


# BioPhotonics


Bringing Light to the Life Sciences®

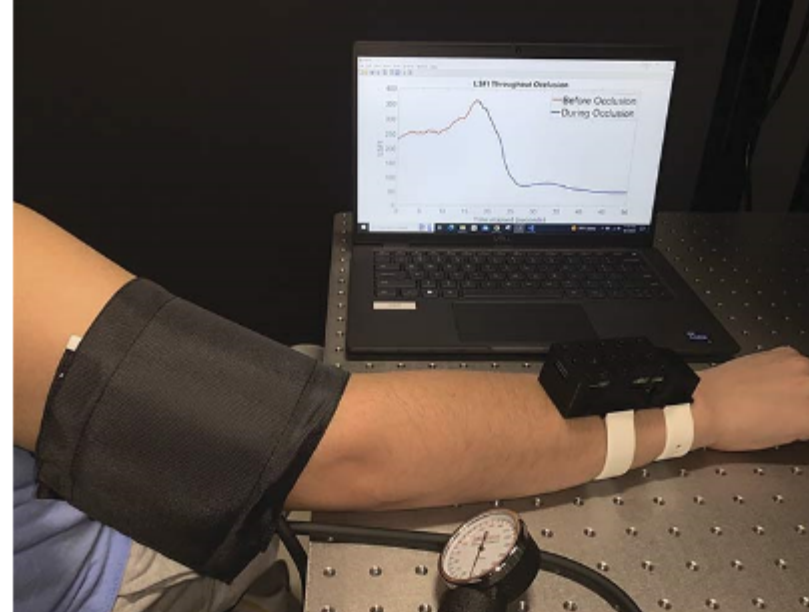
Monthly newsletter focusing on how light-based technologies are being used in the life sciences. Includes news, features and product developments in lasers, imaging, optics, spectroscopy, microscopy, lighting and more. Manage your Photonics Media membership at [BioPhotonics.com/subscribe](http://BioPhotonics.com/subscribe).



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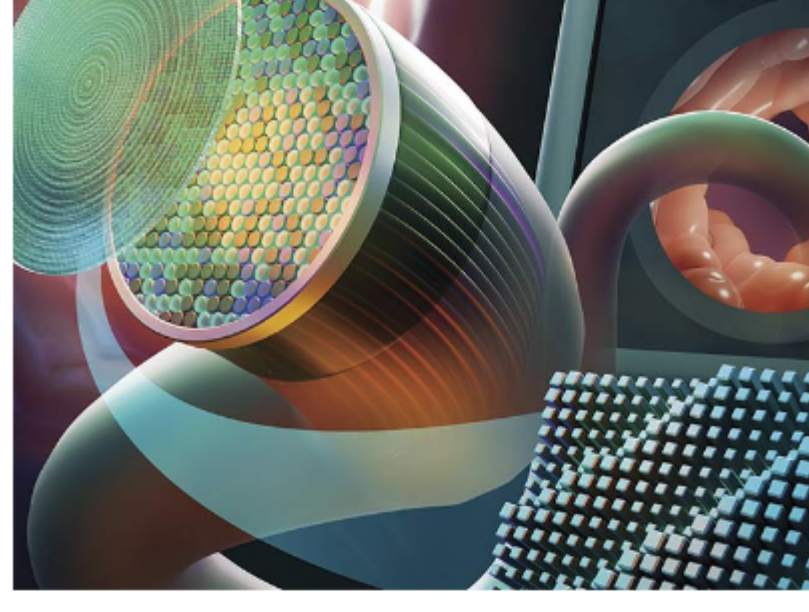




## Bringing Laser Speckle Imaging to the Point of Care

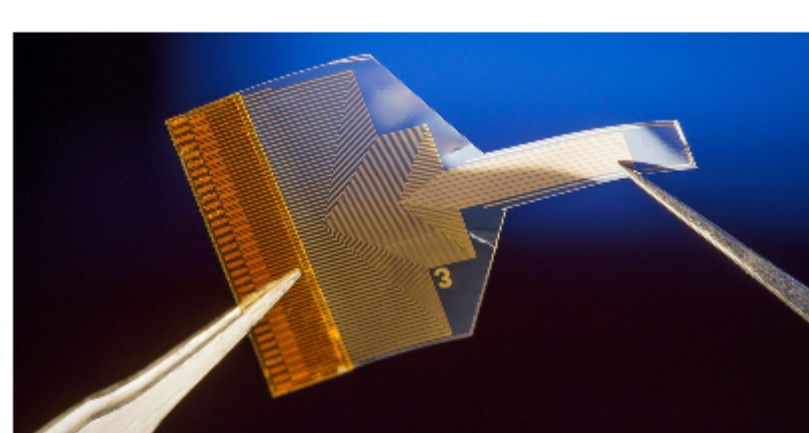
While laser speckle contrast imaging has historically been confined to a bulky benchtop configuration, multiple research teams have recently developed hand-held and wearable laser speckle systems. For these systems to be useful in a clinical setting, hand-held devices must be lightweight and compact enough to easily lift and move around while wearable users must be able to function normally. This requires careful selection and characterization of camera and laser components; for untethered systems, this requires small and inexpensive computation and battery modules, and intentional

