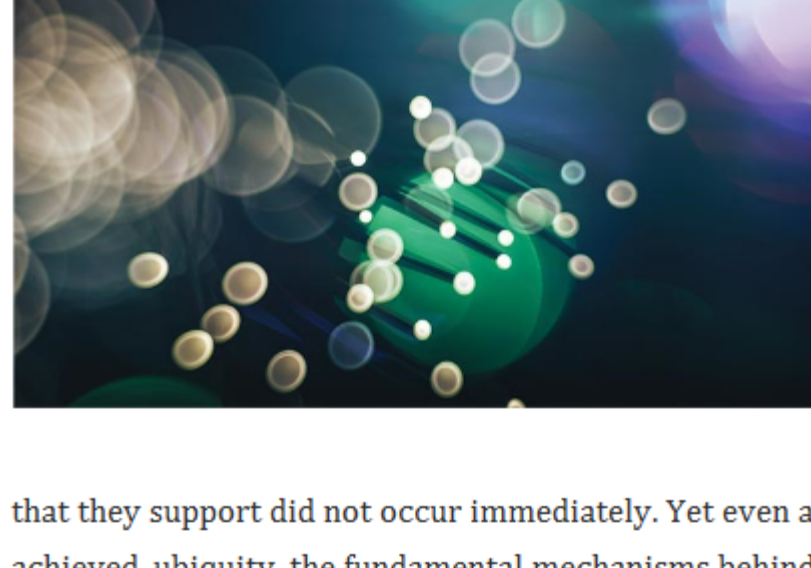




Monthly newsletter from the editors of Photonics Spectra, with features, popular topics, new products, and what's coming in the next issue. Photonics.com/subscribe.



Rare-Earth Doped Fibers Deliver Critical Elements to Dynamic Systems

Industry's favor for rare-earth doped fibers increased greatly in the last four decades. Erbium-doped telecom fiber amplifiers, for example, and ytterbium- or thulium-doped high-power lasers are widely used for many industrial and science applications. Following the development and introduction of these specialty fibers in the 1980s, the adoption of rare-earth doped fibers and the photonic systems

that they support did not occur immediately. Yet even as the use of these fibers advanced toward, and ultimately achieved, ubiquity, the fundamental mechanisms behind their performance are largely unchanged. [Read Article](#)



Bottlenecks in Process and Production Hinder Micro-LED Adoption

Manufacturing challenges, such as precision placement and process repeatability, which are necessary to ensure optimal performance in final systems, are a core driver of the high cost of micro-LEDs that are currently under development. Fabrication challenges have a direct tie to low production capacity. This is part of a troubling equation that the micro-LED industry is striving to rework. [Read Article](#)



Fine and Fast Metal Printing Meets Industrial Challenges in 3D

Two laser-based methods have taken precedence in additive manufacturing during the past several decades. In the first, the laser builds a larger 3D structure out of 2D contours in a powder bed. In the second, a material is deposited on a surface and melted by the laser to create a new surface. As is necessary of other laser processes, it is critical to strike a balance between precision and process speed. [Read Article](#)



Featured Products & Services



Liquid Crystal Polarization Gratings

Meadowlark Optics Inc.

These transmissive gratings efficiently (>99.5%) diffract circularly polarized light to the first positive or negative order, based on the handedness of the incident light. By incorporating fast electro-optic half-wave polarization retarders to control the handedness of polarization, we can develop custom LCPG devices and systems with a range of leading capabilities for Coherent Doppler Lidar, High-Definition Time-of-Flight Imaging, Non-mechanical Refocusing in Microscopy, and more.

