

MICROSCOPY

Tech Pulse



November 2017

Microscopy Tech Pulse is a special edition newsletter from Photonics Media and Mad City Labs Inc. covering key developments in microscopy technology. Manage your Photonics Media membership at Photonics.com/subscribe.

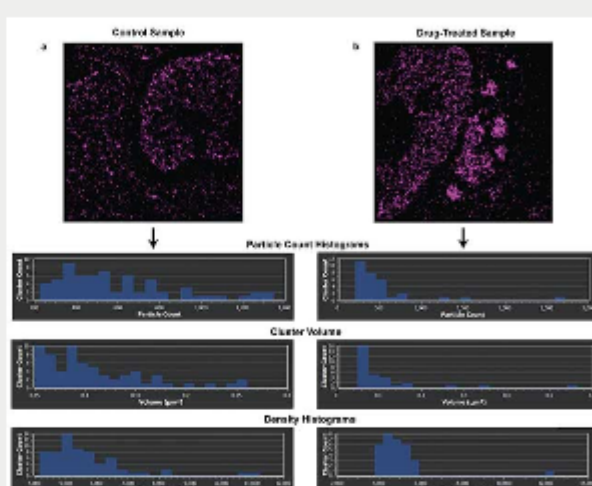
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Nanopositioning Systems for Microscopy
Single Molecule Microscopes
Atomic Force Microscopes

Single-Molecule Localization Blazes New Paths for Microscopy

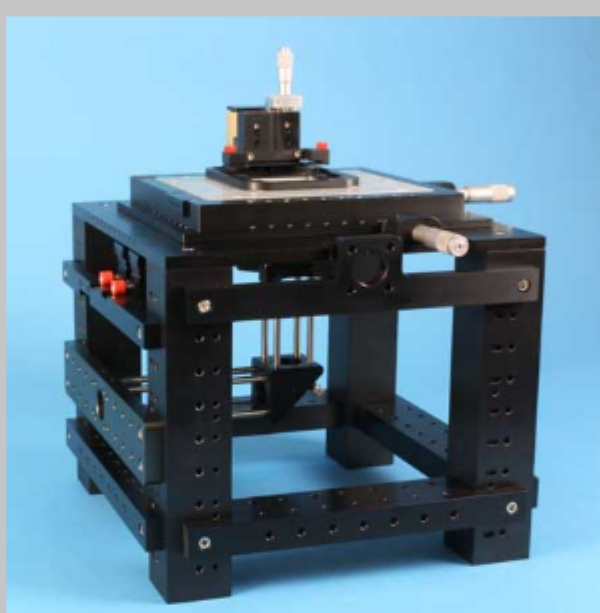
Fluorescence microscopy has proven itself to be an indispensable method in the modern biological toolkit. The use of visible-wavelength fluorophores allows for relatively noninvasive imaging. And while the resolution of conventional optical microscopy cannot rival that of electron, atomic force or near-field scanning optical microscopy methods, the unrivaled specificity of the technique allows for the imaging of nearly any biological target.



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PROMOTED CONTENT **Mad City Labs Inc.**
RM21™ Single Molecule Microscopes

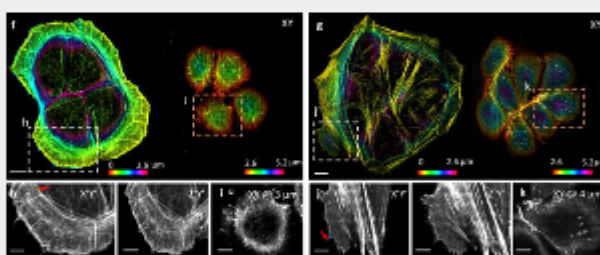
Mad City Labs' RM21™ Microscopes are ideal for researchers who need flexible and configurable microscopes. RM21™ microscopes are suitable for super resolution microscopy, nanoscopy, TIRF microscopy, fluorescence imaging, single molecule FRET, and Colocalization Single Molecule Spectroscopy (CoSMoS). The RM21™ microscope features our high precision piezo nanopositioning, direct optical pathway access, and precision orthogonal alignment with optical table compatibility.



