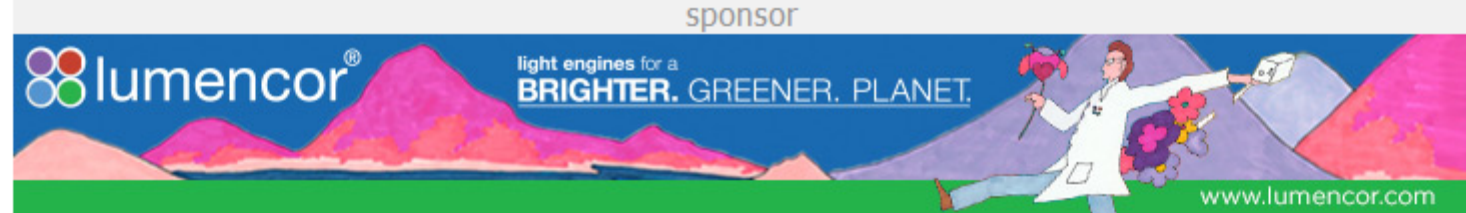


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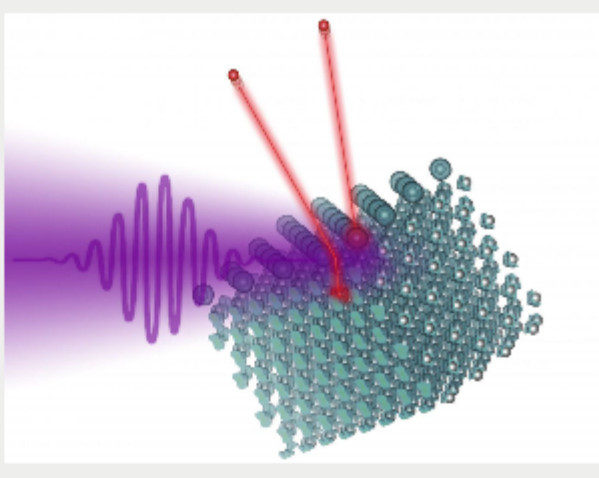


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## Atomic Clock Determines Absolute Timing of Photoelectric Effect

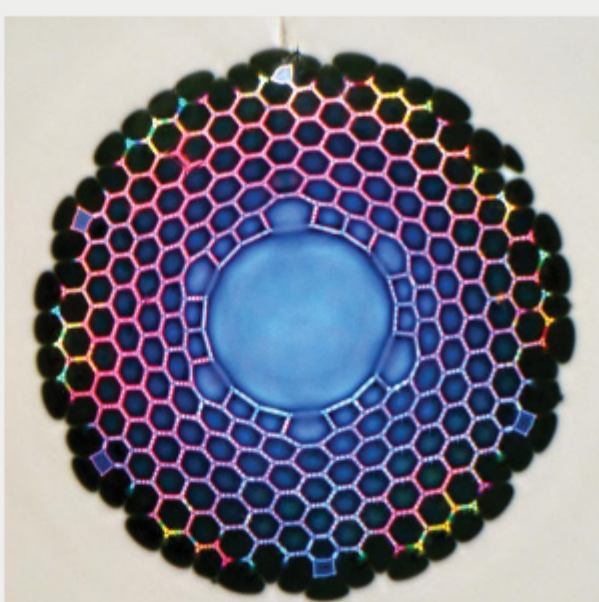
According to scientists at the University of Vienna (TU Wien), it is now possible to measure the photoelectric effect. The TU Wien team, together with research groups from Garching, Munich, and Berlin, determined the duration of the photoelectric effect using a tungsten surface. When light falls on certain materials, electrons are released from their surface. In attoseconds, an electron from the material will absorb a photon, "jump" into another state, and leave the surface. This phenomenon, or photoelectric effect, is so fast that until now it has mostly been regarded as instantaneous.



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## Fiber Optics Crucial to Future Datacom Transmission

Fiber optics technology plays a critical role within the telecommunications sector, thanks to the wide-scale and growing adoption of the technology in communication and data transmission services. Optical fibers are used in high-speed data transfer services, in both short- and long-range communications. Combined with the added surge in cloud-based applications, audio-video services, and video-on-demand technology, the market shows no signs of slowing.



