

# PHOTONICS



# spectra

Monthly newsletter from the editors of Photonics Spectra, with features, popular topics, new products, and what's coming in the next issue.

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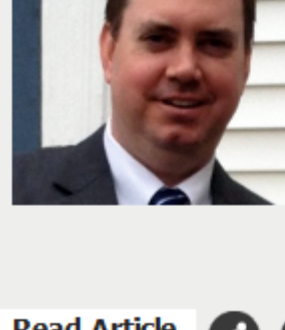
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## From the Editor's Desk



### Measuring Up: From Aspheres to Education

MIKE WHEELER, MANAGING EDITOR

The first lenses shown to have aspheric surfaces were discovered in several Viking graves on the island of Gotland in Sweden. Known as the Visby lenses, the rock crystal lenses date to the 11th or 12th century, according to "The Eye in History" by Frank Joseph Goes. It's not entirely clear what the origin or purpose of these lenses were. What is clear, a thousand years later, is the special role aspheres play in a growing number of systems.

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### The Long and the Short of It: Techniques for Measuring Aspheres

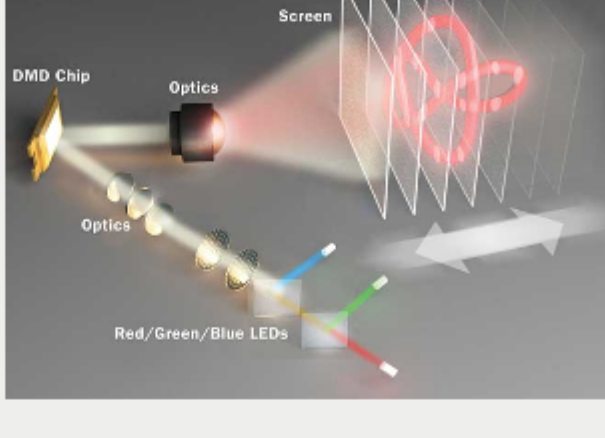
The benefits of aspheric lenses are numerous: They allow for a reduction in spherical aberrations and are ideal for focusing or collimating light, as they can achieve a low *f*-number. Aspheres also allow the same or better performance using fewer lenses, which often translates to a reduction in both size and weight in a system.



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### For MEMS Displays, Projections of Success

When it comes to MEMS-based displays, what's old is new — and now the only game in town. The old, and now only, technology involves projectors, which exploit MEMS chips to create images by moving light off either an array of tiny mirrors or a single microscopic mirror. Some of these displays are as big as movie screens. Others are small, near-eye displays. Still others are in-between, such as head-up displays in cars.



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**CT-101 and CT-102 Precision Tension Cleaving**

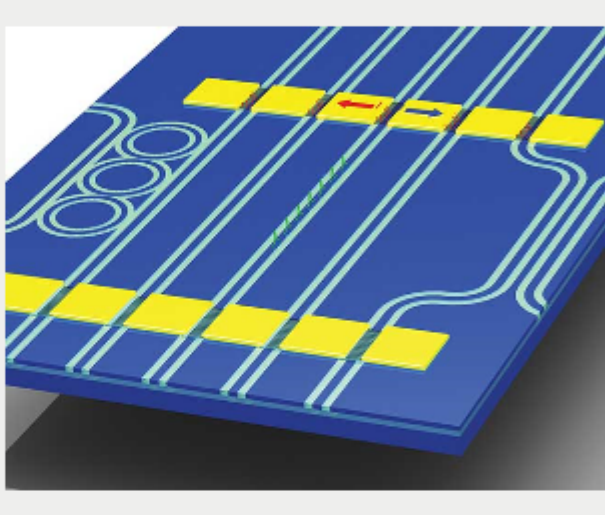
Motorized diamond blade  
Cleaves fibers from 80-250 μm  
Angle cleaving from 0 to 15°

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## In Case You Missed It

### For Integrated Photonics, a Tale of Two Materials

With its suitability for monolithic integration for optics and photonics, silicon has been widely hailed as the material of the future. But graphene — with its capacity for signal emission, transmission and detection — could be the next disruptive technology.



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### Metamaterial Switches States in Response to Light

A metamaterial has been designed with a switchable metasurface that allows it to either block or transmit light waves in response to light pulses. Developed by researchers at the University of Southampton, the optically switchable metamaterial uses the phase-change medium germanium antimony telluride to change properties, a capability that may be useful for a range of optical devices.

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### Underwater Optical System Images Seafloor at Microscale

An underwater computer with an interface to a microscopic imaging unit is enabling scientists to noninvasively image seafloor environments and organisms in situ at nearly μm resolution. The system, called the Benthic Underwater Microscope, will help scientists better understand the dynamic ecological processes taking place underwater on a microscopic scale.

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**Beam Delivery Fibers for Generating Flat-Top Beam Output**

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## Featured Products



### High-speed Imaging All-rounder Triple Hit

**PCO-TECH Inc.**  
Up until now small high-speed cameras compromised resolution, speed, sensitivity or image quality. The new pco.dimax cs camera series combines all of these desirable characteristics in a new compact camera design.

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### OL 770-DMS Display Measurement System

**Gooch & Housego Orlando**  
Gooch and Housego's OL 770-DMS Display Measurement System is the most versatile system available today for manufacturers developing new displays. Capable of performing all critical measurements, it provides a complete solution for modern display measurement requirements.

