

# This Week in PHOTONICS



**LightMachinery**  
Excellence in Lasers and Optics

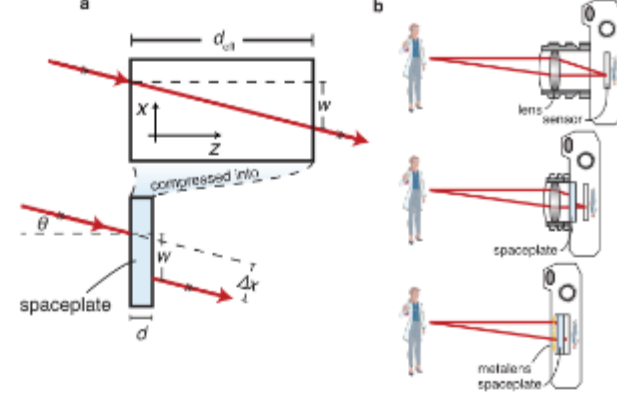


**Hyperfine Spectrometer**  
A sub-picometer resolution spectrometer in a compact package.

## Top Stories

### Barrel-Eliminating Optical Element Enables Massive Zoom in Tiny Form Factor

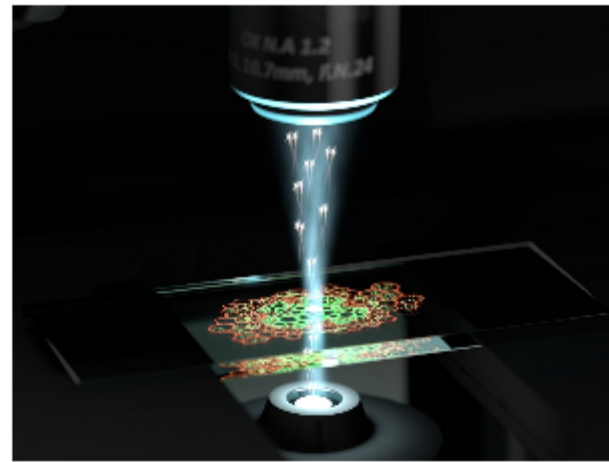
A novel optical element will one day enable composite lenses and telescopes in a form factor small enough to fit in a pocket. The device, called a spaceplate, is designed to mimic the empty space needed to focus an image — meaning one day photographers will be able to take pictures of faraway subjects without a long-barrel telephoto lens.



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### Quantum Microscope Achieves Unprecedented Clarity in Cellular Imaging

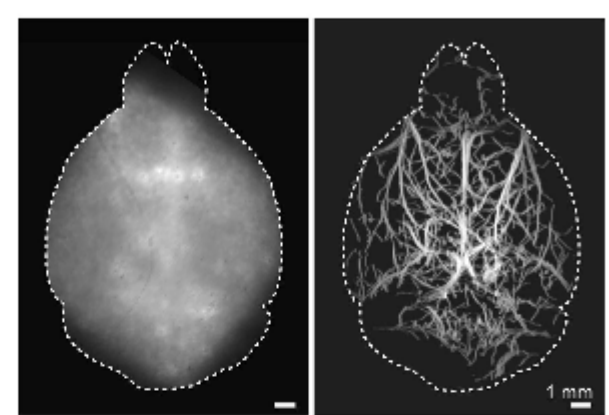
A quantum microscope developed at the University of Queensland can resolve cellular structures that would otherwise be impossible to see. The designing researchers showed that quantum correlations can increase performance beyond the limit imposed by photodamage in other microscope configurations, in work that overcomes a significant barrier in furthering microscopy for biological imaging.



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### Fluorescence Microscopy Technique Images Deep Brain in High Resolution

A noninvasive brain imaging technique developed by researchers at ETH Zurich and the University of Zurich works in the near-infrared (NIR) spectrum to enable superresolution deep-tissue fluorescence microscopy at four times the depth limit imposed by light diffusion. The technique, diffuse optical localization imaging (DOLI), operates in a resolution-depth regime previously inaccessible with optical methods.



