

# 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



### Star Wars Meets Mosquito Control

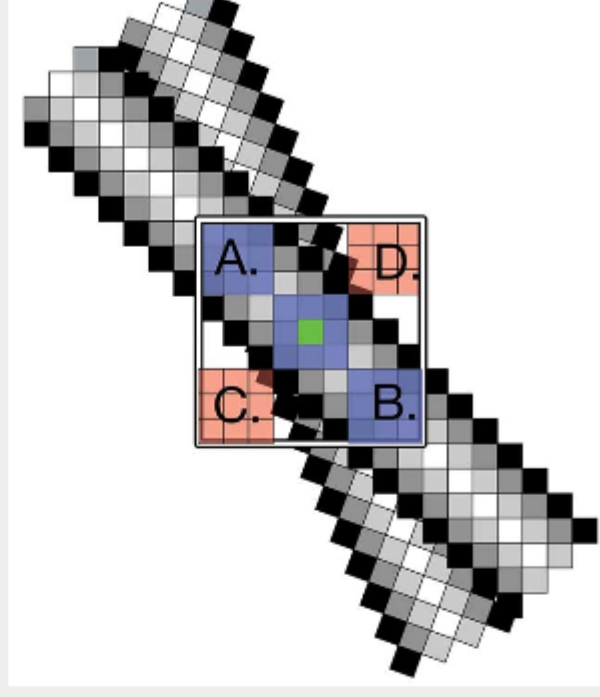
JAMES SCHLETT, EDITOR

What does it take to kill a mosquito? How about thousands of them? Since 2010, Bellevue, Wash.-based Intellectual Ventures Management LLC has been working on answers to these questions. Their solution: the Photonic Fence, a laser system that optically tracks all flying insects that enter a coverage area and zaps only those identified as threats, namely mosquitoes. However, it was only recently that researchers identified the best combination of wavelength, power, pulse duration, pulse energy and beam diameter to efficiently kill the disease-spreading pests.

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### When the Camera Is a Computer: Computational Life Sciences Imaging

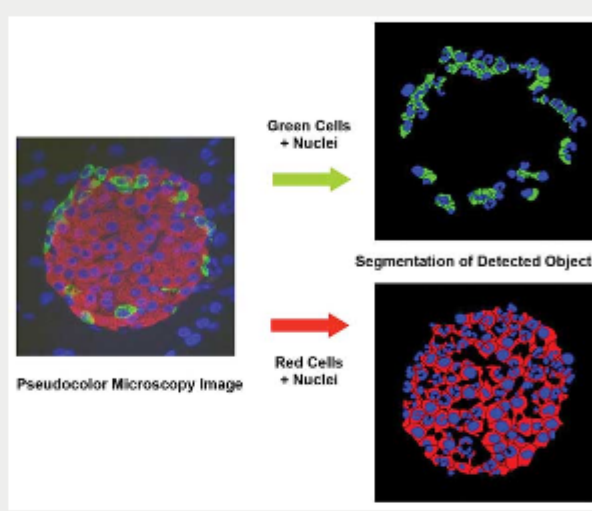
Sensors and cameras continue to progress, although life sciences imaging remains far from perfect. Even in its current state, barriers still exist. These include signal photon noise, light scattering, optical blur of finite aperture imaging systems and others. Versatile high-speed, high-resolution systems are overcoming these and other challenges, moving microscopy into a diagnostic role.



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### High-Content Screening Goes Beyond Fluorescent Pictures

Since the start of high-content screening (HCS) in the late 1990s, several imaging techniques have been applied for automated image capture, serving a variety of application goals and specifications. However, technological advancements are enabling HCS to cover new ground, particularly with confocal, bright-field and wide-field imaging.



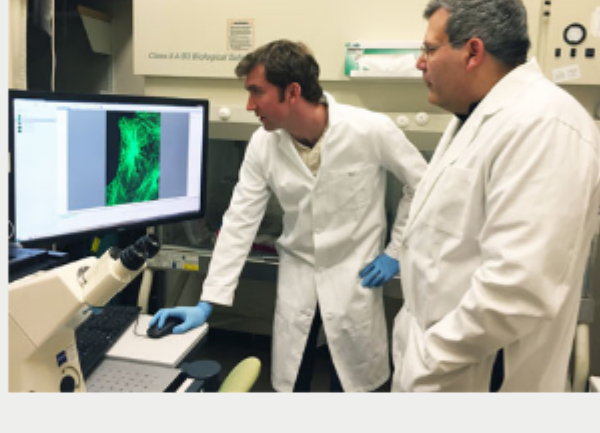
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## In Case You Missed It

### Mirror-Enhanced Microscopy Provides New Info about Cell Behavior

A novel technique for growing cells on miniature mirrors and imaging them using super-resolution microscopy may provide a way to view cell structures at a micron scale. The technique uses light waves to create interference patterns as light passes through the cell on the way to the mirror, which reflects the light back through the cell.



