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LASERS Tech Pulse

PHOTONICS MEDIA

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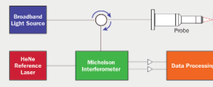
Lasers Tech Pulse is a special edition newsletter from Photonics Media and Bristol Instruments covering key developments in laser technology. Manage your Photonics Media membership at Photonics.com/subscribe.

White Light Interferometry for Highly Accurate Thickness Measurements



White light interferometry is a common system of measurement with a long history and a variety of applications, which currently include surface profiling, medical imaging, and thickness measurement. These systems are characterized by a broadband light source, reflection from one or more surfaces being measured, illumination and light collection optics, and an interferometer or spectrum analyzer.

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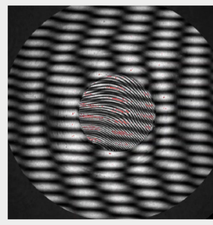
Measuring Optics with Spectrally Controlled Interferometry



Spectrally controlled interferometry, a recent advancement in traditional interferometer technology, improves the manufacture of optics that have multiple flat surfaces. The two most common commercially available modalities of interferometry to measure flat optics are white-light interferometry (WLI) and laser interferometry (LI), each with capabilities and limitations.

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Technological Synergies Move Spectroscopy Out of the Lab

Spurred by manufacturing advancements over the past decade, lasers, sensors, and imaging devices have become more compact and reliable. This progress has allowed spectroscopy to grow into new and diverse fields. As portable and hand-held spectrometers continue to trend up, manufacturers face new challenges in analysis and support.

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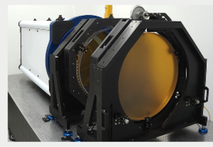
Designing Large Fizeau Interferometers



Laser Fizeau interferometers are the workhorses of optical testing. With proper configurations and accessories, these instruments enable characterization of flats, prisms, concave and convex lenses, and even aspheric elements.

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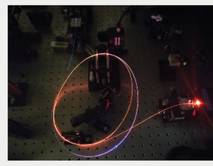
Hollow-Core Optical Fibers Offer Advantages at Any Wavelength



In most conventional fibers, fused silica is the material that forms the glassy core of the fiber. Researchers are now demonstrating that an alternative optical fiber technology, based on the use of silica fibers but with hollow cores and using different optical physics, can substantially outperform standard fiber designs for numerous applications.

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For Scientific Ultrashort-Pulse Lasers, the Sky Is Not the Limit

Upgrades in terms of footprint, efficiency, and reliability over the last three decades have allowed ultrashort-pulse lasers, also known informally as ultrafast lasers, to move out of research labs and become commonplace in industrial, biomedical, and physical applications.

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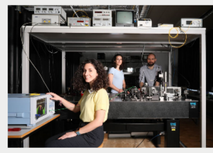
Compact Laser Detects Greenhouse Gases Using Mid-IR Source



A system developed at École Polytechnique Fédérale de Lausanne, composed of a standard laser and a photonic chip, uses a mid-infrared light source to detect greenhouse and other gases. The team took a commercially available fiber laser and combined it with a waveguide chip to reliably generate lightwaves in the MIR spectrum.

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