

# MICROSCOPY


## Tech Pulse



### October 2021


Microscopy Tech Pulse is a special edition newsletter from Photonics Media and Applied Scientific Instrumentation Inc. covering key developments in microscopy technology. Manage your Photonics Media membership at [Photonics.com/subscribe](https://Photonics.com/subscribe).

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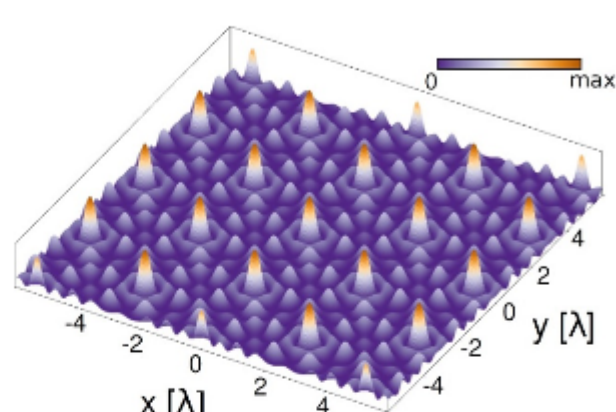
**RM-1250 Automated XY Stage**

- 125 mm x 125 mm travel
- Single connector for both axes
- Flat top, flat bottom
- Multiple mounting options
- Easy to integrate into existing systems
- Rigid body construction



### Lens-Free Fluorescence Microscope to Achieve High Throughput, Resolution

A fluorescence microscope being developed by imec researchers will be able to achieve high throughput and high resolution, without a lens component. The technology could significantly speed up next-generation DNA sequencing and cellular research, as well as enable studies on larger scales.



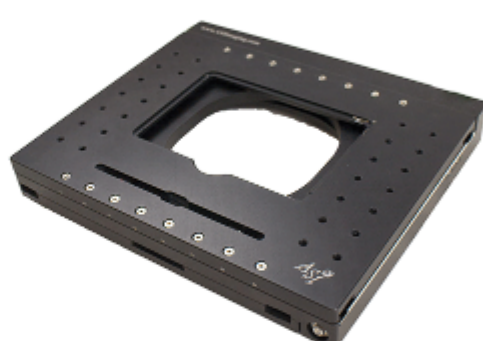
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**PROMOTED CONTENT**

**Applied Scientific Instrumentation Inc.**  
**RM-1250 GEN II STAGE**

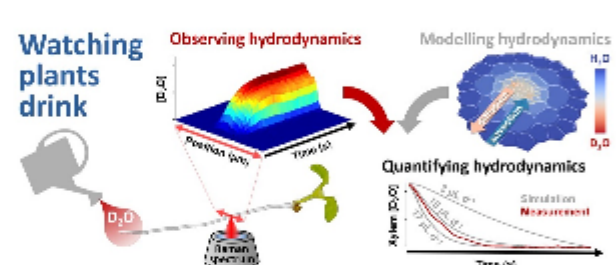
The RM-1250 XY stage is the culmination of designing and manufacturing automated XY stages for demanding customers. A flat top, flat bottom, and multiple mounting configurations make it easy for laboratories and manufacturers to integrate it into existing systems. No detail went unexamined in the design of the RM-1250 Gen II.

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### Imaging Method Reveals the Way Plants Take Up Water

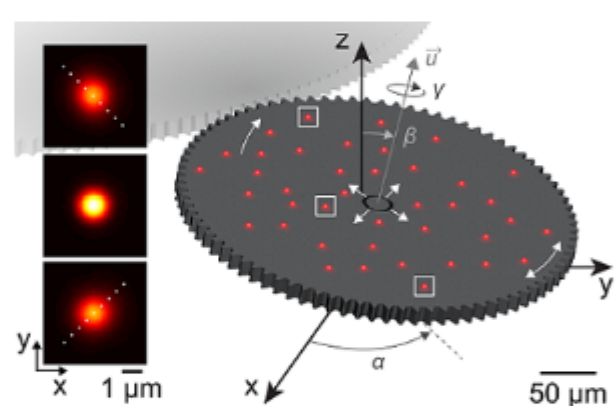
Researchers at the University of Nottingham report the development of a way to observe how plant roots take in and circulate water at the cellular level. The work could help to identify future drought- and flood-resistant crops.



