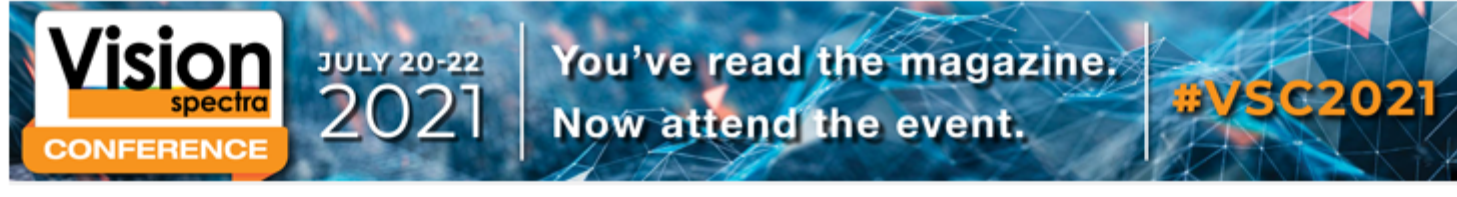


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Molecular Laser Opens Unique Spectral Window

The terahertz spectral region, which falls between the microwave and infrared ranges, is one of the most promising regions of the electromagnetic spectrum for research and industry, but it is currently underutilized in these areas. Due to its position within the electromagnetic spectrum, terahertz radiation has unique penetrating properties that make it highly attractive for spectroscopy and imaging applications across a wide variety of fields, including medical science, biology, security, astronomy, pharmaceuticals, materials science, and physics.



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Technique Aids in Copper Additive Manufacturing

Uppsala University researchers, in collaboration with graphene materials company Graphmatech, demonstrated a method for lowering the reflectivity of copper powder. The work could lead to more densely printed parts through laser additive manufacturing.



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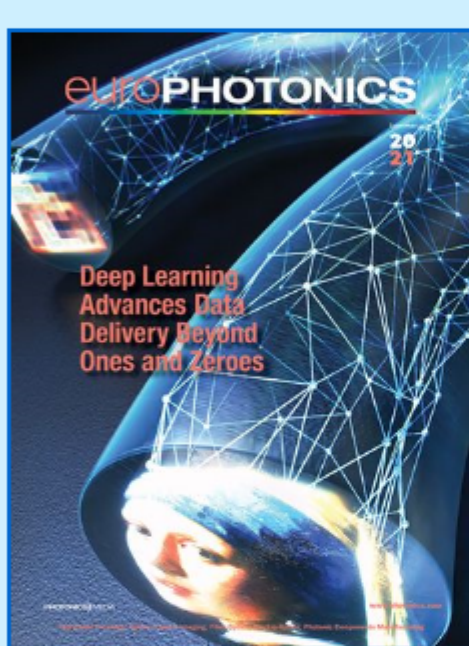
Multimode Fiber Relays Complex Image Data

Single-mode optical fibers are well known for revolutionizing high-speed telecommunications. Due to their low loss, they transport information encoded in light for kilometers-long distances. A single-mode fiber carries just one spatial mode — but at a very high modulation rate. The ever-increasing volumes and data-transmission speeds required by various industries, such as telecommunications and medical instrumentation, are creating demand for multimode fiber, which provides multiple spatial channels in the same fiber conduit.



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.: Vision Spectra Conference



Presentation: "Shrinking Pixels and Growing Sensors: Two Approaches for Increasing Resolution"

Presented by: Greg Hollows, Edmund Optics

The drive for continuous innovation in machine vision results in a constantly increasing demand for higher resolution. Sensor manufacturers can take two main approaches to meet demand: They can either shrink pixels, or increase sensor size. Both options come with tradeoffs, in terms of sensor performance, and with the imaging optics used with them. Because of fundamental limitations in the pixel size that can be successfully used with traditional imaging optics, the sizes of the sensor and mounting interface must increase to accommodate demands for higher resolution.

Greg Hollows, vice president of the Imaging Business Unit at Edmund Optics in Barrington, N.J., goes into the meaning of this trend for lenses; the challenges the trend introduces for builders of machine vision systems; and solutions for getting the most out of sensors and lenses.

The inaugural Vision Spectra Conference runs July 20 - 22. Registration is free for the event, which is offered exclusively online. For more information and registration, please visit www.photonics.com/vsc2021. Continued coverage of this inaugural event will also be available on vision-spectra.com and Photonics.com leading up to the conference.

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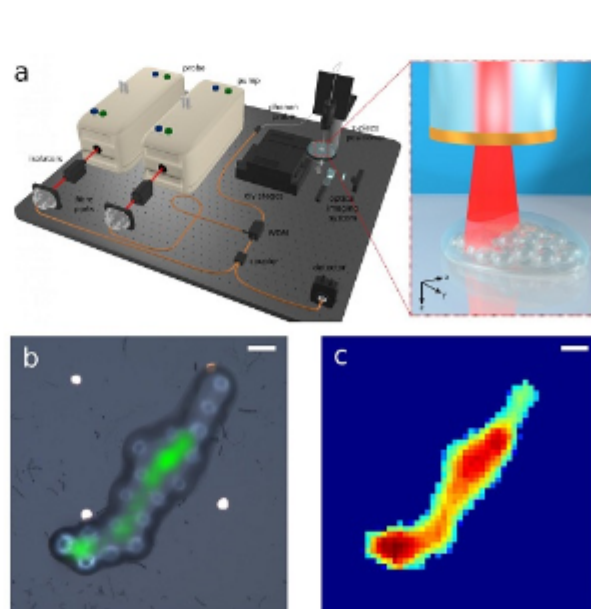
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Optical Fiber-Based Probe Enables Phonon Imaging in 3D

A University of Nottingham research team has developed a phonon probe device that can simultaneously access 3D spatial information and mechanical properties from microscopic objects. The probe operates at the GHz range, at which the wavelength of sound becomes comparable to ultraviolet optical wavelengths, providing opportunity for high-resolution imaging.



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Laser Experiment Shows Role of Memory in Stochastic Resonance

A laser experiment conducted by scientists at AMOLF (part of the Netherlands Organisation for Scientific Research) has enhanced understanding of the role of memory in stochastic resonance.

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Integrated Approach Emits Quantum Light on Demand, at Room Temperature

An integrated approach that uses a single-photon emitter embedded in a photonic waveguide, developed by researchers at KTH Royal Institute of Technology, could enable the transmission of large-scale quantum information over fiber optic networks. The KTH method emits photons in a deterministic (rather than probabilistic) fashion to deliver qubits on demand.

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VSELS, 3D Printing, EPIC Insights, and more.

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