

# BioPhotonics

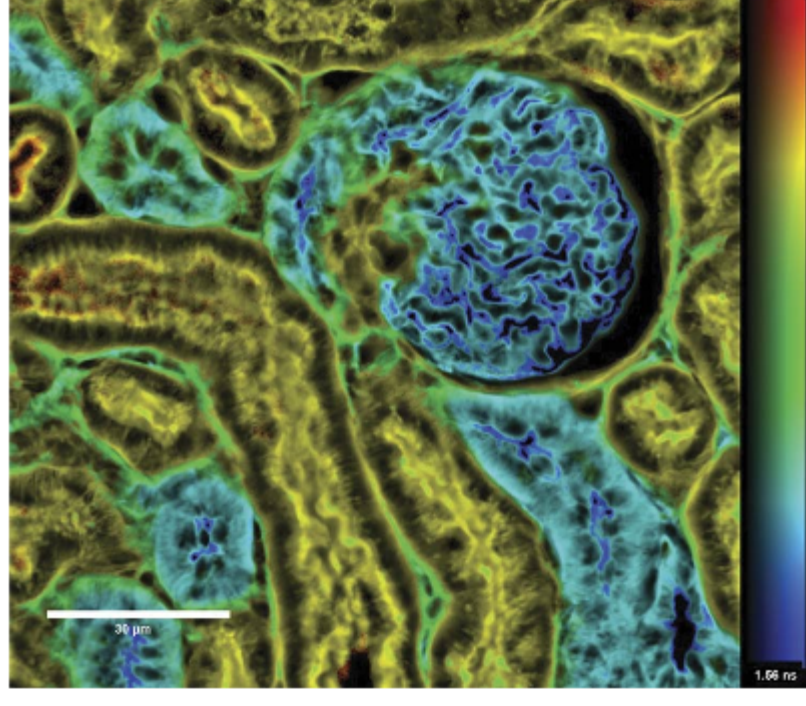
Bringing Light to the Life Sciences®

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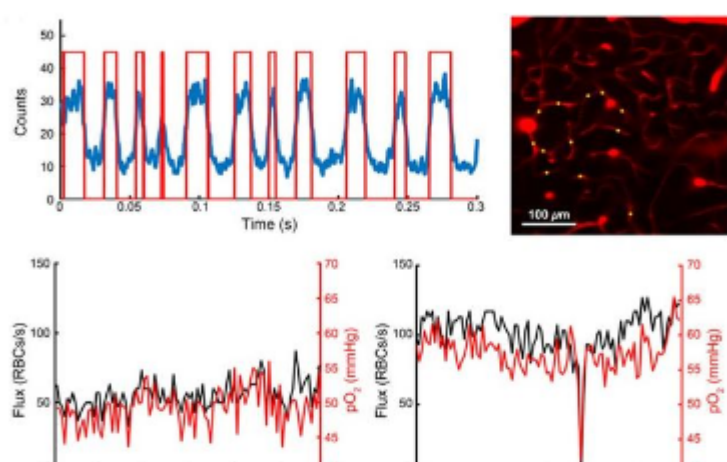
## Fluorescence Lifetime Imaging Microscopy Provides Molecular Insights in Neurology

Fluorescence lifetime imaging microscopy (FLIM) is rapidly becoming a transformative tool in neurology, enabling the visualization of molecular and metabolic processes in living brain tissue and other samples with unprecedented detail. FLIM provides contrast based on the local biochemical environment, independent of fluorophore concentration or photobleaching, by measuring the excited-state lifetimes of intrinsic or extrinsic fluorophores. [Read Article](#)



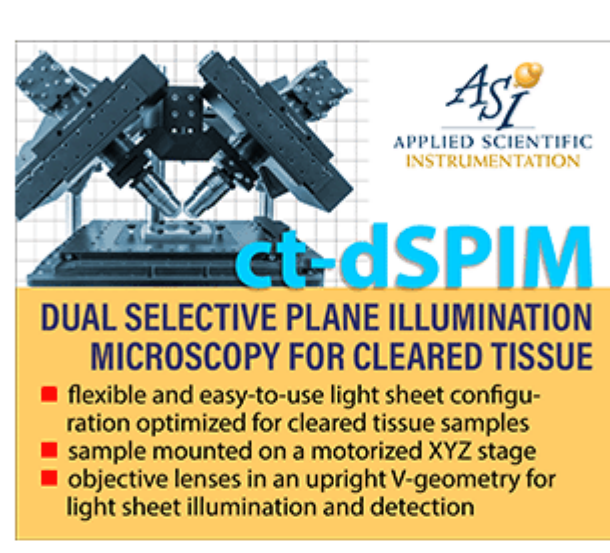
## Functional Near-Infrared Spectroscopy Targets Changes in Brain Metabolism