hardware design. [Read Article](#)



## Single Fiber Endoscopy Records Neural and Vascular Detail

The growing incidence of chronic diseases around the world has driven the expansion of techniques to provide diagnosis at the source, which would ideally involve a minimally invasive — but detail-rich — application of technology. Clinicians are increasingly turning to the endoscope as a solution, and many modern instruments are based on fiber running through their core. [Read Article](#)



## AI-aided Implant Captures Deep Brain Images

A neural implant developed at the University of California San Diego could help advance the path to minimally invasive brain-computer interface technology. The implant provides high-resolution data about deep neural activity by recording at the brain's surface. [Read Article](#)



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flexible and easy-to-use light sheet configuration optimized for cleared tissue samples  
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## Featured Products & Services

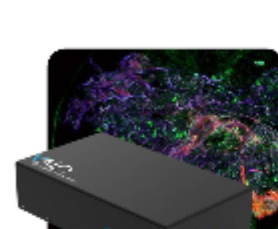


### BrixXHUB Ultra: Laser Light Engine

**Omicron-Laserer Laserprodukte GmbH**  
Introducing the BrixXHUB Ultra by Omicron-Laser, a highly integrated plug & play system ideal for widefield laser illumination. With up to 6 lasers and 6 modulation inputs, it offers unparalleled flexibility. Equipped with safety features, accessories, and seamless integration, it ensures optimal performance and adaptability.

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### Ultrafast Fiber Lasers: <50 fs, 2 W

**HUBNER Photonics GmbH**  
HÜBNER Photonics proudly announces the next

generation of the VALO femtosecond lasers. The new Tidal delivers pulse durations of typically 40 fs at 2 W of output power. Due to the exceptional peak power and the integrated dispersion pre-compensation unit it is an ideal tool for nonlinear applications like high harmonic imaging, broadband terahertz generation, and nonlinear wafer inspection.

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### Get More Data: Automate Your Microscope

**Zaber Technologies Inc.**  
Increase your microscope throughput, consistency, and walk-away time! Automate your existing microscopes with Zaber's motorized XY stages, sample holders, and mounting hardware available for a wide range of popular microscopes.

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### Ultra Precise Piezo-Z Focus Stage

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The stage is capable of XY resolutions down to 10-20 nm and Z resolutions to the 1-nm range. It can be used with rapid z-sectioning and autofocus systems. It prevents focus drift when used with our CRISP system.

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By popular demand, we've added an availability feature to our e-store shopping experience. By accessing our Custom Part Builder, users can now instantly check the availability of all Semrock optical filter sizes. Access this feature now through any product page to better assess the lead time for your order.

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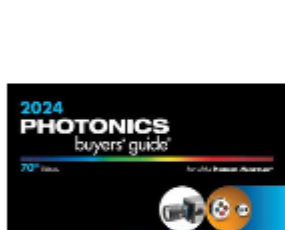
### Custom Microscopes and Optical Systems

**Prior Scientific Inc.**

Prior Scientific has developed OpenStand to offer a working platform to build OEM solutions and one-off customizations with excellent value for money and reduced development time. Whether developing new automation techniques and software or developing new imaging methods, you can quickly find that you need a microscope system tailored to your application.

