

BioPhotonics

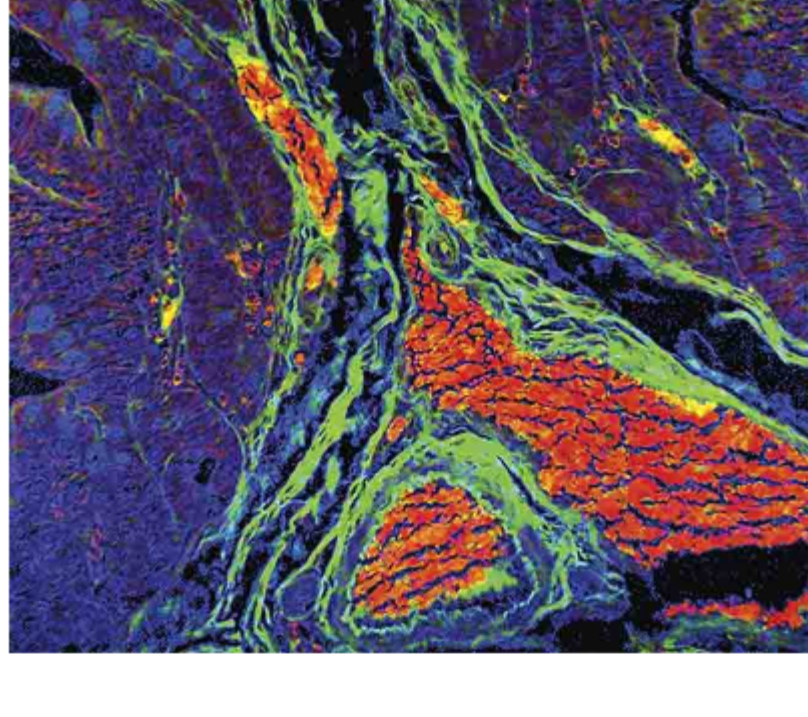
Bringing Light to the Life Sciences

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.



Step Through the Spectrum with **Budget-Friendly** Optical Filters Designed for **Essential** Performance

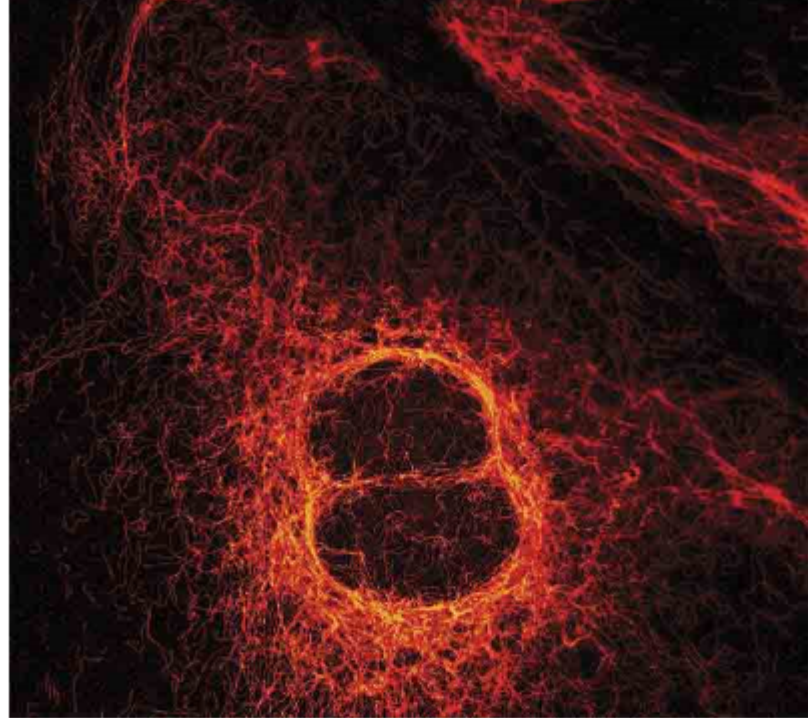
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FLIM Analysis Enhanced with Phasor Plotting Aids Quantitative Biology

