

# PHOTONICS spectra®

## OPTICS NEWSLETTER

The latest news, features, and product developments in optics and optical fabrication – brought to you by Photonics Media. Manage your Photonics Media membership at [Photonics.com/subscribe](https://Photonics.com/subscribe).

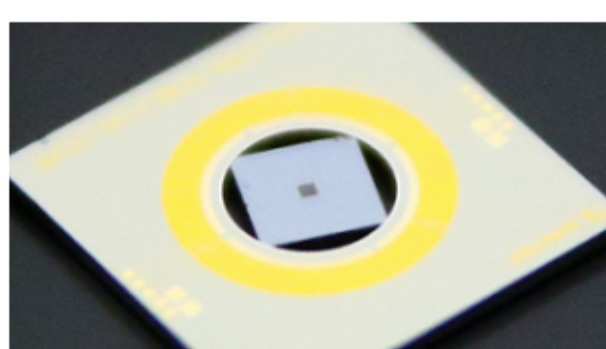


### Need Exceptional Transmitted Wavefront?

#### Thin Film Allows Metasurface Lens to Change Focus

A research team from SINTEF Smart Sensors and Microsystems in Norway has created a metasurface lens that uses a piezoelectric thin film to change focal length when a small voltage is applied. Because it is extremely compact and lightweight, the lens could be useful for portable medical instruments, drone-based 3D mapping, and other applications bolstered by the miniaturization of components.

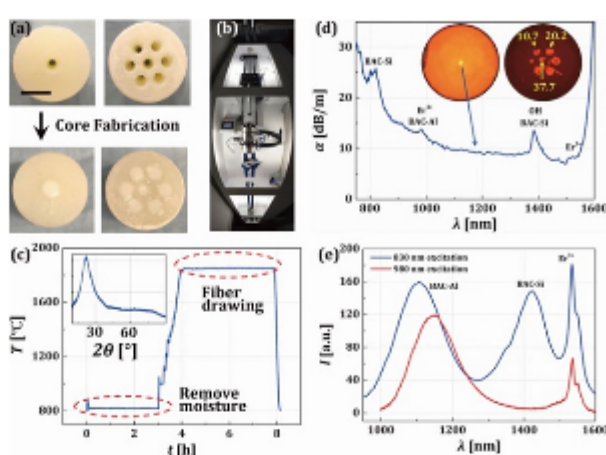
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#### Additive Manufacturing Method Disrupts Status Quo in Optical Fiber Fabrication

Researchers at Harbin Engineering University and the University of New South Wales demonstrated the additive manufacture of silica optical fiber preforms. According to the research team, additive manufacturing could transform the way specialty optical fibers are fabricated.

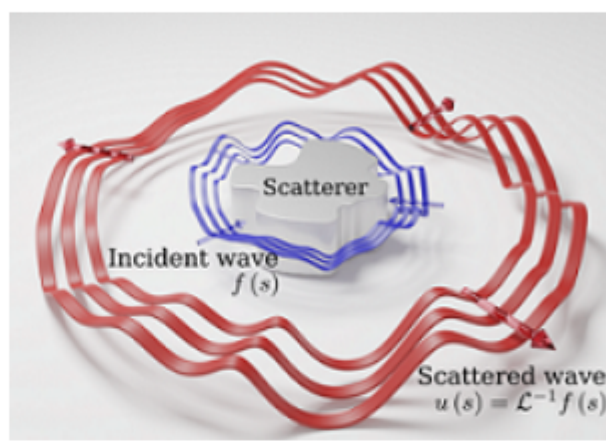
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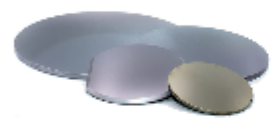
#### Efficient, Nano-Size Optical Computer Crunches Complex Data

A research team led by Andrea Alù at the City University of New York (CUNY) and Heedong Goh at the Advanced Science Research Center at the CUNY Graduate Center (CUNY ASRC) developed a design for a nano-size, wave-based computer that solves advanced mathematical computations at the speed of light.

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## .: Featured Products



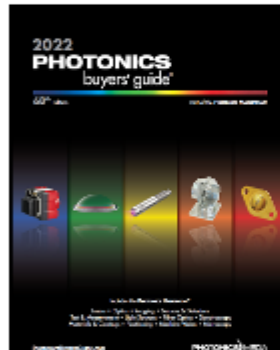
#### Custom Infrared Windows

##### Sydor Optics Inc.

Custom manufactured infrared windows as large as 14" in diameter in silicon, germanium, sapphire, ZnS, and ZnSe for applications including FLIR and FTIR spectroscopy across the NIR, SWIR, MWIR, and LWIR spectrums. Exceptional transmitted wavefront and parallelism can be assured as measured on Sydor's 3.39 μm IR Interferometer.

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## .: More News

#### All-Optical Crystals Perform as Precision Timekeepers

A team led by researchers at the University of California, Riverside has demonstrated time crystals that can persist indefinitely at room temperature, despite noise and energy loss. The team, which includes researchers from the NASA Jet Propulsion Laboratory, OEwaves Inc., and Jagiellonian University (Poland), investigated time crystals — periodic states that exhibit spontaneous symmetry breaking — in a system that is not isolated from the time crystals' ambient environment.

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#### Tech Transfer Streamlines Asphere Standards' Implementation

The Physikalisch-Technische Bundesanstalt (PTB, the National Metrology Institute of Germany) reported that it has developed standards for aspheric optics. The standards are intended to improve the calibration of aspheric and freeform surface measuring devices.

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#### Nonlinear Optical Response in Diamond Defects Points to Sensors for Nanodevices

A nonlinear optical approach to temperature sensing, discovered by scientists at the University of Tsukuba and the Japan Advanced Institute of Science and Technology (JAIST), could expedite development of nanosize sensors for applications that operate at the nanoscale.

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## .: Upcoming Webinars

#### Expanding Implementation of Fast Optimization Technology for Photonics, Optics, and Quantum Manufacturing Applications

Tue, May 10, 2022 1:00 PM - 2:00 PM EDT

High-speed parallel alignment technology can dramatically shorten the time required to optimally align multiple optical or photonic elements, typically by 99% or more. Scott Jordan, head of photonics for PI (Physik Instrumente) L.P., shares how the fields of application have expanded from its original use in precision nanopositioners to implementation into modular stacked-axis motion assemblies, gantry (Cartesian robot) configurations, and hexapod microrobots. This has brought the dramatic benefits of production economics to large-format applications, such as PCBs and trays. The technology is firmware-based, meaning that one intelligent command can autonomously optimize complex photonic and optical assemblies. Presented by PI (Physik Instrumente) L.P.

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