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### Life Science Imaging Solutions

**Navitar Inc.**

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## More News

### Whole-Brain Big Data Processing Enables VR via Optogenetic Control

Inspired by the data processing techniques used in astronomy, researchers at the Chinese Academy of Sciences developed a big data processing system for neuronal activity. In the FX system, it operates in real-time to analyze large-scale, whole-brain neuron activity and facilitate the closed-loop study of brain functions. The FX system also enables whole-brain, optical interface-mediated virtual reality. [Read Article](#)

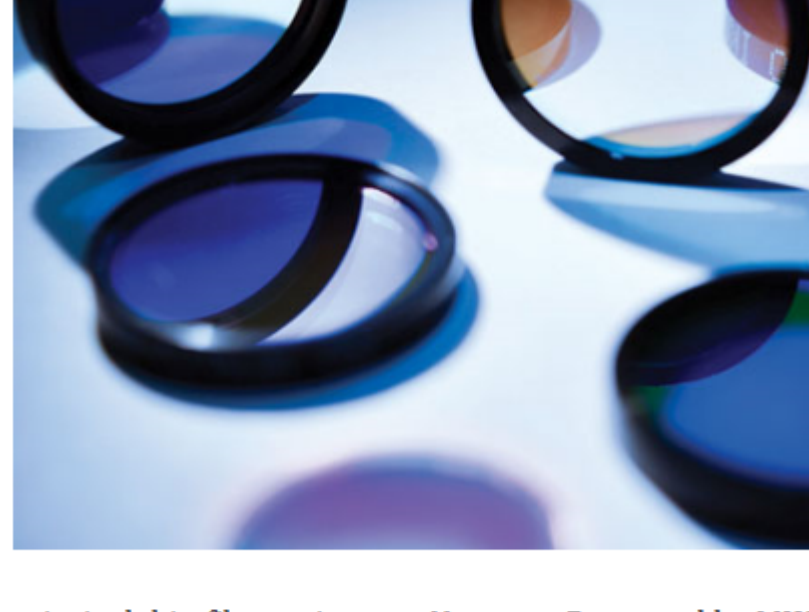
### Memory Element Enhances a Human Sight-Mimicking Quantum System

Collaborating researchers from Hong Kong, China, and Germany have developed a quantum sensing technology that encodes changes in fluorescence intensity into spikes that occur during optically detected magnetic resonance measurements. The image capture technology uses a neuromorphic vision sensor designed to mimic the human vision system. [Read Article](#)

### Luminate NY Names Cohort Seven Companies

Empire State Development has named the 10 companies selected in round seven of the Luminate NY accelerator program, investment fund, and competition. Each finalist will receive an initial investment of \$100,000 and will have the chance to compete for up to \$2 million in follow-on funding upon completion of the program. [Read Article](#)

## Latest Webinars



## Optical Filters: Application and Design Considerations

**Tue, Apr 23, 2024 1:00 PM - 2:00 PM EDT**  
Optical filters can discretely transmit or reject specific wavelengths or ranges of wavelengths of light. Utilizing this capability in photonics-based instruments creates the need for a better understanding of optical filter design considerations and how specifications influence performance and cost. Craig Hanson of MKS/Newport discusses the fundamental principles of optical coatings and filter types and explains the significance of filter parameters and the benefits of design review. He also explores accessory options and subsystem integration. Next Hanson unveils MKS's unique manufacturing processes and capabilities for custom optical filters from prototype to high-volume production. Finally, this presentation concludes with an open Q&A, for which Hanson is joined by Mark Roberts,

principal thin-film engineer at Newport. Presented by MKS Newport.

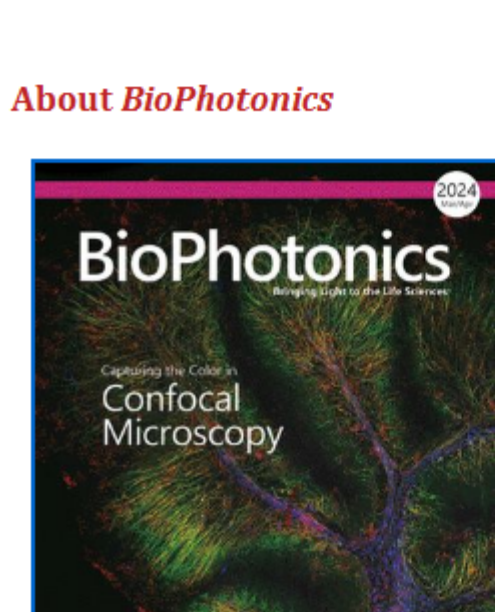
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## Next Issue:

**Features**  
OCT & Fiber Coupler, Quantitative Phase Microscopy, Multiphoton Microscopy & Deep Learning, and On-chip Spectroscopy

**Photonics Media** is currently seeking technical feature articles on a variety of topics for publication in our magazine *BioPhotonics*. Please submit an informal 100-word abstract to our Editor Doug Farmer at [Doug.Farmer@Photonics.com](mailto:Doug.Farmer@Photonics.com), or use our online submission form [www.photonics.com/submitfeature.aspx](http://www.photonics.com/submitfeature.aspx).

## About BioPhotonics



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