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LIGHT EXCHANGE

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Material Absorbs Nearly 100% of IR Light

An ultrathin, tunable device developed at Harvard absorbs 99.75% of infrared light on demand and, when activated, looks like a black blob to IR cameras. The near-perfect absorber could expand the possibilities for energy harvesting and thermal detection. "We exploit a kind of naturally disordered metamaterial, along with thin-film interference effects, to achieve one of the highest absorption rates we've ever seen. Yet our perfect absorber is structurally simpler than anything tried before, which is important for many device applications," said principal investigator Federico Capasso.

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FEATURED VIDEO

Photonis USA - Optical Receiver Module

Photonis USA Vice President and General Manager Bruce Laprade describes the company's optical receiver module, winner of a 2010 Prism Award for Photonics Innovation in the Information and Communication category. Before the creation of this receiver, one had to choose between optical receivers using solid-state designs with high speeds but very small active areas, or photomultiplier designs with small output currents.

Metamaterials Manipulate Light on a Microchip

Controlling light on a microchip is no easy feat, but new theoretical designs for miniaturized optical devices made of metamaterials devised at Pennsylvania State University may be the solution for manipulating light on integrated circuits.

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Raman Researchers Set a Trap to Cool Ions

Captured ions can be cooled, rather than heated, through contact with cold atoms, and these ion traps can store them in a stable condition for longer periods than previously demonstrated. The unexpected results could pave the way to experiments that generate molecular ions at interstellar space temperatures.

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Tiny Probes Dramatically Boost Raman Signals

Novel gold nanoparticles can goose the signal from Raman reporters, or molecules whose jiggling atoms respond to a probe laser by scattering light at characteristic wavelengths. The discovery could lead to better-targeted drug delivery and deeper bioimaging within tissue.

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Ciena, Algonquin Unveil New Gear in Optophotonics Lab

Ciena Corp. provided advanced optical telecommunications equipment to Algonquin College's Optophotonics Lab to enable students to have practical learning opportunities with technology used in major telecom networks worldwide.

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Light Matters

In this week's edition of the industry's premier weekly newscast: a tunable new device absorbs nearly 100 percent of the infrared light that hits it, biomarker binding Brights boost Raman signals, an antenna on a chip works in 3-D free space, nanocrystals convert sunlight to solar steam, and some notable acquisition news from Oclaro and Thorlabs. Hosted by Photonics Media's Laura Marshall and Melinda Rose.

'Hyper' Ramsey Excitation Confirmed

Shining laser light onto atoms and molecules is the best way to obtain precise information about their inner structure, but light above a certain intensity can fundamentally change their energy levels. A group in Germany has demonstrated how to prevent such "light shifts," and their method could make optical atomic clocks even more accurate.

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Antenna on a Chip Zips Through 3-D 'Free Space'

A new micron-scale spatial light modulator (SLM) works in 3-D "free space" and runs orders of magnitude faster than those used in sensing and imaging devices, and it holds great potential for imaging, display, holographic, measurement and remote sensing applications.

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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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App Turns Laser Tweezers into Xbox 'HoloHands'


Gaming enthusiasts, gather round. There's a new app in town, and it lets you control optical tweezers from the palm of your hand.

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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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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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