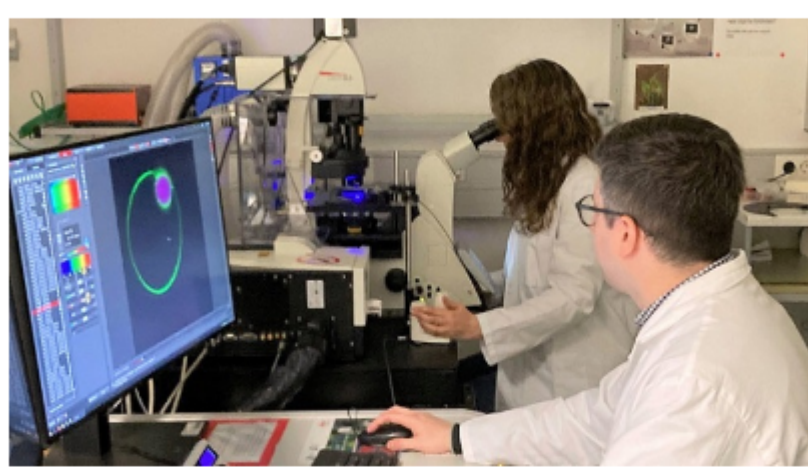
With the peculiar selectivity of probes, fluorescence lifetime imaging can provide quantitative information about the probe microenvironment. This capability has proved to be valuable in key life sciences research areas. Traditional methods for determining fluorescence decay times involve fitting analysis at each image pixel, which requires expertise in selecting fitting models and statistical tools. In response, a graphical method, called the phasor plots, has been developed, bypassing assumptions about specific decay modeling.

[Read Article](#)



STED Microscopy Uncovers Signals Between Molecules

Scientists are using stimulation emission depletion microscopy in modern research to observe the way in which DNA binds and how these basic, but intricate, building blocks interact with each other in their biological environment. Often leveraging deep learning algorithms, these observations can lead to a greater understanding of the sophisticated mechanisms by which life evolves and adapts to its surroundings. [Read Article](#)



Photoswitchable Biosystems Make Way for Intelligent Drug Delivery

A team from the Max Planck Institute of Colloids and Interfaces, led by researcher Rumiana Dimova, demonstrated that interactions between a synthetic cell membrane and glycinin protein condensates integrated in the cell can be manipulated with light, and that such modulation can lead to endocytosis of the condensates. [Read Article](#)



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Rapid Automated Modular Microscope — Modular Infinity Microscope

Applied Scientific Instrumentation

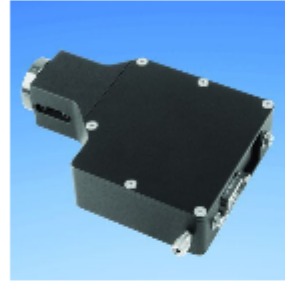


BioPhotonics
Bringing Light to the Life Sciences

CONFERENCE

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Featured Products & Services



CRISP Autofocus System

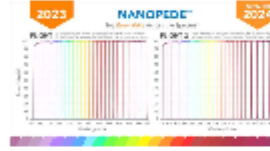
Applied Scientific Instrumentation Inc.

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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More News

Researchers Shrink Titanium-Sapphire Laser to Chip-Scale

Making a jump from tabletop to the microscale, engineers at Stanford University have built a titanium-sapphire (Ti:sapphire) laser on a chip. According to the researchers, the prototype is four orders of magnitude smaller (10,000×) and three orders less expensive (1,000×) than any Ti:sapphire laser ever produced. [Read Article](#)

