

# This Week In PHOTONICS

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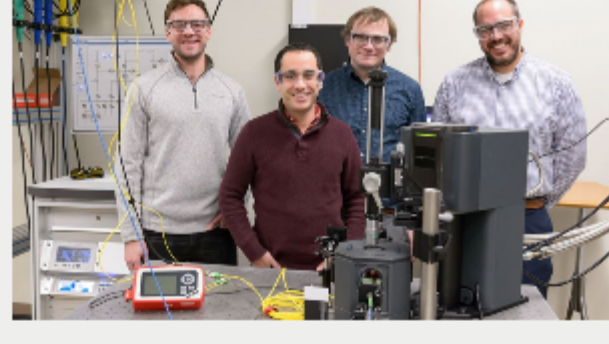
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## Top Stories

### Quantum Loop Provides Testbed for Quantum Communications

Scientists from the U.S. Department of Energy's (DOE) Argonne National Laboratory and the University of Chicago (UChicago) have launched a quantum loop, consisting of two connected, 26-mile fiber optic cables that run between Argonne and the Illinois tollway near Bolingbrook, Ill., and back. At 52 miles, it is one of the longest ground-based quantum communication channels in the country, the team said.



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### Field Tests Measuring Solar Panel Performance Could Help Improve PV Technology

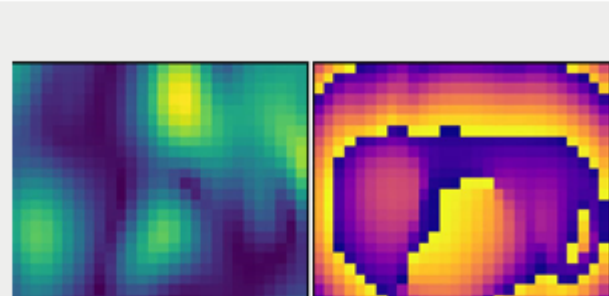
In a series of field tests performed at the Max Planck Institute for Chemical Energy Conversion (MPI-CEC), key parameters in solar panel performance were measured to gather data that can be used for choosing the most appropriate panel option for local conditions in terms of long-term performance. Five inorganic photovoltaic (PV) technologies representative of current options on the market were installed and measured.



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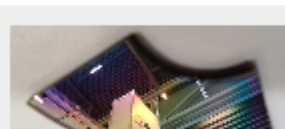
### Using Microwave Metamaterials in Machine Learning Speeds Object Recognition

A new approach to object identification, developed by researchers at Duke University and the Institut de Physique de Nice (INPHYNI), enables joint learning of optimal measurement strategies and a matching processing algorithm, and uses inferred knowledge about task, scene, and measurement constraints to improve the accuracy of object recognition tasks while using a limited number of measurements.



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## Featured Products



### Circular Variable Filters

#### Delta Optical Thin Film A/S

In addition to their well-known line of Continuously Variable Filters Delta Optical Thin Film A/S now also offers Circular Variable Filters. These are interference narrow bandpass filters of advanced design, which are deposited on circular substrates, called segments. Film thickness, and therefore the wavelength of peak...

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### High Quality Customized and Standard Optical Lenses

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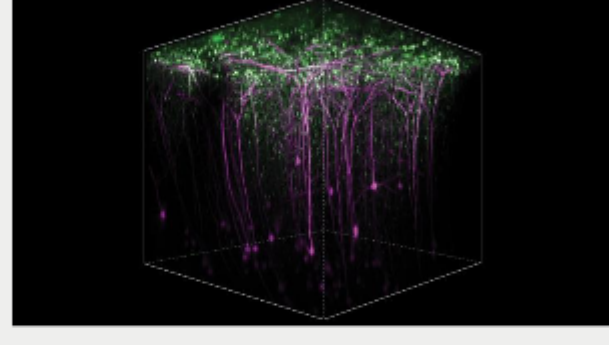
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## More News

### Two-Photon Microscopy Shows Learning Involves Different Areas of Brain

To explore how learning and memory-building take place in the brain, scientists at Johns Hopkins University School of Medicine used a laser-assisted imaging tool to monitor and measure levels of AMPAR molecules, which help send messages between neurons, in mouse brains. Their experiments, they said, add to evidence that motor-based learning can occur in multiple areas of the brain, even in areas not typically associated with motor control.



