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Virus-Sized Laser Defies Diffraction Limit



The bow tie is a popular shape for pasta and maybe soon it will be for laser cavities, too. Single-laser devices the size of virus particles operate at room temperature and defy the diffraction limit, thanks to a unique lasing cavity design. "The reason we can fabricate nanolasers with sizes smaller than that allowed by diffraction is because we made the lasing cavity out of [bow-tie-shaped] metal nanoparticle dimers," said Teri Odom of Northwestern University's McCormick School of Engineering and Applied Science. The plasmonic nanolaser could be integrated into silicon-based photonic devices, all-optical circuits and nanoscale biosensors.

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Photons Observed as Particles, Waves Simultaneously

It is well-known that photons can act like waves or particles, depending on how they are measured experimentally. But they have never been seen exhibiting both behaviors at the same time – until now.

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Coherent Acquires Innolight, Reports Lower Profit

Coherent Inc. has acquired Innolight Innovative Laser and Systemtechnik GmbH and Midaz Lasers Ltd., a move it said will provide core technology building blocks for an emerging class of commercial, low-cost, subnanosecond pulsed lasers for microelectronics manufacturing.

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A Magnetic Field for Photons

A photonic crystal device that tames the flow of free-moving photons with synthetic magnetism could enable scientists to precisely steer light in any direction.

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In this week's edition of the industry's premier weekly newscast: photons are observed as both particles and waves, see-through science gets unscrambled, light's knotty problem is uncovered, and we bring you some notable business news. Hosted by Photonics Media's Melinda Rose and Laura Marshall.

Laser Quantum Buys Gigaoptics

Laser technology provider Laser Quantum UK has acquired Gigaoptics GmbH, a maker of Ti:sapphire gigahertz femtosecond lasers and oscillators. Specific terms of the deal were not disclosed.

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Matsuura Named OSA Senior Science Adviser

Anne Matsuura, former chief executive of the European Theoretical Spectroscopy Facility (ETSF) in Belgium, has been named senior science adviser at The Optical Society (OSA), the organization announced Monday.

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Self-Assembling Particles Could Advance Optics

Microparticles engineered to self-assemble spontaneously, much as atoms form into molecules, could lead to enhanced optical displays and speedier computer chips, investigators say.

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Fluorescence Microscopy Given New Power

A new method that studies the critical process of cell transport dynamics at multiple spatial and temporal scales has revealed properties of diffusive and directed motion transport in living cells.

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 2012 Webinar Series - Expert Briefings
Photonics in Space Applications
 Thursday, November 15, 2012 - 1 p.m. EST/ 10 a.m. PST/ 1700 GMT/UTC
 Photonics Media will host Mark Clampin, observatory project scientist, James Webb Space Telescope, NASA Goddard Space Flight Center; "The Optics of the James Webb Space Telescope," as well as Dr. Alexander Rubenchik, Lawrence Livermore National Laboratory, Livermore, Calif.; "The Promise of Pulsed Lasers in Removing Orbital Debris"

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Industry Events

APOMA Fall 2012 Optical Manufacturing Workshop - November 12 - 13, 2012 - Tucson, AZ



The American Precision Optics Manufacturers Association (APOMA) annual fall optical manufacturing workshop will include workshops and demonstrations featuring seven optical equipment manufacturers; bound and loose abrasive grinding; optical pitch and polishing pads; optical materials; optical tolerances, and; metrology. The event will take place at the University of Arizona, Optical Science Building. Cost for the event is \$150 and includes a light breakfast and lunch each day, as well as a reception and facilities tour on Monday evening.

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ASCB 52nd Annual Meeting - December 15 - 19, 2012 - San Francisco, CA

Visit us at booth 1201



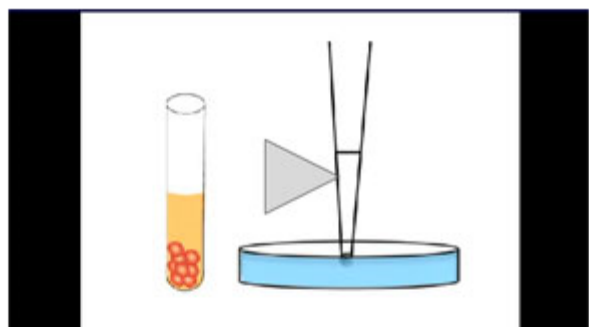
ASCB is the premier international cell biology meeting for scientists and students in academia, industry, government and higher education. Engage with more than 3000 poster presentations and attend over 100 scientific sessions, science discussion tables, symposia and minisymposia sessions, workshops 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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FEATURED VIDEO

Applied Scientific Instrumentation - MPPI-3 Microinjector
 This video outlines the steps required to inject fluorescently labeled probes into Zebra fish larvae. The techniques used are common to microinjection of other samples, and allow noninvasive monitoring of pathogens within the environment of a complex host, as well, as cellular development.
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