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### Microscopy Method Accurately Measures in 3 Dimensions

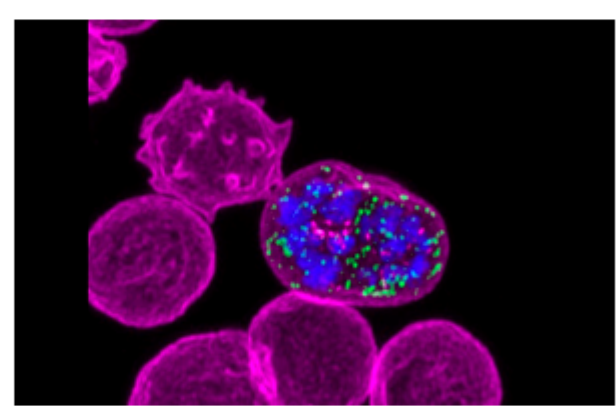
Researchers have devised a calibration method that enables conventional microscopes to accurately measure the positions of points of light on a sample in all three dimensions. The researchers took a problem that affects nearly all optical microscopes — lens aberrations — and used the effects of aberrations to allow precise and accurate tracking of single emitters in 3D throughout an ultrawide and deep field.



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### Lattice Light-Sheet Microscopy Targets Malaria

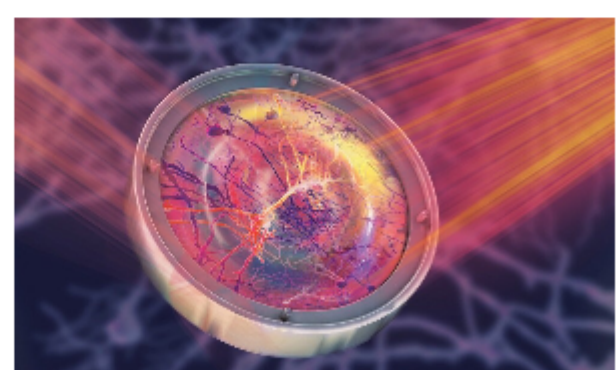
With the help of a custom-built lattice light-sheet microscope, researchers at the Walter and Eliza Hall Institute (WEHI) captured high-resolution 3D video images of individual malaria parasites (*Plasmodium falciparum*) invading red blood cells in real time, and they observed the molecular and cellular changes that occurred throughout the very fast process.



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### Microscopy Method Enables Deep In Vivo Brain Imaging

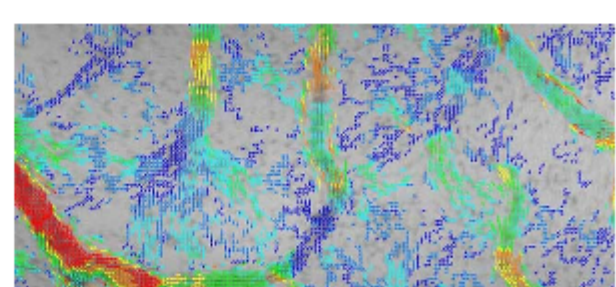
A method developed by the Prevedel Group at the European Molecular Biology Laboratory (EMBL) allows neuroscientists to observe live neurons deep within the brain — or any other cell hidden within an opaque tissue. The method is based on three-photon microscopy and adaptive optics.



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### Dyeless Method Images Brain Blood Flow Down to a Single Cell

Researchers from the Skolkovo Institute of Science and Technology (Skoltech) and Saratov State University developed an inexpensive method of visualizing blood flow in the brain, one that avoids the need for dyes and/or genetic engineering and is precise enough to discern the motions of individual red blood cells.



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