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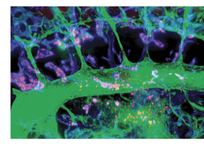
Superresolution Microscopy Enhances Biomedicine



Superresolution optical microscopy — a technology that enables the acquisition of fluorescent micrographs of samples with a resolution well below the optical diffraction limit of ~250 nm — is rapidly evolving. Several methods have been developed during the past two decades that allow for this extension of conventional optical microscopy, and they have substantially contributed to the overall understanding of systems as complex as the specific arrangement of chromatin in cells during interphase, or resolving the inner structure of polymer networks in microgels.

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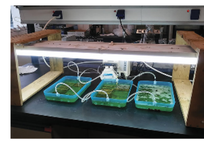
Laser-Processed Composites Help Harvest Biofuels



Ever-increasing environmental concerns have placed biofuels in the spotlight of research and development efforts in search of a clean energy solution. In this context, microalgae biomass harvested with pulsed lasers is a viable alternative for the production of biofuels, including biodiesel, bioethanol, biogas, and biohydrogen.

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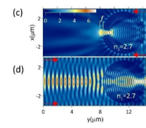
Mesoscale Photonic Method Increases Range of Optical Tweezers



A team from Tomsk Polytechnic University (TPU), working with scientists from the V.E. Zuev Institute of Atmospheric Optics of the Siberian Branch of the Russian Academy of Sciences, has increased the operation range and stability of optical tweezers. In the team's method, light, interacting with a microparticle, is focused in the form of a photon jet in the direction opposite the radiation incidence. The photon jet functions as a trap.

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Bristol Instruments Inc.

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Photonics Media

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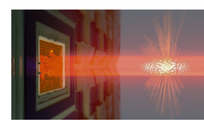
Photon Connection Helps Researchers Entangle Large, Distant Objects



Researchers at the Niels Bohr Institute at the University of Copenhagen have entangled two very different quantum objects — a mechanical oscillator/vibrating dielectric membrane, and a cloud of atoms with each atom acting as a tiny magnet.

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Antenna Transports Energy to, Powers Molecular Motor Complex

Chemists at the University of Groningen have designed a near-infrared light-powered rotary motor, the type that can be used to deliver autonomous motion to a system, or to ensure that a system responds to a prompt on command. The chemists administered near-infrared light to their molecular motor through an antenna.

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Image Scanning Microscopy Technique Extends Beyond Limits

A collaboration between researchers at the University of Warsaw and the Weizmann Institute of Science yielded a method of fluorescence microscopy that, in theory, has no resolution limit. In practice, the team demonstrated a fourfold improvement over the diffraction limit.

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Features

Lidar, Marking Alloys with Ultrafast Lasers, Epic Insights, and more.

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