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Trends in Imaging: Whole-Animal Imaging for Preclinical Research

Whole-animal imaging has become an indispensable tool, enabling researchers to noninvasively identify a disease and its location within an animal subject, to monitor disease development over time and to highlight underlying mechanisms through application of disease-associated biomarker-targeted agents. Optical imaging of small animals has moved beyond simply determining whether a tumor is growing or regressing in response to a therapy.

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**HD Video for** 

Microscopy

Capture up to 60 fps



# High performance lasers DPSS lasers 355nm - 1064 nm up to 3W Laser diode modules 405nm - 660nm Fast modulation



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# Trends in Microscopy: A Big Market, Focused on the Very Small

Trends in Spectroscopy: IR, UV-VIS Techniques are Safe, Speedy and Skin-Deep

near-IR to UV-VIS particularly invaluable for its promise in biomedical applications.

Spectroscopy is leading the way in both health care and medical research as a novel tool for improving

diagnostics, disease detection and sensing. Dozens of spectroscopic techniques have evolved since the Indian researcher Sir C.V. Raman discovered a spectroscopic technique to observe molecular vibration and rotation in the 1920s. In more recent years, several exciting advances have made spectroscopy across the spectrum from

The microscopy market is growing - set to exceed \$5 billion by 2018 - even as microscopic targets get smaller and smaller. Experts from a range of microscopy companies agree that brain imaging and neuroscience, including optogenetics, are the wave of the future.

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Trends in Lasers: Burgeoning Uses Offer Growth Opportunities

Double-digit growth in both medical tourism and cosmetic surgery bodes well for the medical laser market. Medical tourism - where patients seek health care outside their own country or region whether to reduce costs or to find better care than they could at home - is booming. As Americans continue to struggle with a faltering economy, medical tourism insiders remind us, ongoing debates over health care reform in the US could easily bring the country to a halt.

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### Seeing Cells through Silicon

Silicon, the workhorse of the microelectronics industry, is commonly used to build lab-on-a-chip microfluidic devices, which can sort and analyze cells based on their molecular properties. Such devices have many potential applications in research and diagnostics, but they could be even more useful if scientists could image the cells inside the devices, said Barman, who is now an assistant professor of mechanical engineering at Johns Hopkins University.

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# Biophotonics Products



# PCX-7401 Laser Diode Driver

IXYS Corp. has introduced the PCX-7401, a laser diode driver and current source with accurate microprocessor-based

digital power control.

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# IDRaman micro Microscope

Ocean Optics, Inc. Ocean Optics' IDRaman micro, a compact microscope that takes Raman measurements, is designed for research, quality control and quality assurance applications requiring improved focus

and high spatial resolution. More info >>



# MFC-2000 Focus Controller

Applied Scientific

Instrumentation, Inc.

The MFC-2000 focus controller by Applied Scientific Instrumentation provides highresolution, highly repeatable control of the Z-position of the microscope stage. More info >>



# Hollow-Core Fiber

OFS, Specialty Photonics Div. OFS, a Furukawa company, has developed a new hollow-core fiber that it says will enable next-generation sensors.

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# PHOTONICS buyers' guide

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Microsurgery Laser Systems FTIR Spectrometers Optical Coherence Tomography Imaging Systems

Microscope Lenses Fiber Lasers Spectrofluorometers



# Industry Events

Quantitative Biolmaging Conference - 2014 - January 9 - 11, 2014 · Albuquerque, NM This year's focus is on single molecule microscopy with a major emphasis on the presentation and detailed

discussion of methodological advances in the analysis of single molecule microscopy data.

This conference will be held in conjunction with a Symposium by the NIH funded National Center on Systems Biology New Mexico Center for the Spatiotemporal Modeling of Cell Signaling. Invited speakers include Joerg Enderlein, of Georg August University of Goettingen, Germany. (confirmed); and Shimon Weiss, of UCLA, USA. (tentative).

MORE INFO >>

SPIE' The world's largest international conference for biomedical optics and biophotonics. Register Today BiOS Expo: 1-2 February 2014 Photonics West: 4-6 February 2014 1-8 February 2014

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