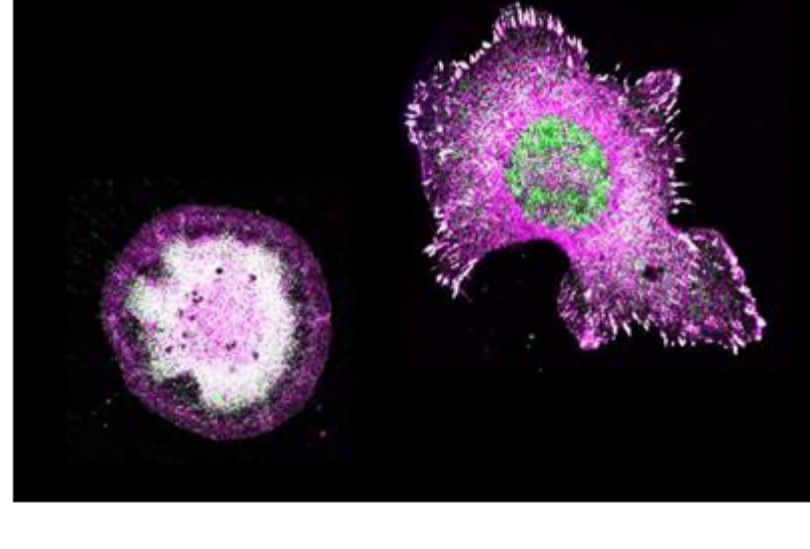


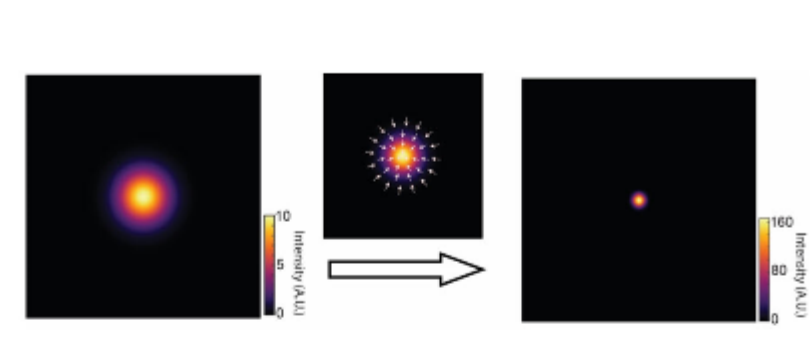
Laser Pulse Compression with Plasma Puts Zettawatt Powers Within Reach

The ability to compress laser pulses to ultrahigh powers could open the way for compact lasers in the order of exawatt and above. Such powerful lasers would enable scientists to push the limits of physical science by deepening their study of the nature of matter. A new method for laser pulse compression, developed jointly by researchers at the University of Strathclyde, Ulsan National Institute of Science and Technology (UNIST), and Gwangju Institute of Science and Technology (GIST), exploits the dispersive property of inhomogeneous plasma to compress laser pulses. According to the researchers, the method is simpler and more efficient than other plasma-based schemes for compressing laser pulses. [Read Article](#)



Light-Activated Tool Controls Protein Bonds and Tracks Cell Adhesion

A team at Tampere University worked with researchers at the University of Cambridge and the University of Pittsburgh to develop a way to use visible light to control irreversible protein binding. The new optical technique for fast, irreversible protein conjugation could be especially valuable in processes where a short initial signal leads to long-term changes in cell or tissue function. Examples include the regulation of gene expression during stem cell differentiation and the activation of immune cells in viral infections. [Read Article](#)



Imaging Algorithm Boosts Resolution Without Adding Noise

Researchers at Boston University developed an image deblurring algorithm that sharpens images via pixel reassignment. The new method, called deblurring by pixel reassignment, produces a deblurring effect like deconvolution, but without the drawbacks associated with conventional deconvolution algorithms. [Read Article](#)

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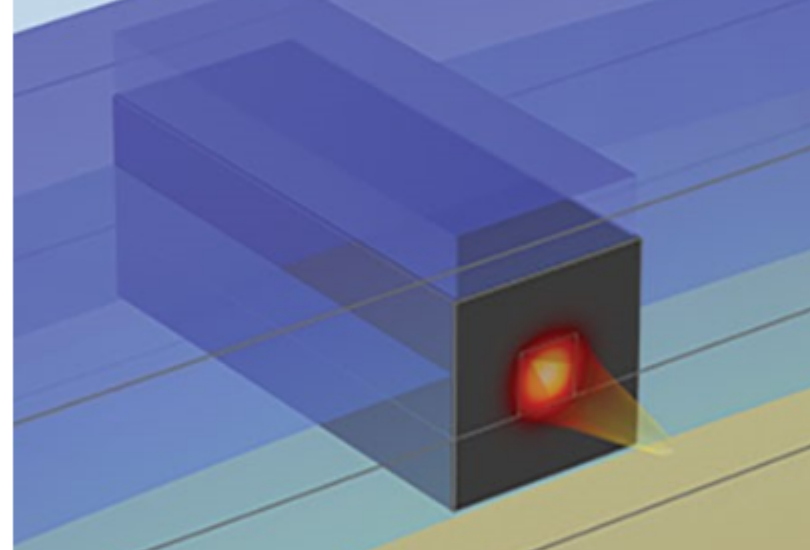
[Leibniz Institute to Open Centre for Photonics in Infection Research](#)

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Latest Webinars



Design and Optimization of Optical Waveguides

Thu, Nov 30, 2023 2:00 PM - 3:00 PM EST

Optical waveguides are important building blocks for many optical devices and systems. Well-known applications range from basic optical fibers to more complex multiphysical components, such as integrated optical modulators and semiconductor optoelectronic devices for telecommunication. Moreover, waveguide devices are widely used for optical sensing and high-quality fiber laser light sources. This webinar shares about modeling optical waveguides using the Wave Optics Module, an add-on to COMSOL Multiphysics®. It covers topics such as the construction of complex waveguide structures using basic waveguide parts, the analysis of mode fields and propagation constants, and the modeling of wave propagation along optical waveguides. A representative from COMSOL introduces multiphysics couplings and shows optimization strategies while also sharing how to build and maintain custom simulation apps based on specific models, for use by colleagues or customers. Presented by COMSOL.

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Quantum Efficiency Measurements: Fundamentals for Solar Cell Research, Part 1

Tue, Dec 5, 2023 1:00 PM - 2:00 PM EST

In today's energy-challenged world, clean energy topics are increasingly important, particularly with solar cell designs reaching new efficiency breakthroughs. This webinar series shares the fundamental measurements for a quantum efficiency system and how they apply to the research and design of a solar cell. Representatives from MKS Newport present an in-depth discussion of internal quantum efficiency (IQE), external quantum efficiency (EQE), and incident photon to charge carrier efficiency (IPCE). They also share a brief overview of clean energy demand, including the photovoltaics forecast and the effect on solar cell design. Specific requirements are needed to take these measurements are discussed as well as the key challenges researchers run into during experimentation. Finally, they touch on a typical testing process in multiple equipment configurations. Join MKS Newport experts to learn and dig into the world of solar cell design measurements and how to set up a lab for success. Presented by MKS Newport.

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