spaced wavelengths. The technique determines the number of carbon dioxide molecules in that column of air.

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WHITE PAPER



Optical Isolators Improve Engraving Performance in Pulsed Fiber Lasers

Electro-Optics Technology, Inc.

The deleterious effects of back reflections on pulsed fiber lasers used in marking and engraving are well-known. This paper looks at some of those conditions and their impact on optical isolator performance and marking and engraving quality.

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Industry Events

International Year of Light Opening Ceremonies - Jan. 19-20, 2015 · Paris, France



Established by a UN resolution, the International Year of Light and Light-Based Technologies is a global initiative to raise awareness of how photonics and optics promote sustainable development and provide solutions to worldwide challenges in energy, education, agriculture, communications and health.

The festivities will take place around the Paris headquarters of the United Nations Educational, Scientific and Cultural Organization.

Five Nobel laureates will give plenary lectures on energy, telecommunications and the fundamental physics of light-matter interactions. Other events will recognize Albert Einstein, who described the quantum nature of light in 1905 in his special theory of relativity, and 11th-century Arab thinker Ibn al-Haytham, who is considered the father of modern optics.

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