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NIH Team Improves 3D Imaging Efficiency, Speed and Resolution

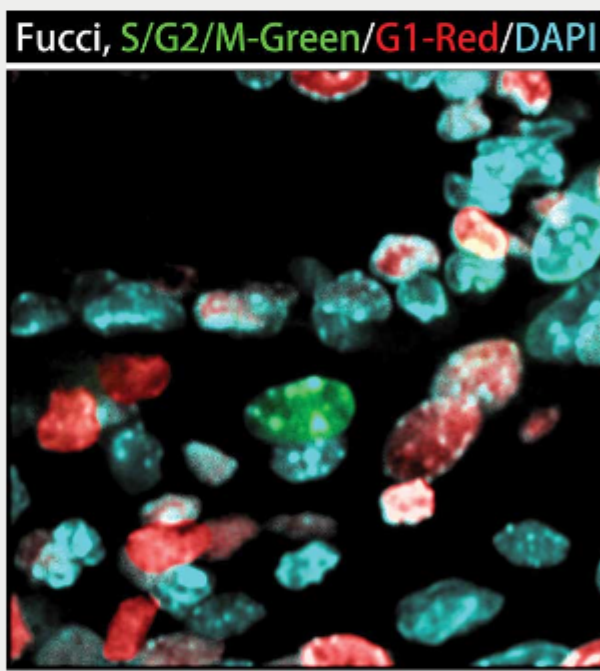
Scientists have developed a technique that improves the spatiotemporal resolution and collection efficiency of light-sheet fluorescence microscopy (LSFM), without modifying the underlying microscope. The technique instead uses reflection to improve speed, resolution and light efficiency. A reflective, mirrored coverslip is used in place of a conventional glass coverslip.



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Silicone Immersion Objectives Answer the Call for Higher Resolution

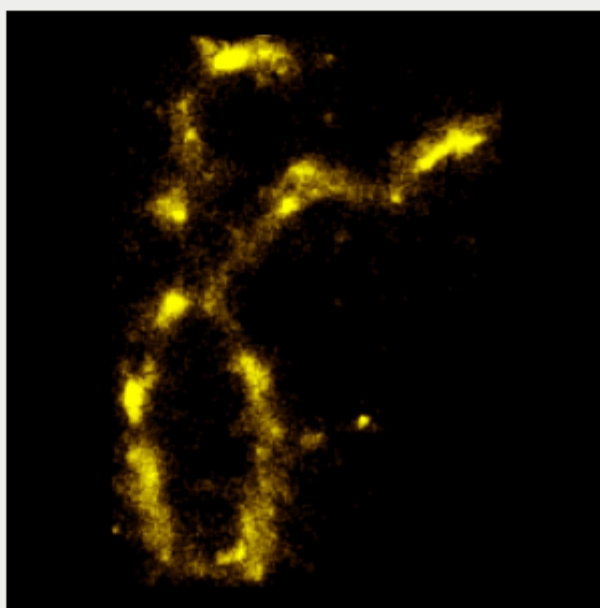
Refractive index mismatch, and resulting spherical aberration, has historically plagued researchers interested in long-term, live-cell imaging at high resolution. The use of silicone oil objectives helps mitigate this mismatch as the refractive index of live cells is much closer to that of silicone oil than to that of either traditional immersion oil or water.



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Optical Nanoscopy Images DNA Naturally Fluorescing

A novel imaging tool that is able to capture images of DNA naturally fluorescing could advance the study of individual biomolecules and help uncover global patterns of gene expression. The nanoscopy tool, which is capable of molecular imaging with 6-nm resolution, will enable scientists to study DNA, chromatin and proteins in cells in their natural environment, without the need for fluorescent labels.



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ICFO Becomes Nanoscopy Imaging Reference Site for Leica

ICFO's experts in superresolution will partner with Leica Microsystems to conceptualize and implement technological improvements to the state-of-the-art systems from Leica. This three-year collaboration will also see the installation of the Leica TCS SP8 STED 3X microscopy system at the institution.

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