

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.

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From the Editor's Desk

Lasers Keep Crows Out Of The Corn

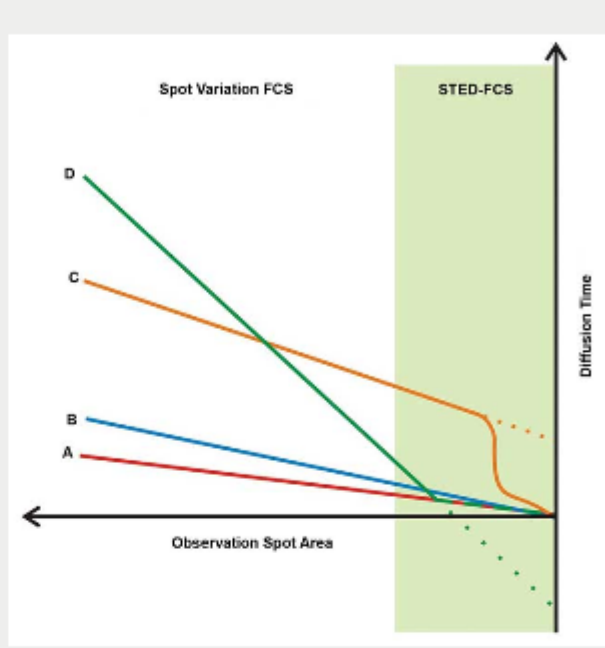
From mid-July through October, just as New England sweet corn crops ripen, flocks of blackbirds, starlings, grackles and crows swarm and strip the fields, inflicting up to \$800 in lost product per acre. And deterrent methods were not ideal. That is why the Rhode Island Department of Environmental Management asked Rebecca Brown, a professor of plant sciences at the University of Rhode Island in Kingston, R.I., to study the effectiveness of a laser-based alternative at small farms.



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Fluorescence Correlation Spectroscopy — Going Beyond the Diffraction Limit

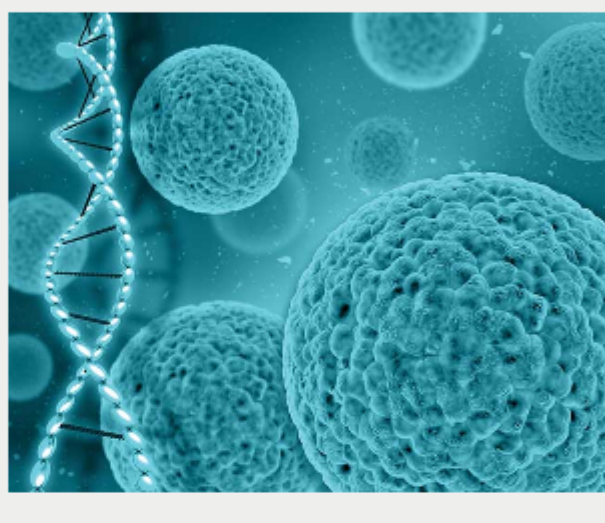
The combination of short measurement times along with free position or scanning of the observation spot makes fluorescence correlation spectroscopy an excellent tool for investigating diffusion heterogeneity over time and space.



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Ultralow-Light CMOS Bio-Optical Sensor Enables Low-Cost, Portable Molecular Testing

The miniaturization of molecular tests enabled by CMOS biosensors and microfluidics could have positive impacts on global efforts against infectious diseases and cancer.



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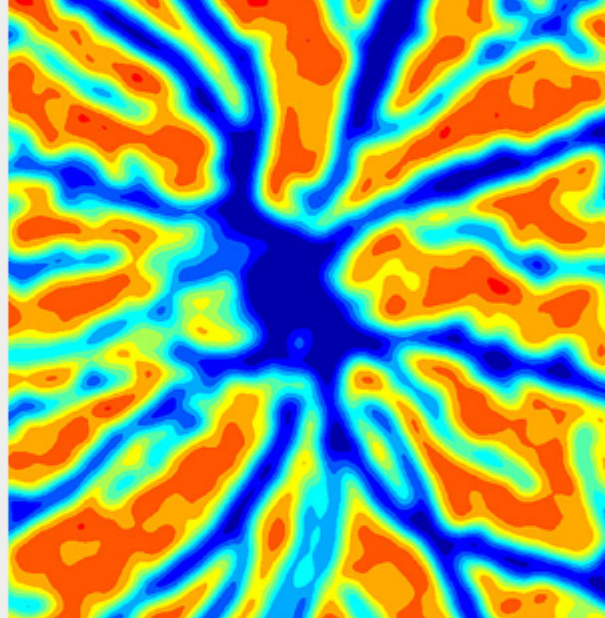
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Visit us at SPIE / BIOS 2017, Booth 8521
January 28th - February 2nd, San Francisco, CA

