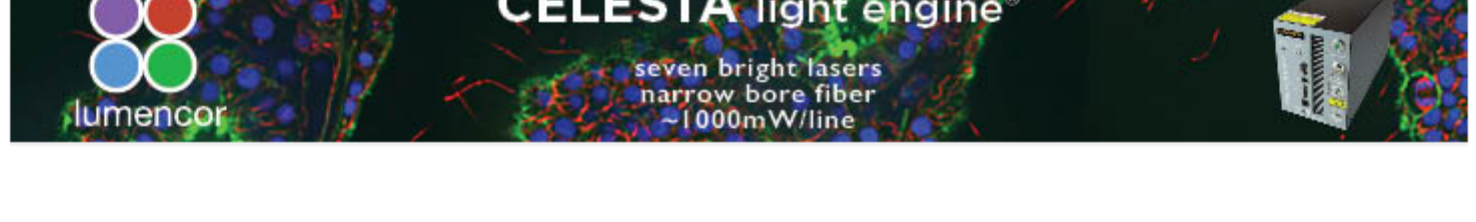
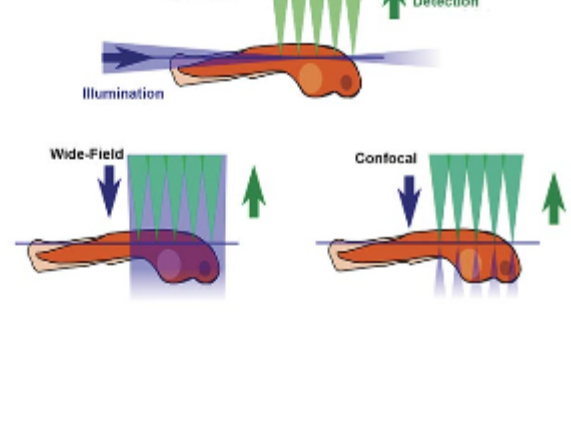




Monthly newsletter focusing on how light-based technologies are being used in the life sciences. Includes news, features and product developments in lasers, imaging, optics, spectroscopy, microscopy, lighting and more. Manage your Photonics Media membership at Photronics.com/subscribe.

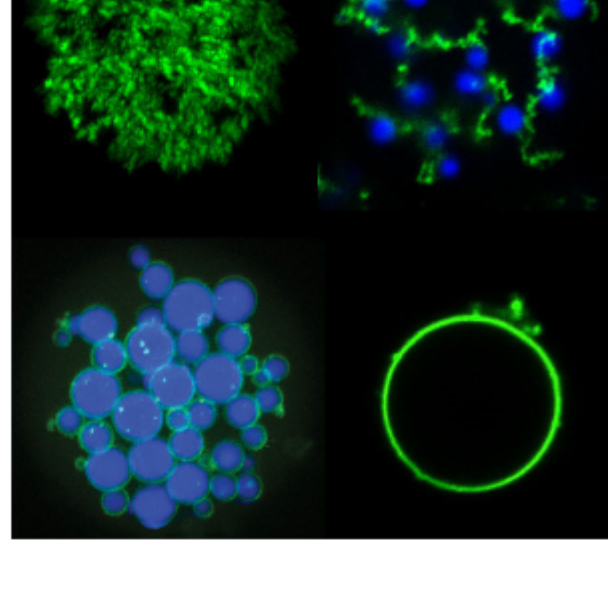


Light Sheet Microscopy: Transforming 3D Fluorescence Imaging
 Light sheet fluorescence microscopy (LSFM) is a fast and efficient imaging technique that combines the speed of wide-field imaging with optical sectioning and low photobleaching. LSFM has become an important fluorescence imaging modality, especially for volumetric imaging. Prominent applications include developmental biology, cleared tissue imaging, cell biology, and neuroscience.



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Light and Heat Combined to Create Biocompatible Microparticles
 Using light and heat, researchers at Duke University developed a technique for manufacturing biocompatible microparticles for potential use in drug delivery, diagnostics, and tissue engineering. According to research scientist Stefan Roberts, the technique is simple enough to be scaled up to make billions of microparticles in just a few minutes.



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Seeing a path from schooling to careers
 Closing the gap in the qualified technical workforce is a major challenge for both academia and industry across all segments of photonics. Problems faced include the lack of student awareness due to incorrect perceptions about the field, the lack of clear steps and programs for those who switch careers, the lack of meaningful college-employer partnerships, and the lack of relevant hands-on training programs. Numerous state and federal programs have been developed to identify solutions, but there is still a lot of work to do.