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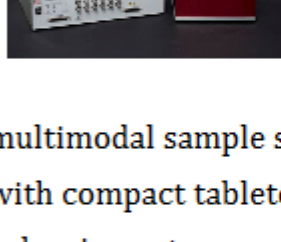
Cricket™2 - Advanced Image Intensifier Adapter

Photonis Netherlands BV

The Cricket™2 is a plug-and-play image intensifier camera attachment device enabling low light level imaging or single photon imaging functionality and extremely high shutter speeds for every CCD or CMOS camera. Equipped with industrial-leading Photonis Image Intensifier technology, and recognized for best value, Cricket™2 sets an unmatched standard for connectivity with scientific microscopes and cameras. For researchers who dedicate time to science rather than instrument setup.

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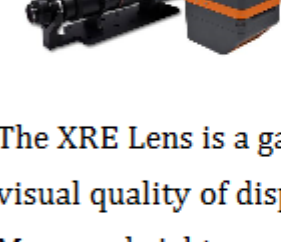
MadAFM™ sample scanning AFM

Mad City Labs Inc.

The MadAFM™ is a new multimodal sample scanning AFM. Simple to install with compact tabletop design. Includes Mad City Labs picometer precision nanopositioning systems to give outstanding AFM performance. User-friendly AFMView software features automated calibration and initialization. MadAFM™ is compatible with MountainsSPIP and Gwyddion analysis software.

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Near-Eye Display Test Solution

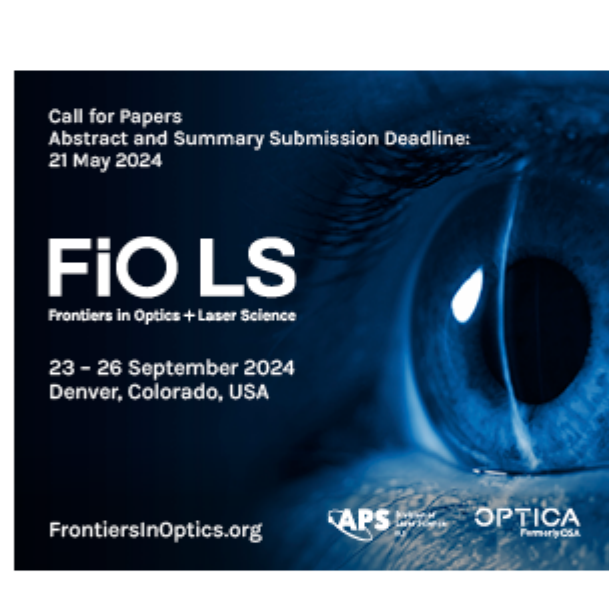
Radiant Vision Systems, Test & Measurement

The XRE Lens is a game-changer for evaluating visual quality of displays through XR headsets. Measure brightness, color, and image quality up to 70°. FOV and adjust electronic focus via software for multiple focal planes. Available in folded and non-folded configurations.

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In Case You Missed It

Mass-Production Method Aims to Drive Metalenses Toward Widespread Commercial Use

To support the mass production of metalenses for use in applications like lidar and miniature medical devices, researchers at Pohang University of Science and Technology and Korea University collaborated to develop two methods for the scalable, wafer-scale manufacture of metalenses operating in the NIR region. The techniques devised by the team could reduce the cost of metalenses production by as much as 1000x. [Read Article](#)

