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Laser 'Pill' Boosts Esophagus Imaging

Physicians may soon have an easy and painless way to screen the esophagus for precancerous cellular changes, thanks to a pill-size device that provides detailed imaging of the upper gastrointestinal tract. Developed by researchers at the Wellman Center for Photomedicine at Massachusetts General Hospital, the system involves a capsule containing optical frequency domain imaging technology — a rapidly rotating laser tip emitting a near-infrared beam of light and sensors that record light reflected back from the esophageal lining. The technique offers several advantages over traditional endoscopy methods for detecting Barrett's esophagus, a precancerous condition caused by chronic exposure to stomach acid.

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3-D Color X-ray Spots Corrosion, Cancer and Contraband

A camera that takes powerful 3-D color x-ray images in near real time and without a synchrotron x-ray source can identify the composition of scanned objects. This capability could significantly improve airport security screening, medical imaging and industrial inspection, among other applications.

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Light-Activated Hydrogel Repairs Cartilage

Runners and knee pain sufferers, take heed. A new squishy biomaterial called a hydrogel could help repair damaged cartilage when activated with light, giving those achy joints some relief.

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Biophotonic Device Gets FDA Clearance

Celluma — LED technology based on NASA and DARPA research — uses three distinct wavelengths of light energy, modulated with proprietary electronic algorithms to effectively treat a variety of skin, muscle and joint conditions. It has received clearance to treat acne, muscle and joint pain, muscle spasms, arthritis, muscle and joint stiffness, and compromised local blood circulation.

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Polarization-Sensitive OCT Monitors Tooth Decay

Nondestructive polarization-sensitive OCT is likely to become a useful addition to the dentist's armamentarium for assessing the depth and internal structure of lesions related to tooth decay. It also may be extremely valuable to dental researchers for assessing new anticaries agents.

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In this edition of the industry's premier weekly newscast: NASA beams Mona Lisa to the moon, graphene plasmonics beat drug cheats, a metamaterial sensor provides a bigger picture, and nanowire solar cells soak up the sun. Hosted by Photonics Media's Laura Marshall and Melinda Rose.

CARS Is Finding Its Niche

No matter how useful a technology might prove in the research lab, its developers sometimes still have trouble finding a commercial place for it. The technology might be too expensive or too complicated for end users, or the list of applications it serves might simply be too short. So, on the path to commercialization, developers must address a range of issues beyond the question, "Does the technology work?" And, every so often, they must face the possibility that they have gone as far as they can with it. Coherent anti-Stokes Raman spectroscopy has found itself at just such a crossroads.

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Dental Laser Market Shows No Signs of Decay

Lasers offer dentists distinct advantages in diagnosis and surgery, and laser companies expect the market to continue to grow. The laser once may have been a solution in search of a problem, but today it is ubiquitous in a wide range of applications: There are lasers in your entertainment technologies, in your communications systems, in your cars and, increasingly, in your mouth.

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The Most Popular Stories of 2012

Biophotonics experienced and enabled a huge number of fascinating advances in 2012, and we at Photonics Media did our best to share them with industry, academia and the world at large. This article looks at some of the top-read biophotonics stories on Photonics.com from January to October.

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Prism Award Finalists Offer Solutions to Big Problems

Powerful new lasers for biological research, ways to see inside the body, and tools for spectroscopy are among the finalists for the 2013 Prism Awards for photonics innovation. The global competition recognizes 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; it is sponsored by Photonics Media, publisher of BioPhotonics, and SPIE.

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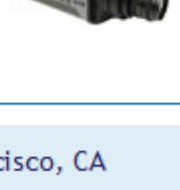

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Industry Events

SPIE BiOS 2013 - February 2 - 7, 2013 · San Francisco, CA
Visit us at Booth 8600

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