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Featured Products

CELESTA Light Engine
Lumencor Inc.
 Lumencor's CELESTA Light Engine delivers exceptional brightness and speed. This laser-based, solid-state illuminator is designed to support today's most demanding multidimensional fluorescence microscopy applications.

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Ultra Precise Piezo-Z Focus Stage
Applied Scientific Instrumentation Inc.
 The stage is capable of XY resolutions down to the 10-20 nm and Z resolutions to the 1nm range. It is able for use with rapid z-sectioning and autofocus systems. It prevents focus drift when used with our CRISP system.

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 For over 20 years, Opticology has provided precision optical devices for medical and industrial customers. We specialize in miniature optical system integration and provide all levels of design, fabrication, and assembly of custom analytical instruments, fiber systems, and imaging.

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Life Science Imaging Solutions
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LIGHT: Introduction to Optics and Photonics, Second Edition
Photonics Media
 Offering a comprehensive treatment of the subject as well as key applications, and employing minimal math, LIGHT: Introduction to Optics and Photonics was written with readers in mind. This textbook is for beginning students of optics and photonics in high school, community college, and university STEM courses.

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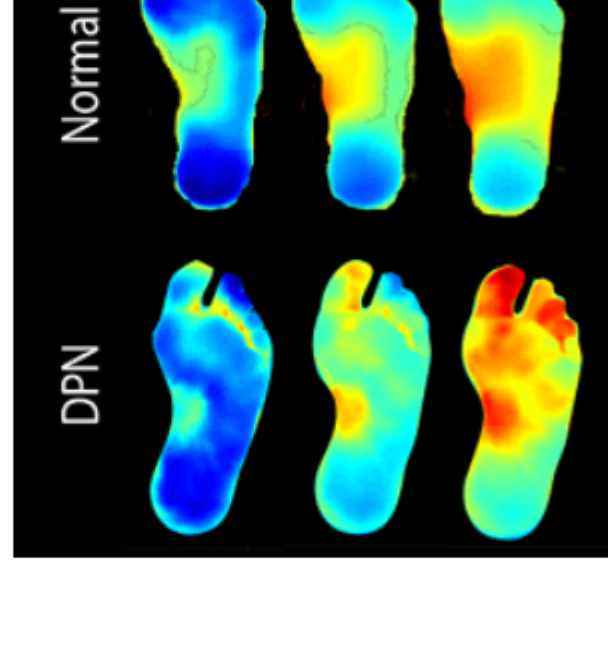
The Ultra Precise Piezo-Z Stage
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In Case You Missed It

VisionQuest, University Have Hand in Foot Diagnosis
 An infrared imaging system to detect diabetic peripheral neuropathy in patients' feet, aided by artificial intelligence, has moved closer to use in clinics and hospitals, following the receipt of a three-year, \$3 million grant from the National Institute of Diabetes and Digestive and Kidney Diseases. The grant from the institute, which is under the umbrella of the National Institutes of Health, is the continuation of earlier funding used by VisionQuest Biomedical Inc. and the University of New Mexico School of Medicine.



[Read Article](#)

Dye Boosts Bioimaging Capability
 Fluorescence imaging has been a boon to research and medicine because of its ability to examine affected areas noninvasively. But the dyes used for these purposes have their disadvantages, and as resolution needs have grown stronger, the stakes for accuracy have increased exponentially.

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3D-Printed Living Tissues a Step Closer
 3D printing can be used to produce parts of the body such as orthopedic joints and prosthetics, as well as portions of bone, skin, and blood vessels. However, the majority of these tissues are created in an apparatus outside of the patient's body and are then surgically implanted. Such a procedure may involve making large surgical incisions, posing the risk of infection and increased recovery time. To prevent these complications, a team of scientists have developed a technology to print tissues directly in the body.

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Upcoming Webinars

Beam Shaping: The Next Step for Ultrashort-Pulse-Laser-Based Processes
 Thu, Jul 16, 2020 10:00 AM - 11:00 AM EDT
 The use of ultrashort pulse (USP) lasers in industrial processes is growing, thanks to the high standard of quality that can be achieved. For widespread industrial use of USP lasers to be realized, however, two key challenges need to be solved: The yield has to strongly increase for the process to be cost-effective and improvement in quality will lead to the development of new materials and the development of new markets. This webinar will present how beam shaping can solve these two challenges, and how multi-plane light conversion (MPLC) can achieve yield and quality improvement while being compatible with industrial setups.


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Features
 Lensless Microscopy, Quantum Dots, Multimodal Imaging, and more.

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