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OPTICS Tech Pulse

PHOTONICS MEDIA

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Optics Tech Pulse is a special edition newsletter from Photonics Media and Bristol Instruments Inc. covering key developments in optics technology.

Managing Holography Errors in Asphere Metrology

Aspheric lenses are preferred over conventional spherical lenses in many optical systems for their high optical performance and lightweight and compact form factor. However, measuring aspheric surfaces is not a straightforward process. Metrology options are typically based on interferometry or profilometry. To measure an asphere interferometrically, the reference wavefront must match that of the nominal aspheric form. A computer-generated hologram aspheric null achieves this by converting the wavefront from the aspheric surface into a spherical wavefront and superimposing it over the reference wave in the interferometer.

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PROMOTED CONTENT

Bristol Instruments Inc.

Optical Thickness Gauges

Bristol Instruments offers a family of instruments that use the unique properties of light to precisely measure the critical parameter of thickness. The primary advantage of this optical technique is that it makes non-contact measurements with sub-micron accuracy. Both hard and soft materials are analyzed without damage or deformation. In addition, this optical technique enables the simultaneous measurement of up to 31 layers. Originally designed for R&D and laboratory environments, Bristol Optical Thickness Gauges have evolved into high volume production and in-line quality control tools. These instruments surpass the capabilities of traditional measurement techniques and address today's challenging manufacturing tolerances. Rugged design, straightforward operation, and production-ready software features allow for easy integration and use in laboratory and manufacturing environments.

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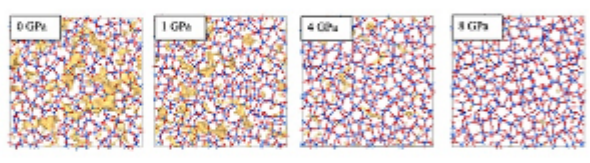
Manufacturing Fiber Optic Glass Under Pressure

Silica glass for fiber optics applications may perform better when manufactured under high pressure, according to research from Penn State and AGC Inc. in Japan.



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Chromacity-Heriot-Watt Partnership Will Advance Research, Commercialization Initiatives

Ultrafast laser manufacturer Chromacity and Heriot-Watt University have formalized a five-year partnership, enhancing the collaborators' existing relationship.

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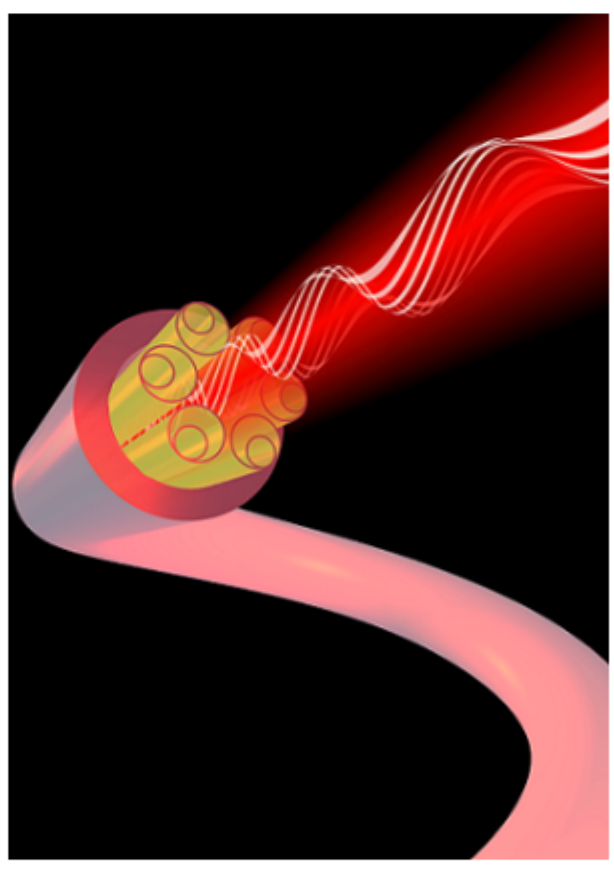
NANFs Improve Performance of Light-Based Gyroscopes

Researchers at the University of Southampton's Optoelectronics Research Centre, collaborating with researchers from Honeywell, have applied nodeless antiresonant fibers (NANFs) — a distinct class of hollow-core optical fiber with low attenuation — to improve the stability of resonator fiber optic gyroscopes.



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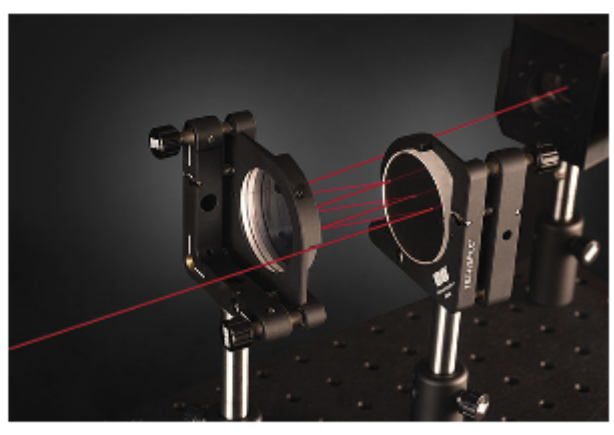
An Essential Exchange of Ideas Would Benefit the Optics Industry

Highly dispersive mirrors, nanostructured coatings, and freeform optics are the vanguard in optics, and they are well positioned to expand performance and open up new applications. But there's a caveat: Without better cooperation among component makers, systems developers, integrators, and end users, the gaps in knowledge and standards may hamper future growth.



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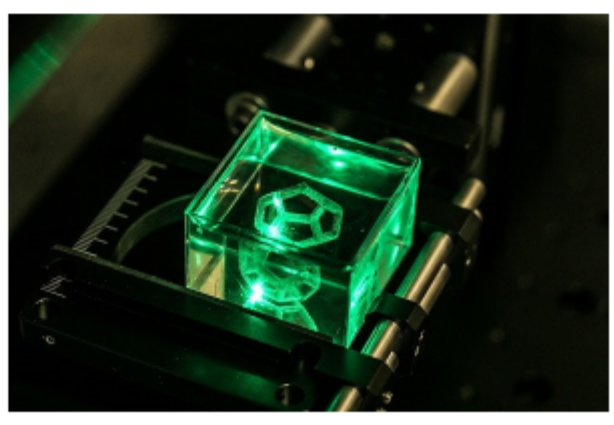
Laser-Based Method Enables 3D-Printed Glass with Intricate Detail

A laser-powered polymerization process for 3D-printing applications overcomes the need to build a 3D-printed object one layer at a time.



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