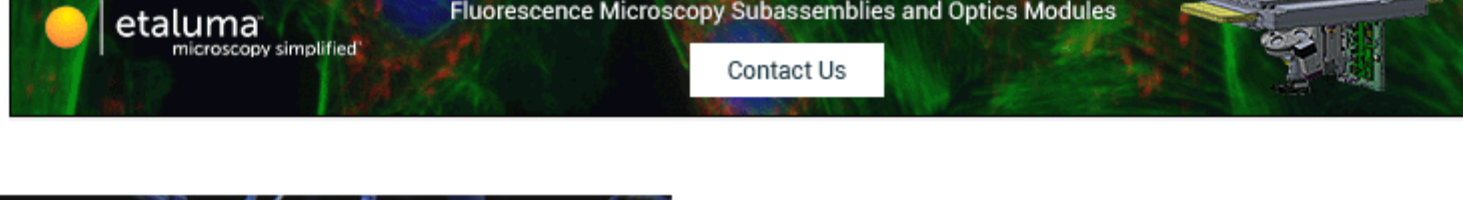


# BioPhotonics

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](https://BioPhotonics.com/subscribe).



**Commercial Ready Imaging with Automation**  
Fluorescence Microscopy Subassemblies and Optics Modules

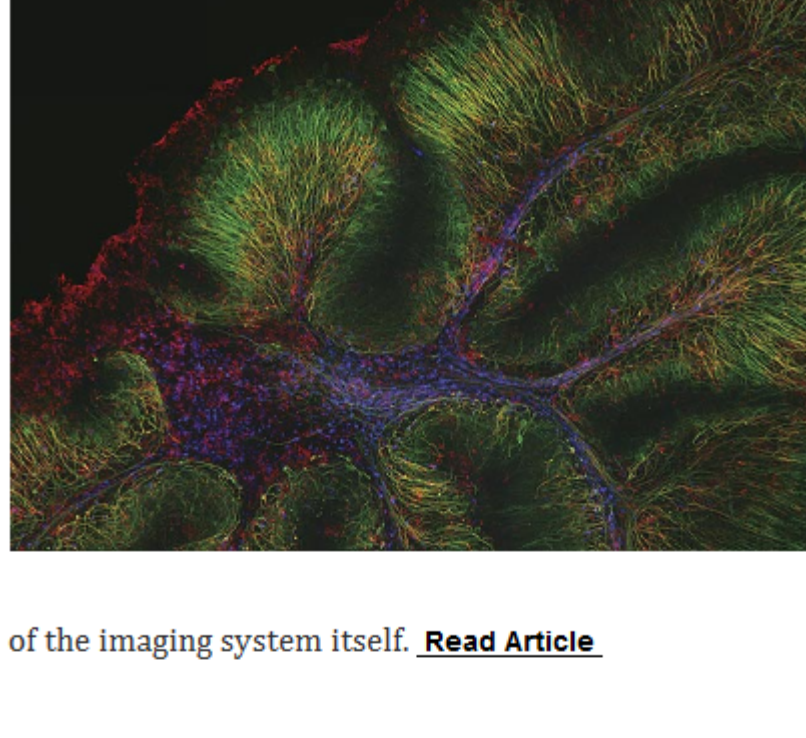
**etaluma**  
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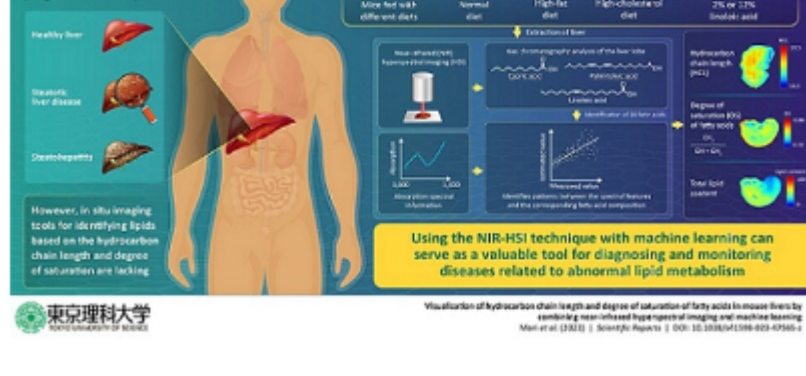
## Raman Spectroscopy Probes the Etiology of Amyloidogenic Disease

Raman spectroscopy has evolved as a powerful tool in the biomedical sciences to interrogate the chemical dynamics of biological systems. Recent advancements demonstrate the potential of Raman spectroscopy to visualize the 3D structures of proteins, permitting researchers to investigate the molecular structures of protein aggregates associated with amyloidogenic diseases, such as Alzheimer's, which are difficult to characterize using conventional tools in structural biology. [Read Article](#)



## Making the Photon Count in Confocal Microscopy

A laser scanning confocal fluorescence microscope is a valuable tool for researchers to make quantitative measurements in cells and tissue across various life sciences applications. The laser scanning confocal microscope's ability to block out-of-focus light and perform optical sectioning through a specimen allows the researchers to quantify fluorescence with very high spatial precision. However, generating meaningful data using confocal microscopy requires careful planning and a thorough understanding of not only this imaging technique but also the hardware capabilities of the imaging system itself. [Read Article](#)



## Machine Learning Hones Ability to Image Liver Disease

A research team at the Tokyo University of Science has combined NIR hyperspectral imaging and machine learning to assess lipid content in the liver. The technique enables noninvasive diagnosis of steatotic liver disease, previously known as nonalcoholic fatty liver disease, which includes a range of conditions caused by fat buildup in the liver due to abnormal lipid metabolism. [Read Article](#)



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**PHOTONICS spectra**

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## Featured Products & Services



### See3CAM\_50CUG: High-Sensitivity Medical Camera for Noiseless Imaging

e-con Systems Inc.