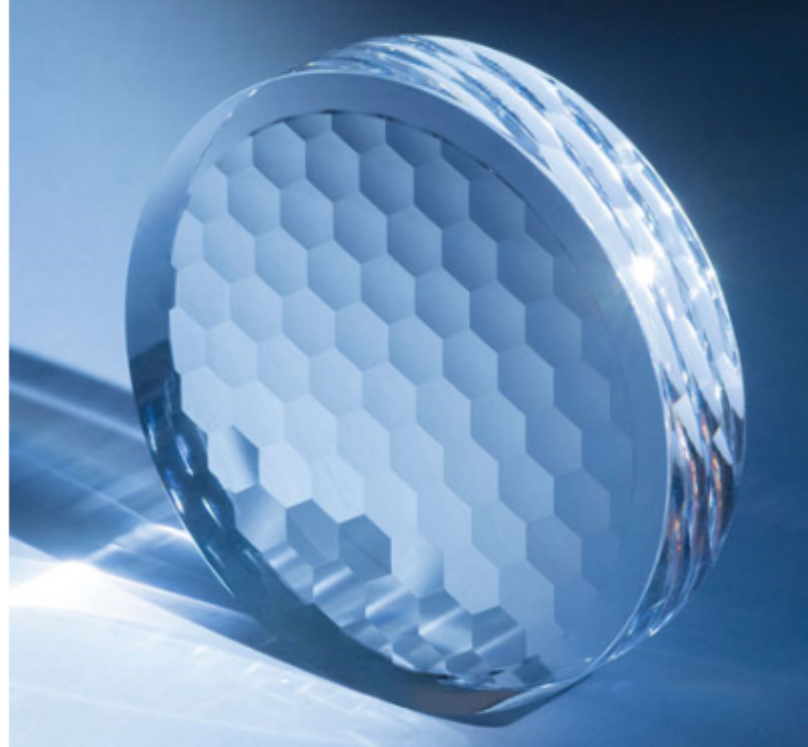
Cytometer Detects Rare Cancer Cell Subpopulations Concurrently

A new flow cytometry system could help scientists develop more targeted, personalized strategies for treating cancer by enabling them to follow disease progression and therapeutic response in different cancer cell subpopulations simultaneously. The technique, called diffuse in vivo flow cytometry, was developed by researchers at Northeastern University and Dartmouth College. The method noninvasively detects fluorescent protein-expressing circulating tumor cell subpopulations and tumor cell clusters within the bloodstreams of small animals. [Read Article](#)

Cellphone-Based Raman Spectrometer Recognizes Materials in Minutes

Scientists, medical personnel, and others will be able to quickly identify drugs, chemicals, and biological molecules with a handheld device for Raman spectrometry invented by a team at Texas A&M University. The portable Raman spectrometer is suitable for use in remote settings where laboratory-based spectrometers are impractical due to their large size, cost, and power demands. [Read Article](#)

Latest Webinars



How to Improve Laser Applications Using Freeform Optics

Wed, Sep 4, 2024 10:00 AM - 11:00 AM EDT

This presentation provides a landscape of the freeform concept, design, product, and modules of laser systems that are available for managers and designers of laser systems and applications that must deliver a performance enhancement that is difficult to obtain with conventional optics. Freeform optics are an elegant solution for beam shaping and aberration correction and allow optimization of laser applications. However, freeform optics are often regarded as difficult to design, difficult to incorporate into optical systems, expensive to make, and limited in optical performance. As a result, they occupy a small niche in the photonics industry. This webinar shows that there are easy, cost-effective ways to design, manufacture, and integrate solutions for high-grade, high-performance, fused silica freeform optics to

enhance laser systems and applications. Kidd shares examples of some of the most prevalent and important laser applications to show the technical and financial impact of using freeform optics solutions. These include coherent beam combing for laser-induced fusion and other directed energy applications as well as blue laser beam shaping for the welding of lithium-ion batteries and other electric vehicle components. Presented by PowerPhotonics.

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Next Issue

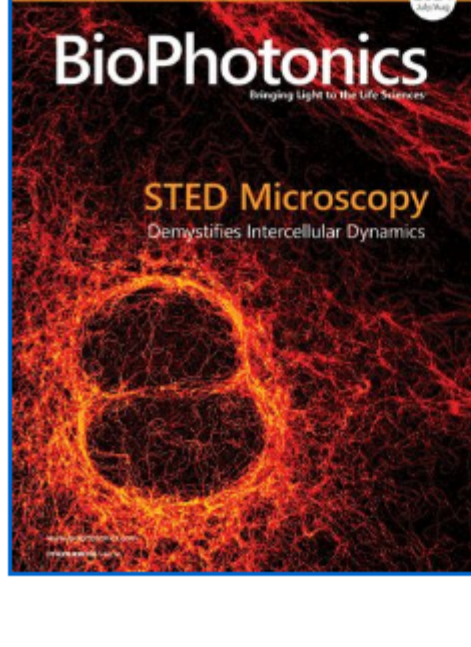
Features

Tunable Light Sources, Silicon Photonics & Biomedical Applications, Surface-Enhanced Raman Spectroscopy & Diagnostics, and Precision Motion in Biological Applications

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