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## Display Manufacturing Enriches High-Tech Products

Cutting-edge technologies are creating opportunities for companies to produce increasingly higher-quality displays for consumer electronics — from big-screen TVs to smartphones. A highly visible example is the ever-increasing picture clarity in large-screen TVs, and in the evolution of smartphone products that have become essential social and productivity mobile companions to consumers in their everyday lives. High-tech display technology enables the development of these advanced products.



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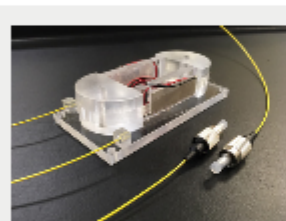
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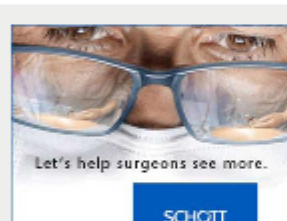
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### Piezo-electric Fiber Stretcher

**Evanescence Optics Inc.**  
Model 915B Piezo-electric fiber stretcher provides up to 16um stretch for 9m of fiber from DC to 10kHz falling off to 0 @ 100kHz. Fiber is stretched and compressed by piezo wafers elastically mounted on the sides of an oval form. The fiber is stretched only on the straight portion of the oval, to prevent bend induced cross coupling in PM fibers.

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### LIGHT: Introduction to Optics and Photonics, Second Edition

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Offering a comprehensive treatment of the subject as well as key applications, and employing minimal math, LIGHT: Introduction to Optics and Photonics was written with readers in mind. This textbook is for beginning students of optics and photonics in high school, community college, and university STEM courses.

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### It Just Keeps Getting Better....

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- Brightness: ~ 4.0 W optical output
- Control: Light on/off and graduated intensities
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### Alluxa Ultra Series Filters and Coatings

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Alluxa Ultra Series Filters, including Narrowband, Dichroic, UV, IR, and Notch filters, provide the highest performance optical thin film solutions available today. For example, the Ultra Series Flat Top Narrowband filters offer the narrowest bandwidths and squarest filter profiles in the industry.

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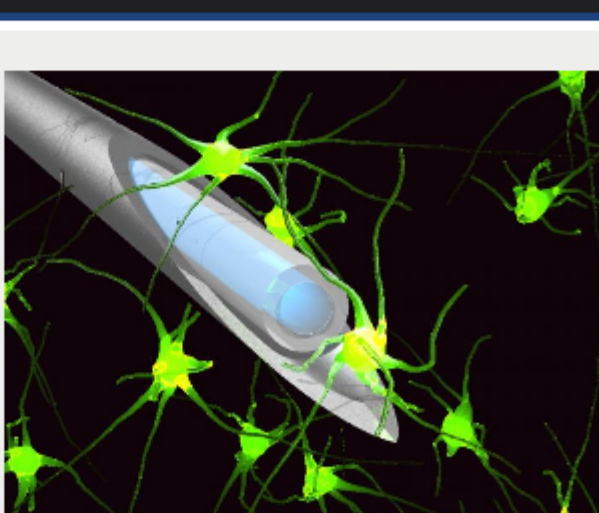
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## More News From Europe

### Probe for Deep Neuronal Imaging Built Using Holographic Techniques

Using a multimode optical fiber as thin as a human hair, scientists at the Leibniz-Institute of Photonic Technology have observed at high resolution the neuronal structures inside deep brain areas of living mice. The researchers drew on holographic methods for controlling light to design a fluorescence imaging system compact enough to fit on the tip of a fiber.



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### Plymouth Researchers Awarded \$1.3M Grant for Light-Based Space Travel

Researchers at the University of Plymouth (UP) have been awarded a \$1.3 million grant from the U.S. Defense Advanced Research Projects Agency (DARPA) to advance nonfuel propulsion for space travel.

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### German, Canadian Companies Join for Quantum Computing, Machine Learning Collaboration

The Deutsches Elektronen-Synchrotron (DESY) and Forschungszentrum Jülich of Germany's Helmholtz Association, along with Canada's TRIUMF, TRIUMF Innovations, D-Wave Systems Inc., and 1Qbit, have signed a memorandum of understanding (MOU) to jointly establish corresponding German and Canadian quantum computing and machine learning networks and to collaborate on applied quantum computing and machine learning initiatives of mutual interest.

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## Coming in the Next Issue...

### Features

CMOS Imaging for Machine Vision; Spectroscopy, Optical Components for Defense and Security; EPIC Insights

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