See3CAM\_50CUG: A 5MP global shutter USB camera with a large sensor size of 2/3" with a pixel size of 3.45 μm, high Signal-to-Noise Ratio (SNR), good dynamic range, global shutter efficiency, NIR Performance, long and short exposure making it a perfect fit for medical and life science applications.

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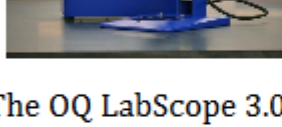
### BrixXHUB Ultra: Laser Light Engine

Omicron-Laserage 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. See it at Booth 41, FOM Genoa.

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### OQ LabScope 3.0 with 3D Rendering

Lumedica Inc.

The OQ LabScope 3.0 is a bench-top spectral domain OCT imaging system built for biomedical research and industrial inspection. Systems start at \$11,995. Acquisition and visualization software is included. Lumedica OCT systems are available at a variety of imaging rates and resolutions to meet your imaging requirements.

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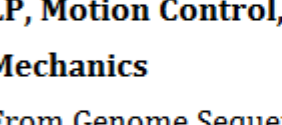
### Ultra-Precision Microscopy Demo

Zaber Technologies Inc.

Get fast, repeatable, and reproducible scan results. With 500-nm repeatability, the X-ADR-AE microscope stage consistently returns to your exact target location, while 750 mm/s top speed offers unmatched throughput. Watch a demo of the X-ADR-AE approaching a target repeatedly at 100x magnification.

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### Fastest Nano-Focus Stages

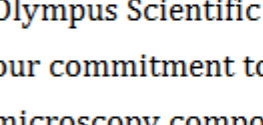
PI (Physik Instrumente)

LP, Motion Control, Air Bearings, Piezo Mechanics

From Genome Sequencing to Super Resolution Microscopy – nanometer precise motion control is essential for success. When throughput is critical, speed is king. PI provides the fastest nano-focusing stages – both piezo- and voice-coil driven, maintenance-free, ideal for fast focusing and autofocusing tasks.

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### OEM Microscopy Components

Evident

Olympus Scientific Solutions is now Evident, but our commitment to manufacturing high-quality microscopy components and optics is unchanged.

Evident OEM components seamlessly integrate into large systems to provide the exceptional optical quality you need to deliver a high-quality final product.

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### CRISP Autofocus System

Applied Scientific Instrumentation Inc.

The Continuous Reflection Interface Sampling and

Positioning system (CRISP) is designed to maintain focus over time. It substantially eliminates focus drift in high-power microscopy applications by sensing minute changes between the objective lens and the sample's cover slip.

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### LS850 Fully Automated Microscope

Etaluma Inc.

The LS850 Microscope is the latest generation of our fully automated three-channel flagship model and offers the latest advances in optics, cameras, throughput, and user flexibility delivering image quality, motion speed, illumination, and software flexibility.

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Photonics Media

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includes 30 articles from the Photonics Handbook. Use coupon code **HP24** for a special offer!

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### Custom Optical Assemblies

Rocky Mountain Instrument Co. (RMI)

Custom optical assemblies for your life science applications including microscopy, spectroscopy, and biotech imaging. Proven technologies in fast prototyping, design consultation, and vertically integrated manufacturing.

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## More News

### Spiral Lens Extends Focal Length and Depth of Vision in Changing Conditions

A new, spiral-shaped lens could make consistently clear vision possible for people with lens implants or age-related farsightedness. The spiral diopter works similarly to progressive lenses used for vision correction, while foregoing the often-found distortions. Its spiral shape creates many separate points of focus, allowing the user to see clearly at different distances and in various light conditions. [Read Article](#)

### Terahertz Biosensor Allows Early Skin Cancer Detection

Researchers have developed a biosensor using metasurfaces to detect terahertz radiation, a development that enables early detection of skin sensor. The work is the result of a collaboration between Queen Mary University of London and the University of Glasgow. [Read Article](#)

### SPAD Elevates Spatiotemporal Resolution in Conventional Microscopes

Researchers at the Italian Institute of Technology in Genoa developed a compact and effective image scanning microscopy microscope equipped with a single avalanche diode (SPAD) array detector capable of providing high-resolution structural and functional imaging in a single architecture. The reported SPAD array detector consists of 25 independent diodes arranged in a square grid. The small size and the asynchronous read-out enable fast detection of impinging fluorescence photons. [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 Newport'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.

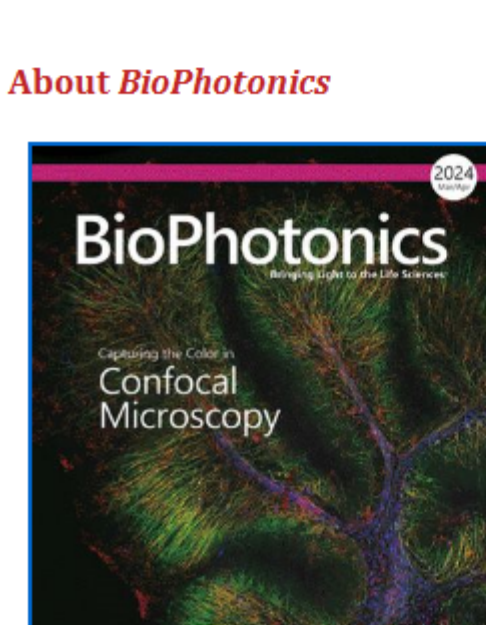
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## Next Issue

**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 Senior 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).

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