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### FDA Approves Implantable Vision-Correcting Lens

The U.S. Food and Drug Administration (FDA) has approved Revision Optics Inc.'s Raindrop Near Vision Inlay device that corrects near vision for patients with presbyopia, providing an alternative for surgical, outpatient treatment of the disease.

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### Novel Lens Design Expands Field of View for Brain Imaging

A novel lens for a two-photon imaging system is able to capture images of the brain that are almost 10 times larger than those captured through a conventional two-photon microscope.

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## Featured Products



### Super-resolution and AFM Imaging

**PicoQuant GmbH**

The combination of atomic force microscopy (AFM) with time-resolved single-molecule-sensitive fluorescence microscopy in a single instrument opens up new avenues for fascinating investigations into the structure, dynamics, and interactions of single molecules or their assemblies in cells or tissue samples.

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### ARC Master® FSM-100P Fusion Splicer

**AFL**

Whether splicing similar fiber types or double clad LDF fibers for high power lasers, the ARC Master® series splicers provide multiple solutions for diverse production needs.

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### USHIO Introduces New Analytical Tool, PICOEXPLORER™ Photo Absorption Sensor (PAS)

**USHIO America Inc.**

The USHIO PICOEXPLORER™ model PAS-110 handheld photo absorption sensor utilizes patent pending, Silicone Optical Technology™ (SOT), a unique new concept designed to suppress optical scattering and reduce scattering light noise.

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### Lumencor's SOLA SE FISH Light Engine

**Lumencor Inc.**

Lumencor's SOLA light engines offer access to modern solid state illumination, with all its performance and efficiency compared to most metal halide light sources. With reliability and maintenance-free service built in, they provide sustainable and cost-effective replacements for traditional...

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### Advanced Energy® UltraVolt® HVA Series—Precision High Voltage Amplifier

**Advanced Energy Industries Inc.**

The HVA series of DC-to-DC high voltage power supplies operates a precision filter/divider and linear HV switch to produce a high voltage amplifier (HVA). These modules provide a high-resolution, programmable, high voltage DC to full-scale waveform capability greater than 1 kHz output.

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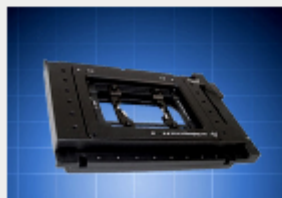


### Compact 532 nm and 561 nm Lasers With Direct Modulation

**Cobolt AB**

Cobolt AB, Swedish manufacturer of high performance lasers, introduces modulation capability on the diode pumped lasers (DPL) in the green-yellow region of the Cobolt 06-01 Series of plug and play CW lasers. The 06-DPLs are available at 532 nm and 561 nm with up to 200 mW output power.

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### Ultra Precise Piezo-Z Axis Stage

**Applied Scientific Instrumentation Inc.**

Applied Scientific Instrumentation's (ASI) 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. The XY axes derive their precise control through the use of closed-loop DC servomotors.

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### Lambda VF-1 EDGE™ Tunable Filter Changer

**SUTTER INSTRUMENT**

Introducing the Lambda VF-1 Edge™ tunable filter system from Sutter Instrument. To take advantage of the new VersaChrome Edge™ filters from Semrock, the Lambda VF-1 Edge system allows user selection of the band-width as well as the center wavelength.

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## Coming in September...

### Features

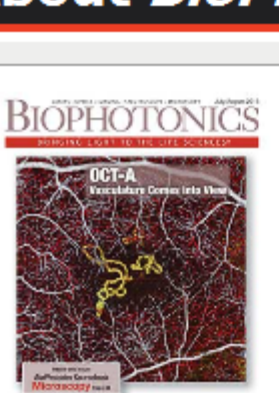
Lasers; Optical Communications; MEMS Displays; Image Sensor Advances; Positioning Systems

### Issue Bonus

The EDU Issue: Optics & Photonics Education, A Global Report (with university directory and student distribution)

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 Editor James Schlett at [james.schlett@photonics.com](mailto:james.schlett@photonics.com) or use our online submission form [www.photonics.com/submitfeature.aspx](http://www.photonics.com/submitfeature.aspx).

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