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# PHOTONICS spectra®

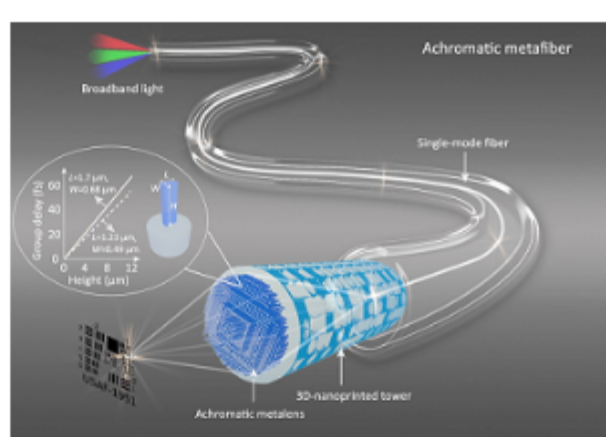
## IMAGING NEWSLETTER

The latest news, features, and product developments in imaging components and systems – brought to you by Photonics Media. Manage your Photonics Media membership at [Photonics.com/subscribe](https://www.photonics.com/subscribe).

### 3D-Printed Achromatic Metalens Brings Fiber Imaging Into Focus

Members of an international research collaboration optimized an optical glass fiber so that light of different wavelengths could be focused with extreme precision. The researchers designed and nanoprinted a 3D achromatic, diffractive metalens on the end face of a single-mode fiber. The developed achromatic metafiber, has a lens diameter of 100  $\mu\text{m}$  and an NA of 0.2.

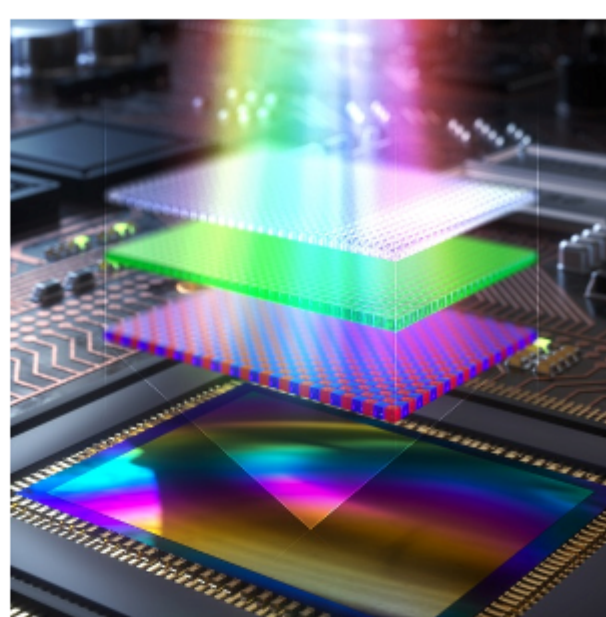
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### Researchers Design Highly Sensitive, Mass-producible Organic Photodetectors

Researchers from multiple institutions in South Korea developed and demonstrated green-light-absorbing transparent organic photodetectors that are highly sensitive and compatible with CMOS fabrication methods. Incorporating these photodetectors into organic-silicon hybrid image sensors could be useful for applications including light-based heart-rate monitoring and fingerprint recognition.

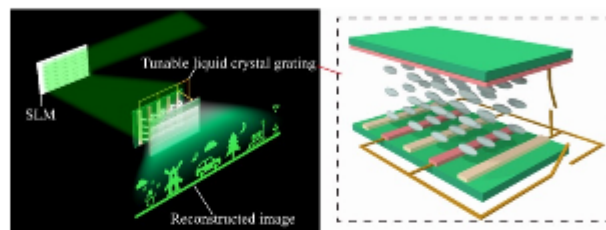
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### 3D Holographic Display Achieves Wide Viewing Angle

A Beihang University research team created a holographic 3D display system that enlarges image size through the simultaneous implementation of two different hologram generation methods. The system features a tunable liquid crystal grating with an adjustable period to widen the viewing angle.

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## .: Featured Products & Services



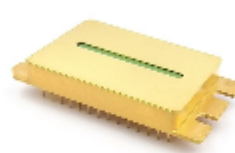
### [Fast and Feature-rich Alvid USB cameras](#)

**Allied Vision Technologies GmbH**  
Allied Vision expands its

Alvid USB camera series with new features and models featuring fast Sony 3rd generation IMX sensors.

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### [SWIR InGaAs Linear Sensor](#)

**Chunghwa Leading Photonics Tech Co. Ltd.**

Key applications include NIR spectroscopy, Agricultural sorting, web inspection, optical coherence tomography (OCT), NIR scanners, semiconductor inspection and process monitoring.

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## .: More News

### Imaging Method Reveals Obscured Objects to Make Autonomous Mobility Safer

The advent of autonomous vehicles, advanced spacecraft, and other technologies that rely on sensors for navigation has created a need for advanced technologies that can scan for obstacles, pedestrians, or other objects. Currently, obstructed objects pose a challenge for autonomous vehicles. A mechanism is needed to scan for hidden objects that may be in the vehicles' path.

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### Measurement-, Imaging-Based Monitoring Improves Pregnancy Outcomes

An optical technique for measuring placental blood flow and oxygenation in real time provides information about placental hemodynamics that could aid in the early detection of adverse pregnancy outcomes. The technique is the result of a collaboration between the University of Pennsylvania and the Children's Hospital of Philadelphia.

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### Add-On 3D Imager Enables Affordable Treatments for Eye Conditions

An ophthalmological device developed at the University of Strathclyde supports low-cost screenings for eye disease. The device captures 3D images of the retina and the back of the eye, as well as the cornea — which is an important feature for cornea transplant patients.

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### NASA Reveals First Exoplanet Images Taken by Webb Telescope

Astronomers from the University of Exeter in the U.K. used NASA's James Webb Space Telescope to capture the first direct image of a planet outside our solar system. The image, shown through four different light filters, demonstrates how the telescope's infrared capabilities can lead the way to observations that will reveal more information than previously possible about exoplanets.

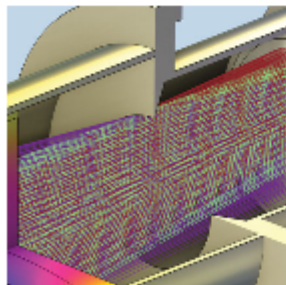
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### Nanostructures Advance Machine Vision Capabilities for Diverse Applications

Researchers at the University of Wisconsin-Madison, Washington University in St. Louis, and OmniVision described approaches to image sensor production that used integrated nanostructured components to improve multimodal imaging. The developments could allow autonomous vehicles to see around corners.

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## .: Upcoming Webinars



### Ray Optics Simulations

Wed, Nov 16, 2022 2:00 PM - 3:00 PM EST

Ping Chu, Ph.D., shares about optical ray tracing using the COMSOL Multiphysics® software and presents a live demo of the software. This demo shows how to create a fully parameterized geometry of a typical lens system, trace rays through the system, and postprocess the results. She also discusses more specialized ray features, such as the analysis of ray intensity and polarization. Finally, she explains how the Ray Optics Module, an add-on product to COMSOL Multiphysics®, can be combined with structural and thermal simulation for highly accurate structural-thermal-optical performance (STOP) analysis. Presented by COMSOL.

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