

# This Week in PHOTONICS

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## .: Top Stories

### US Department of Energy Details Net Energy Gain from LLNL Fusion Work

Scientists at the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory (LLNL) have achieved fusion ignition, marking a groundbreaking advance in the decades-long quest toward a clean, limitless energy source. The successful experiment and fusion reaction input 2.05 MJ and released 3.15 MJ of energy, exceeding results of a 2021 experiment that brought NIF scientists to the cusp of ignition.

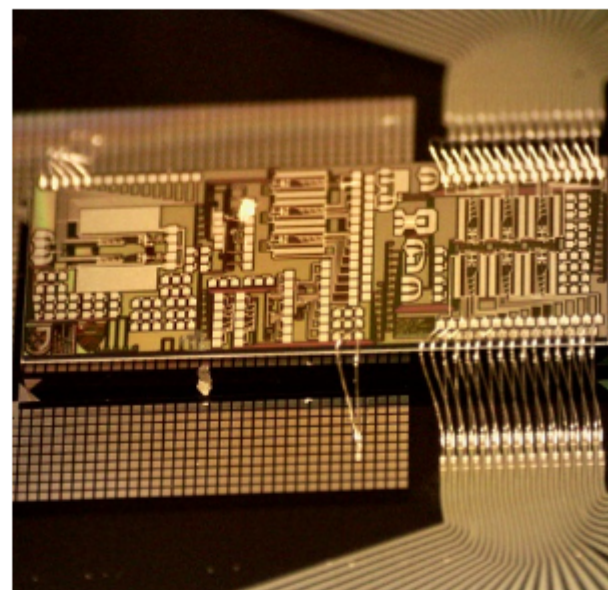
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### Silicon Photonics Platform Provides On-Chip Neural Network Training

Researchers from George Washington University introduced a strategy for training deep neural networks the benefits of using photonics to execute AI applications. The team's CMOS-compatible silicon photonics architecture enabled parallel, ultrafast on-chip training of neural networks with low energy consumption. According to professor Volker Sorger, the hardware that keys the advancement will accelerate the speed of training machine learning systems.

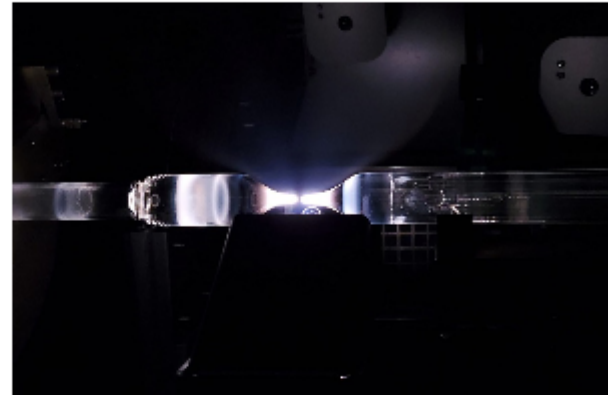
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### Microsoft Acquires Hollow-Core Fiber Innovator Lumenity

Microsoft has acquired Lumenity Ltd., a supplier of next-generation hollow-core fiber (HCF) solutions. The acquisition will expand Microsoft's ability to further optimize its global cloud infrastructure and serve customers with strict latency and security requirements.

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## .: Featured Products & Services



### SYNOPTICS Now Offers IBS Coatings

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### 771 Laser Spectrum Analyzer

#### Bristol Instruments Inc.

The model 771 operates as both a high-resolution spectrum analyzer and a high-accuracy wavelength meter. With spectral resolution up to 2 GHz and wavelength accuracy as high as  $\pm 0.0001$  nm, this system provides the most detailed information about the spectral properties of lasers operating from 375 nm to 12  $\mu$ m.

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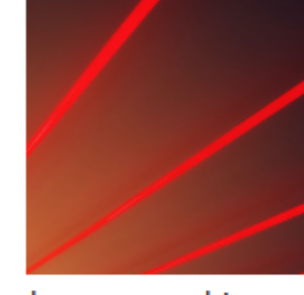
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## .: Upcoming Webinars

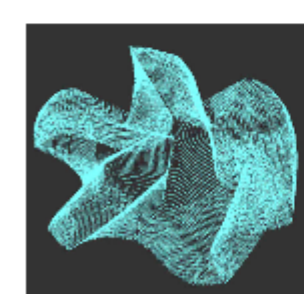


### Key Considerations for Part and Sample Holding in Interferometric Characterization

Wed, Jan 18, 2023 1:00 PM - 2:00 PM EST

Interferometry is a powerful tool when used to characterize optical surface form errors, as well as accumulated errors, when measuring transmitted wavefronts. Opticians and engineers have many methods available to facilitate such measurements but can often overlook the effects caused by part holding or fixturing. Frank DeWitt of XONOX Technology Inc. discusses what should be considered when approaching part holding and fixturing for interferometric measurements, the features that are critical to the item being measured, and the required outputs of the measurement.

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### 3D Optical Metrology: Capabilities for a New Era

Thu, Jan 19, 2023 1:00 PM - 2:00 PM EST

Kevin Harding of Optical Metrology Solutions provides an overview of the many 3D optical metrology tools available today. He discusses applications from general manufacturing of durable parts to precision component measurement. He shares examples, typical performance specifications, and the limitations of the many tools on the market today. Harding then considers each technology for both the type of application it is best suited to address, as well as its speed and resolution. Finally, he shows where each technology fits within the bigger picture of practical applications.

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## .: All Things Photonics

**Isiah Warner**, Boyd Professor and Emeritus Philip W. West Professor, Analytical & Environmental Chemistry, and former vice president for strategic initiatives at Louisiana State University (LSU), reflects on 20th- and 21st-century milestones in fluorescence science, as well as his own contributions to academic mentorship. The acclaimed spectroscopist has helped bring LSU's total of African American Ph.D. graduates in chemistry from six prior to his arrival at the university, to nearly 100 today.

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