

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 Photonics.com/subscribe.

CRISP Autofocus System

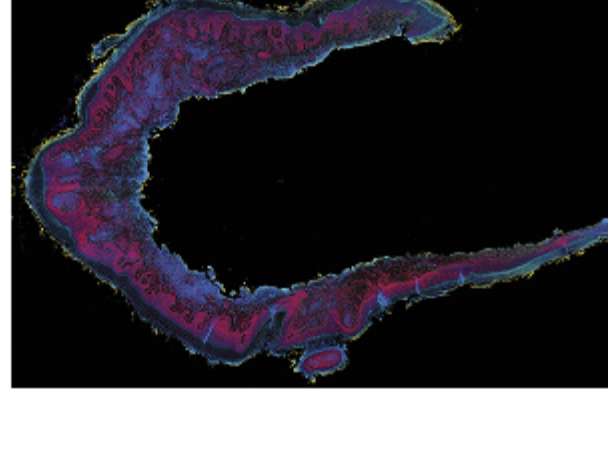
CONTINUOUS REFLECTION INTERFACE SAMPLING AND POSITIONING

- universally C-mountable
- maintains focus while scanning
- fast, fully automated control



Photoacoustic Remote Sensing Reveals Clues About Cancer, Blindness

As microscopic optical inspection techniques have progressed over the years, they have provided valuable insights into the composition, structure, and function of cells and subcellular structures, transforming the way researchers and clinicians look at human tissues. Today, thanks to the refinement of photoacoustic microscopy, clinicians and researchers can visually assess cellular-level structures and functional information to better understand cancer and inspect the inner workings of living eyes to evaluate the root causes of blinding diseases.



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Hyperspectral Imaging Tracks Blood Oxygen Levels, Aiding in Disease Treatment

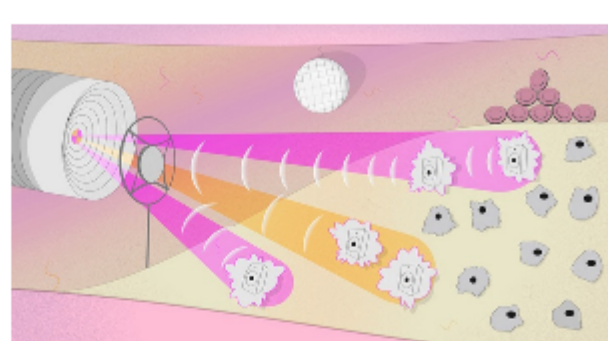
The measurement of blood oxygen levels, or oxygen saturation (SpO2), is a critical medical diagnostic parameter. Levels below 95% are considered abnormal and called hypoxemia, or blood oxygen deficiency. This condition is associated with patients suffering from many conditions, including asthma, heart disease, chronic obstructive pulmonary disease, anemia, and an obstruction of an artery in the lung due to a blood clot. SpO2 is monitored in patients with these conditions, as well as in patients presenting with life-threatening cyanosis, a bluish-purple discoloration of body tissue.



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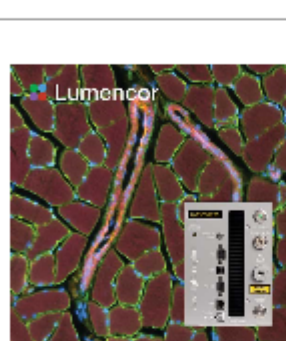
Optoacoustic Probe Spots Harmful Plaque Within Blood Vessels

Researchers at Skoltech are a step closer to a working optoacoustic endoscopic probe — a device that could slip inside a blood vessel and analyze atherosclerotic plaques by shining laser light on them and making them vibrate like a speaker membrane. This effect would cause the plaques to betray their chemical composition with an ultrasound signature. The method, if it can be achieved, would prove useful for robotic microsurgeries and medical diagnostic procedures.



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Featured Products



AURA Light Engine: Ideal OEM Solid-State Illumination

Lumencor Inc.
Lumencor's AURA Light Engine® delivers

unprecedented power, stability and reproducibility with bright, solid-state light sources and advanced electronics. This fluorescence excitation subsystem is an ideal platform for instrument manufacturers (OEMs), enabling precise quantitation...

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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 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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Ultrafast Fiber Lasers with <50 fs

HUBNER Photonics GmbH
HÜBNER Photonics' VALO

Aalto femtosecond fiber lasers have pulse durations of <50 fs and peak powers of >2 MW from compact and stable turn-key systems. The lasers have very attractive features for applications in bioimaging, spectroscopy and micro-machining.

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KeyLight™ by Phoseon Technology

Phoseon Technology Inc.
"KeyLight™ is a compact light source that supports 3-7 channel fluorescence

microscopy systems. It brilliantly illuminates your results by delivering intense, broad-spectrum UV and visible wavelengths for a wide variety of colors between 340 nm and 760 nm."