Functional near-infrared spectroscopy was once confined to stationary, wired systems that limited studies to controlled laboratory environments. But today's devices using this technology are lighter, wireless, and designed for true portability and clinical applicability. Ongoing research could change how the medical community views the utility of NIRS, expanding its use in neurodegenerative and neurodevelopmental disorders, rehabilitation, and psychiatry. [Read Article](#)



## Microscopy Connects Hypoxia in Brain to Stalled Blood Flow

Using high-resolution imaging with two-photon phosphorescent lifetime microscopy, researchers learned that even brief interruptions in blood flow to capillaries in the brain can cause rapid, localized drops in oxygen that probably extend into nearby brain tissue. These stalls in blood flow, in the smallest vessels in the brain, could play a role in brain diseases like stroke, Alzheimer's disease, and traumatic brain injury, where such disruptions are common. [Read Article](#)



## Featured Products & Services



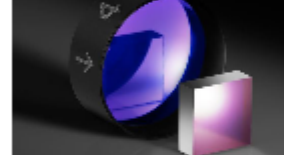
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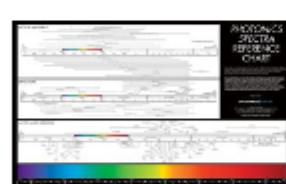
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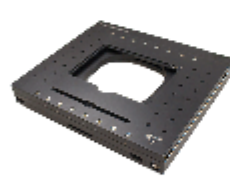
**Photonics Spectra Reference Chart**

**Photonics Media**

This full-color, 29.5 × 20.5-inch poster of the photonics spectrum displays the major commercial laser lines, detectors, and optical materials in the ultraviolet to the far-infrared and beyond. The convenient format makes it easy to quickly find the information you need.

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**RM-1250 GEN II STAGE**

**Applied Scientific Instrumentation Inc.**

The RM-1250 XY stage is the culmination of designing and manufacturing automated XY stages for demanding customers. A flat top, flat bottom, and multiple mounting configurations make it easy for laboratories and manufacturers to integrate it into existing systems. No detail went unexamined in the design of the RM-1250 Gen II.

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## More News

### Minerva Engineering, Microspectroscopy Solutions Provider, Launches in South Korea

Minerva Engineering, a specialized provider of microspectroscopy instruments and systems, has debuted as an independent company. Minerva Engineering's technology supports nondestructive testing at micro- to submicron scales, with solutions designed to handle microscopic samples across the UV-visible-NIR range. [Read Article](#)

### AI Tool Uses Microscopy and Machine Learning to Spot Potential Cancer Source

Chromosomal abnormalities that occur during cell division can affect the cell's health, in some cases causing a normal cell to become cancerous. The role of these aberrations in the progression of cancer, and the baseline rate at which they occur, remain poorly understood. [Read Article](#)

### Scattered Light Imaging Can Map Tissue Fibers at Micron Resolution

The billions of nerve fibers in the brain form a dense network that controls neuronal function and connectivity. The degeneration of these fiber networks causes disruptions in neural connectivity, leading to neurological disorders. [Read Article](#)

## Next Issue

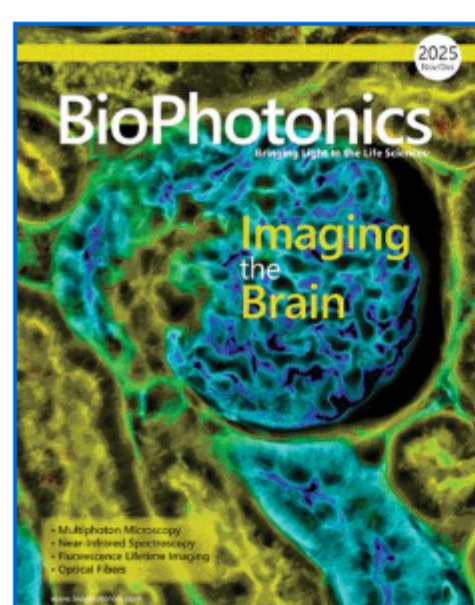
### Features

Raman Spectroscopy, Femtosecond Lasers & Fluorescence, Optical Filters, Superresolution Microscopy

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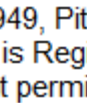


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