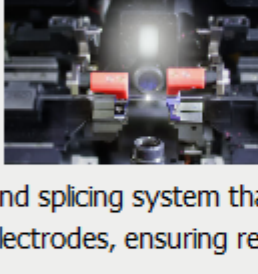
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### Flat-Top Beam Delivery Fibers

**Nufern**  
NuBEAM Flat-Top fibers are specially designed to scramble the mode content propagating in its core, tailoring the mode power distribution to achieve flat-top beams.

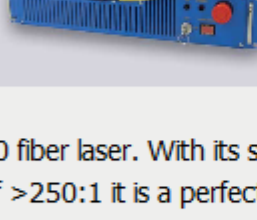
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### LAZERMasteR™ Laser Fusion Splicing System

**AFL**  
AFL's LAZERMasteR is a glass processing and splicing system that uses a CO2 laser heat source rather than electrodes, ensuring repeatable performance and low maintenance.

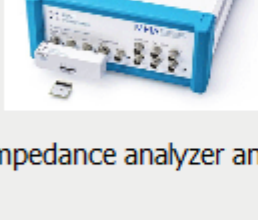
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### High Specification CW Polarized Fiber Laser for Research Applications

**Kimmon Koha USA Inc.**  
Introducing Kimmon Koha's model KKFL-20 fiber laser. With its single mode operation and a polarization ratio of >250:1 it is a perfect pumping source for SHG / THG.

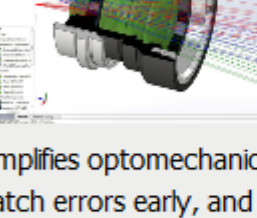
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### Precision Impedance Analyzer and LCR Meter

**Zurich Instruments AG**  
With the launch of the 5 MHz MFIA, Zurich Instruments is introducing a new type of impedance analyzer and precision LCR meter.

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### Simplify Optomechanical Design

**Zemax LLC, Optical & Illumination Design Software**  
Zemax introduces LensMechanix, a powerful SOLIDWORKS add-in that simplifies optomechanical product development. Eliminate STEP files, catch errors early, and improve efficiency with LensMechanix.

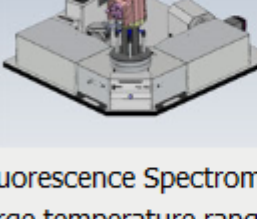
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### 2nd Generation Piezo Stages for SR Microscopy

**PI (Physik Instrumente) L.P., Air Bearings and Piezo Precision Motion**  
The 2nd generation of Pinano XY / XYZ piezo stages is now available as an affordable package with a state-of-the-art digital servo controller for higher performance, stability and additional tuning flexibility.

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### Fluorescence Spectrometer

**Edinburgh Instruments Ltd.**  
Edinburgh Instruments Ltd. has announced an upgraded FLS980 Fluorescence Spectrometer with the capability to measure over a large temperature range of <3 to 300 K without the need for cryogenic liquids.

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### High-Brightness, Tailored Bar

**DILAS Diodenlaser GmbH**  
Based on DILAS' tailored bar concept, over 30,000 modules shipped for kilowatt-class fiber laser pumping. This brilliant innovation is the most efficient way to fabricate a laser pump source.

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### World's Fastest Full Resolution Thermal Camera

**FLIR Systems Inc.**  
The FLIR X6900sc is an extraordinarily fast, highly sensitive MWIR camera designed for scientists, researchers, and engineers. With advanced triggering, on-camera RAM/SSD recording, and a four-position motorized filter wheel, this camera offers the functionality to stop motion on high-speed events.

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### Telecentric 3D Laser

**Osela Inc.**  
Osela's Telecentric Laser Projector (TLP) provides parallel non angular laser line illumination as opposed to conventional fan laser lines that project a diverging fan. The TLP has the advantage of reducing object occlusions on your image plane critical for 3D high precision structured lighting applications.

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## Webinars

### Laser Measurement Best Practices: How to Avoid Choosing the Wrong Power/Energy Sensor

Tue, Sep 27, 2016 1:00 PM - 2:00 PM EDT

Sensors are critical for accurate laser measurement, yet they are often selected based on the wrong criteria. In this webinar, Ophir-Spiricon sales engineer Dick Rieley will discuss laser measurement best practices and will guide you through key factors in the sensor selection process, including beam diameter, beam density values, cooling requirements, and exposure duration. Choosing the wrong laser sensor can result in a damaged sensor and invalid measurements of the laser's performance. Join us for this free webinar on sensor selection, to be sure that you make the right choice.

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## Coming in October...

### Features

Laser Materials Processing; Optics Fabrication; Medical Machine Vision; 3D Displays; Spectroscopy

### Issue Bonus

Optics: Past, Present & Future, with directory

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *Photonics Spectra*. Please submit an informal 100-word abstract to Managing Editor Mike Wheeler at [mike.wheeler@photonics.com](mailto:mike.wheeler@photonics.com) or use our online submission form [www.photonics.com/submitfeature.aspx](http://www.photonics.com/submitfeature.aspx).

## About Photonics Spectra



Since 1967, *Photonics Spectra* magazine has defined the science and industry of photonics, providing both technical and practical information for every aspect of the global industry and promoting an international dialogue among the engineers, scientists and end users who develop, commercialize and buy photonics products.

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