In Case You Missed It

OCT-A Detects Early-Stage Glaucoma

Optical coherence tomography angiography (OCT-A) was used at the earliest stages of glaucoma to identify the characteristic patterns of different forms of the disease. OCT-A, a noninvasive technique that employs en face reconstruction of OCT combined with motion contrast processing to reveal perfused retinal vasculature, could enable doctors to diagnose glaucoma cases earlier than ever before and potentially slow down the progression of the disease.



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NIH Awards \$1.4M Grant to Support Optogenetics Research

A \$1.4 million, three-year grant from the National Institute of Mental Health (NIMH) of the National Institutes of Health (NIH) has been awarded to Dr. Ryohei Yasuda, scientific director at the Max Planck Florida Institute for Neuroscience (MPFI) and collaborator Dr. Wenbiao Gan, professor at the NYU Langone Medical Center.

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Multichannel Optical Biosensor May Detect Cancer

An eight channel smartphone spectrometer has been developed that can detect human interleukin-6 (IL-6), a known biomarker for lung, prostate, liver, breast and epithelial cancers. Unlike current smartphone spectrometers, which are used to monitor or measure one sample at a time, the multichannel smartphone spectrometer (MSS) can optically analyze several samples simultaneously, adding to its potential value as a high-throughput device.

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Featured Products



PCS-100 Polyimide Coating Stripper

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Quick stripping – A razorblade is applied to the fiber with specific tension and the coating is precisely planed along the fiber automatically. The process requires less time than the conventional methods of

acid or heat.

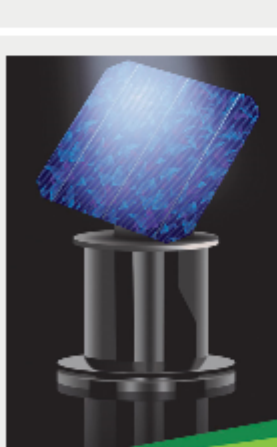
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Lumencor's SOLA SE FISH Light Engine

Lumencor Inc.
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PicoQuant GmbH
Time-resolved fluorescence spectroscopy is a spectroscopist's most valuable tool for the investigation of excited state dynamics in molecules, complexes, quantum dots, or semi-conductors wafers.

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Ultra Precise Piezo-Z Axis Stage

Applied Scientific Instrumentation Inc.
Applied Scientific Instrumentation's Ultra Precise Piezo-Z Focusing stage has been specifically designed to provide a high resolution, and highly repeatable, means of controlling the X, Y, and Z position of the microscope stage.

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Webinars

High-Speed Imaging At and Beyond the Diffraction Limit

Thu, Feb 16, 2017 1:00P EST

Hari Shroff, Ph.D., head of the Section on High Resolution Optical Imaging at the National Institute of Biomedical Imaging and Bioengineering (NIBIB), will speak on his lab's latest work to develop high-resolution optical methods for the study of live, dynamic, 3D samples, including efforts to improve structured illumination microscopy (SIM) and light-sheet microscopy. He will also discuss developments in inverted selective plane illumination microscopy (ISPI) and dual-view ISPI.

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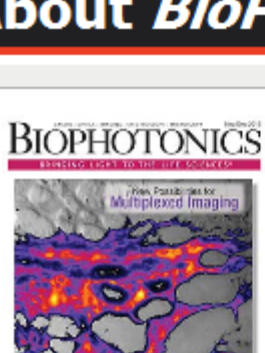
Coming in January...

Features

Mobile Spectroscopy; Fiber Optics for Medical Imaging Devices; Laser Additive Manufacturing for Medical Applications; Confocal Microscopy

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