

# This Week In PHOTONICS

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## Top Stories

### Gaining Nanoscale Control over Quantum Systems

Scientists at Oak Ridge National Laboratory (ORNL) and Vanderbilt University have developed methods to help control the leaky, dissipative behavior inherent in quantum systems and materials. To do so, they examined the quantum nature of nanostructures. ORNL researchers had previously explored the need for precise control over nanoscale energy transfer to enable long-lived entanglement.



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### Technique to Suppress Photobleaching Increases Imaging Window

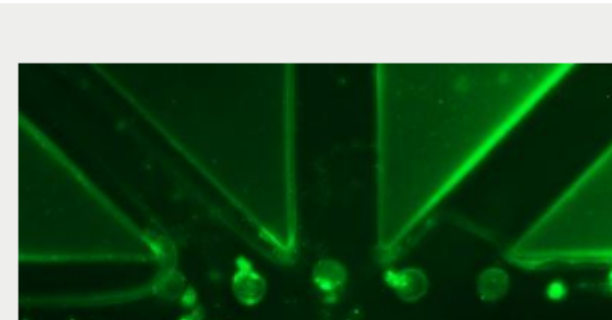
Researchers have developed a way to suppress photobleaching when using live-cell single fluorescent-molecule imaging (SFMI). The new method improves the observation time of fluorescent molecules by 40-fold, according to the team.



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### Microsensor Could Help Individualize Dialysis Treatment

A new microsensor could make it possible to directly monitor and adjust the composition of kidney dialysis fluid (dialysate) — an important step toward customizing dialysis to the individual patient. The sensor provides a way to monitor the salt concentrations in dialysate so that concentrations can be continuously adjusted.



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## Featured Products

**Machine Vision**

**Photonics Media**

Machine Vision is a new book for anyone designing or selecting machine vision systems, and implementing or considering the use of machine vision for a specific application. This engaging overview is a resource for designers, engineers, researchers, marketers and students looking for a broad survey of advancements in systems, components and processes.

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**AR/VR Lens: Measure Displays in Headset**

**Radiant Vision Systems, Test & Measurement**

Displays viewed near to the eye, such as those in AR/VR devices, create immersive virtual experiences. However, as display images are magnified to fill a user's field of view, display defects are also magnified. Issues with uniformity of brightness and color, dead pixels, line defects, cloudiness, and image position become more evident to the user whose eyes are only centimeters away from display screens.

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**Novel App-based Industrial Cameras**

**IDS Imaging Development Systems GmbH**

Industrial cameras that are as versatile and easy to use as your smartphone? This has become reality. We introduce IDS NXT: the app-based approach of German camera manufacturer IDS transforms cameras and sensors into customized, smart vision sensors. You need your IDS NXT devices to solve a vision task that isn't covered by standard apps.

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**Pioneering sCMOS Back Illuminated!**

**PCO-TECH Inc.**

To see or not to see: If every single photon counts, PCO's back illuminated sCMOS camera system pco.panda 4.2 bi can lead you to the answer. Enabled by PCO's new back illuminated sensor and based on the latest innovations in sCMOS technology, the pco.panda 4.2 bi reaches a quantum efficiency of up to 95%.

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## More News

### Cosmic Lens Helps Hubble Capture Image of Most Distant Star Ever Seen

Gravitational lensing — the bending of light by massive galaxy clusters in the line of sight — has occurred during a rare cosmic alignment, magnifying a star more than 2,000 times. The phenomenon allowed astronomers to capture an image of a star 9 billion light years from Earth.



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### Sensor City Awarded £3.5M for 5G Health and Social Care Project

Sensor City, the joint venture project between the University of Liverpool and Liverpool John Moores University, has been awarded a £3.5 million grant to investigate the opportunities of 5G community Wi-Fi in health and social care.



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## Industry Events

### Photonics Europe 2018

April 23-26, 2018 - Strasbourg Convention & Exhibition Centre - Strasbourg France

SPIE Photonics Europe 2018 is a cross-disciplinary optics and photonics event covering the most significant technologies, from digital optics to quantum technologies to attosecond science. New topics to be covered in 2018 include 3D printed optics, photonic glasses, optical biopolymers, unconventional optical imaging and more. This year offers seven new conferences, an unprecedented number of papers, and a Student Optical Design Challenge focusing on immersive displays.



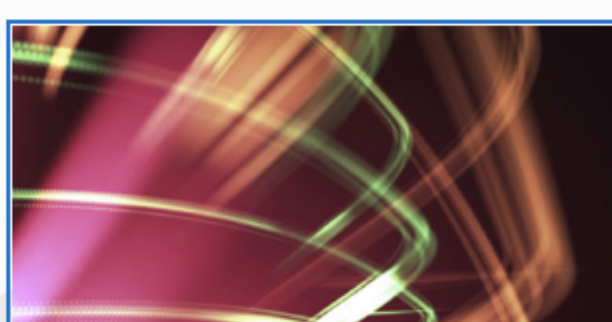
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## Webinars

### Fundamentals of Helium Leak Detection

Tue, Apr 17, 2018 1:00 PM - 2:00 PM EDT

From LEDs to medical devices to microelectronics to fiber optics — everything leaks! This 40-minute webinar, presented by Agilent Technologies, will describe the challenges of locating and measuring leaks, the importance of leak rate specification and various methods of leak detection. You will learn the different methods of locating leaks and determining leak rate, and which method to employ for your product or system.

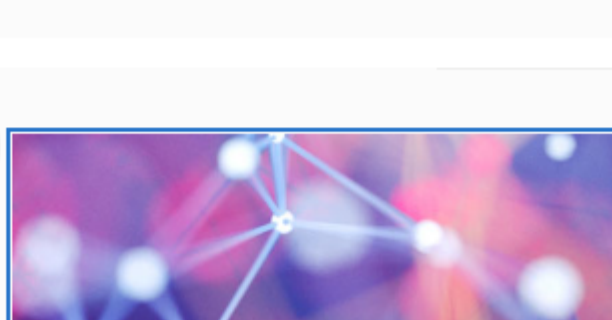


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### From Layout to Multiphysics: Integrating Thermal and Photonics Simulation into the PIC Design Flow

Thu, Apr 19, 2018 11:00 AM - 12:00 PM EDT

Presented by CST, this webinar will show you how to use CST STUDIO SUITE to simulate the design of Photonic Integrated Circuits (PICs). It will demonstrate the complete workflow to analyze thermally tuned PIC devices, starting from a component model in Luceda Photonics IPKISS. Simulating PIC devices can be challenging. This webinar will introduce you to CST STUDIO SUITE's unique platform for addressing these challenges.



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