Researchers Develop Programmable Metafluid

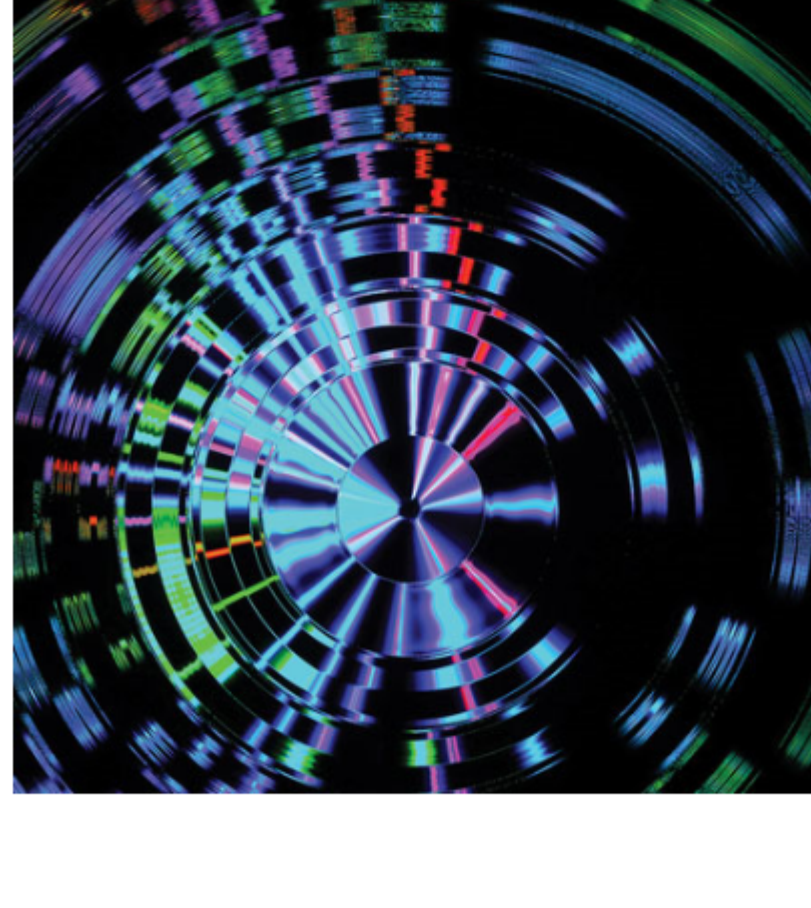
Researchers from the Harvard John A. Paulson School of Engineering and Applied Sciences have developed a programmable metafluid with tunable springiness, optical properties, viscosity, and the ability to transition between a Newtonian and non-Newtonian fluid. The metafluid could be used in everything from hydraulic actuators to program robots, to intelligent shock absorbers that can dissipate energy depending on the intensity of the impact, to optical devices that can transition from clear to opaque. [Read Article](#)

Photonic Chip Enables 160 TOPS/W Artificial General Intelligence

Researchers from Tsinghua University have reported the development of a photonic AI chiplet called "Taichi" which empowers 160 TOPS/W artificial general intelligence (AGI). Developments in the field of AGI impose strict energy and area efficiency requirements on next-generation computing. [Read Article](#)



Latest Webinars



Let's Talk About Metalenses

Wed, May 29, 2024 10:00 AM - 11:00 AM EDT

From the moment of their initial introduction, metalenses has ignited the minds of engineers working in the realms of optics and photonics. LightTrans International's team, the creators of the optics software VirtualLab Fusion, are dedicated to offering modeling and design tools that assist their clients in exploring the capabilities of metalenses in their respective applications. During this webinar, Frank Wyrowski shares strategies for the design and simulation of metalenses in common application contexts. He is eager to showcase cutting-edge advancements and discuss future plans for expanding these concepts in 2024. He aims to motivate the optics community to share their anticipations regarding the functionalities that an optics software should encompass for the utilization of metalenses. Presented by LightTrans International.

[Register Now](#)

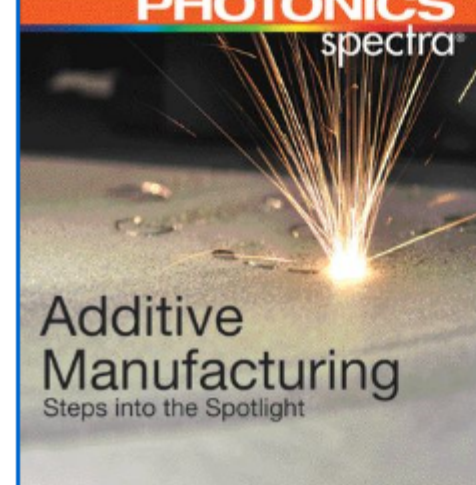
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Features

Visible Lasers, Laser Scanners, Reflective Optics, 3D Imaging, and Photonics in Sports

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