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## Vision Spectra Conference



### Presentation: Is It a Wolf or a Husky? Can You Trust Your AI Vision Model?

Presented by: **Ted Way, Microsoft**

Artificial intelligence is ubiquitous in computer vision applications — from self-driving cars to retail, healthcare, manufacturing, and beyond. How do you know your computer vision AI model is working as advertised?

In his presentation, Ted Way, Ph.D., a program manager lead for the Microsoft Insights Apps AI team, will cover various ways that AI models can be fooled, such as by adding stickers to a stop sign. The session will also focus on using techniques to probe how a vision AI model makes a decision. Finally, Way will show how the LIME (local interpretable model-agnostic explanations) technique explains what an AI model is doing when it's looking at pictures of wolves and huskies, for example.

The inaugural *Vision Spectra* Conference runs July 20 - 22. Registration is free for the event, which is offered exclusively online. For more information and registration, please visit [www.photonics.com/vsc2021](http://www.photonics.com/vsc2021). Continued coverage of this inaugural event will also be available on [vision-spectra.com](http://vision-spectra.com) and [Photonics.com](http://Photonics.com) leading up to the conference.

[Register Now](#)

## Featured Products



### Optical Filters for Point of Care

**Delta Optical Thin Film A/S**  
Point of Care (PoC)

instruments have various uses in medical diagnostics, including the detection of infectious diseases such as Covid-19. These types of tests only require a single drop of blood, saliva, or urine and can be performed by a GP within minutes.

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### Micro-Precision 3D Printers

**Boston Micro Fabrication - BMF**

A 2021 Prism Awards winner, the microArch S240 is a micro-precision 3D printer capable of achieving a resolution of 2 μm~50 μm and tolerance of +/- 5 μm~25 μm, thus providing mold-free, ultra-high-resolution fast prototyping and end part capability.

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### Image Quality Measurement Service

**TRIOPTICS GmbH**  
With the ImageMaster® HR

TempControl measurement service TRIOPTICS measures the image quality of your optics from -40 °C to +120 °C. Do you want to ensure that cameras used in safety-critical applications, e.g. in the automotive or defense sector,...

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### Helium Leak Detectors and Vacuum Pumps

**Pfeiffer Vacuum Inc.**

The Pfeiffer Vacuum ASM 340

is a high performance and durable leak detector providing short cycle times and high throughput. It used for leak checking vacuum systems that are used in manufacturing of photonic devices and leak checking final hermetic sealed products.

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+ **IMX541**  
20.35 MP

## More News

**Photoacoustic Computerized Tomography Images the Brain with Laser Light** [Read Article](#)

**David Hagan Named Dean of UCF's College of Optics and Photonics** [Read Article](#)

**NASA Partners with Harvard on Metasurface Polarimetry** [Read Article](#)

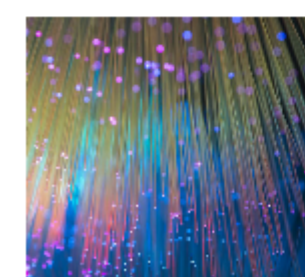
**Clinical, Commercial Applications Loom for Ultracompact On-Chip Spectrometer** [Read Article](#)

**Health Care and Deep Tech Innovators Awarded at SPIE Startup Challenge** [Read Article](#)

**DS double shutter sCMOS**  
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**SPIE.**  
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**Optics + Photonics**  
Register and reconnect with colleagues to discuss advancements in optical engineering and applications, nanotechnology, quantum science, organic photonics, and astronomical instrumentation.  
1-5 August 2021 · San Diego, CA, USA

## Upcoming Webinars



### Polarization Extinction Ratio Measurement in Highly Birefringent Materials: Challenges and Solutions

Wed, Jun 23, 2021 1:00 PM - 2:00 PM EDT

This webinar with Wajih Daab, product line manager for Luna Innovations, discusses the Polarization Extinction Ratio (PER) testing solutions offered by Luna which help manufacturers accelerate the testing time and improve measurement accuracy. Presented by Luna Innovations, Inc.

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### CALL FOR ARTICLES!

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazines (*Photonics Spectra*, *BioPhotonics*, *Vision Spectra*, and *EuroPhotonics*). Please submit an informal 100-word abstract to [editorial@Photonics.com](mailto:editorial@Photonics.com), or use our [online submission form](#).



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