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Product Development through Manufacturing and Assembly

Optikos Corporation

Optikos brings 40 years of engineering expertise to serve the development needs of a diverse portfolio of life science clients — from design through manufacturing and assembly in our extensive clean facilities.

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Microscope Slide Power Sensor

MKS/Newport
The 818-MSCOPE is a

Microscope Slide power sensor that measures the optical power at the sample plane in a microscopy setup. The silicon photodiode measures from 350 nm to 1100 nm at optical powers ranging from 3 μW to 1 W and is designed to be a microscopy power sensor that answers the needs of fluorescence...

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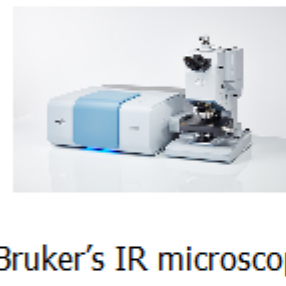
OpenStand Custom Microscopes

Prior Scientific Inc.

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 and business needs. Prior Scientific has developed OpenStand® to offer a working platform to build OEM solutions and one-off customizations...

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NEW from Bruker - HYPERION II - FPA/FTIR/IR Laser Imaging Microscope

Bruker Optics Inc.

Bruker's IR microscope HYPERION has always been synonymous with sensitivity and versatility. For more than 20 years, it has pioneered FT-IR imaging and left its mark in countless high-profile publications. With the newest HYPERION II Laser Imaging Microscope, we remain true to our reputation as an innovation leader.

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Lumencor
SOLA Light Engine
Bright, Long-lived, Solid-state Lamp

PHOTONICS marketplace

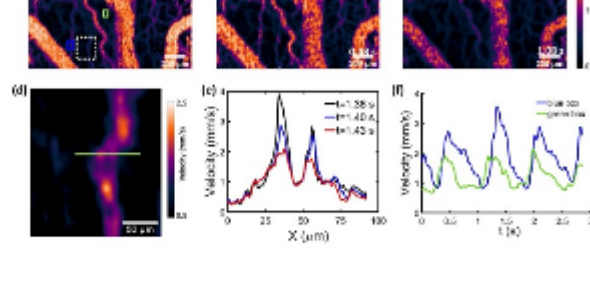
Find suppliers, buy products, and learn about photonics.

www.photonicsmarketplace.com

In Case You Missed It

Laser Speckle Method Captures Blood Flow in Microvasculature

Researchers at the National University of Singapore developed a confocal laser speckle autocorrelation method to image dynamic flow in microvasculature. The technique is label-free and enables real-time and quantitative imaging of blood flow on the microscopic level.



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Light and Fluorescent Dye-Based Device Prevents Tooth Decay

An optical device in development at the University of Washington could help prevent tooth decay by identifying at-risk teeth before cavities start to develop. The prototype, called O-pH, uses a low-power light system and an FDA-approved fluorescent dye solution to noninvasively measure oral biofilm acidity on tooth enamel and provide quantitative feedback.

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Microscope Marks Head-Mounted Advance Toward Treating Neurological Disorders

Researchers from the University of Colorado Boulder, the University of Colorado Anschutz Medical Campus, and Arizona State University have developed a head-mounted, lightweight, fluorescence microscope that provides full 3D imaging and enhanced contrast in scattering tissue through optical sectioning.

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Upcoming Webinars

Measuring Long-Wavelength Lasers with IR Cameras, Pyroelectric Scanning-Slit Sensors, and Wavelength Conversion Apparatus

Wed, May 4, 2022 1:00 PM - 2:00 PM EDT

Numerous products and techniques have been developed to enable measurement of the beam quality parameters for long wavelength light sources. Kevin Kirkham, senior manager of new business development for Ophir at MKS Instruments, presents on the types of measurement tools available for long wavelength sources and helps determine which tools are appropriate for different applications. While there are many considerations that can significantly impact the laser process, an understanding of performance qualities can ensure users see successful outcomes. Presented by Ophir.

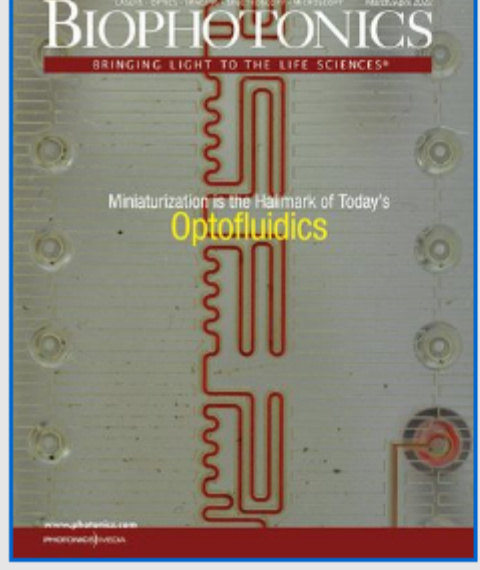
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Next issue:

Features
Endoscopic Cameras, AI & Slide Scanning, QCL-IR Microscopy, Spectroscopy & Disease

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