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### NIST Proposes New Definition for Optical Watt

Researchers at the National Institute of Standards and Technology (NIST) seek to develop a more precise definition for the standard unit of light power, the optical watt. Instead of the current definition, which is based on comparisons to electrical heating, the NIST study suggests that the optical watt could be determined from light's radiation force and speed.

**OPTICAL POWER COMPARISONS**

Thermal Comparison: Heat (Laser vs. Electrical)

Radiation Pressure: Compares Force (Laser vs. Mass)

Watts: A Few Photons vs. A Big Laser

COVERS A WIDE RANGE OF LASER POWER

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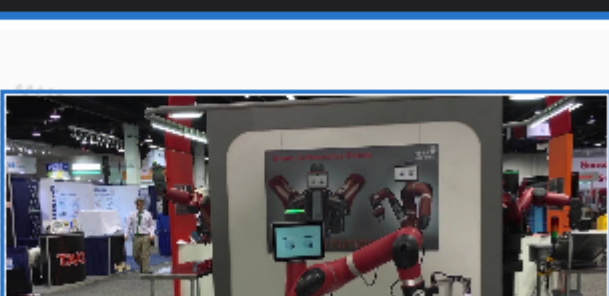
March 16-19, 2020 | Exhibits: March 17-18  
Fort Worth (TX) Convention Center

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## Industry Events

### ATX West 2020

February 11-13, 2020 - Anaheim Convention Center - Anaheim, Calif. Meet robotics experts in motion control, motors and drives, sensors and detectors, machine components, and more at ATX West, the nation's largest annual automation technology event. The 12-track conference program offers something for everyone across the product development spectrum — from R&D and design engineers to regulatory and quality professionals. The free expo connects more than 20,000 professionals with more than 1900 suppliers across five verticals and segments — medtech, plastics, design, automation, and packaging.



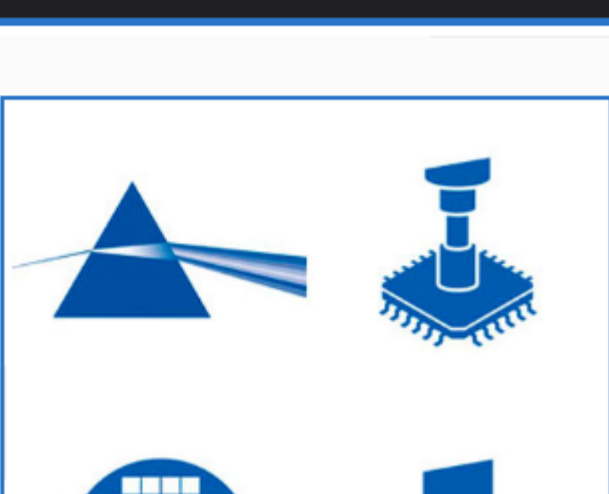
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## Webinars

### Advancements in Precision Motion Control for Electro-Optical Manufacturing and Laser Materials Processing

Wed, Jan 22, 2020 1:00 PM - 2:00 PM EST

With a focus on high-throughput/high-yield positioning and microrobotic solutions for leading-edge manufacturing, this webinar from Physik Instrumente (PI) will present the latest advancements in software, control algorithms, and motion systems available to design engineers and scientists in the laser processing, optics, and photonics industries. Examples will include laser processing of substrates with nonuniform topologies and autonomous microrobotic and precision-positioning solutions for fast optimization in the manufacture of silicon photonic, laser electro-optic, lidar, and imaging-optic assembly and test.



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