




Monthly newsletter from the editors of Photonics Spectra, with features, popular topics, new products, and what's coming in the next issue. Manage your Photonics Media membership at Photonics.com/subscribe.



**January 19-22
2021**
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Over 70+ presentations

Lasers • Optics
Spectroscopy • Biomedical Imaging

Freeform Surfaces Present Opportunities and Challenges

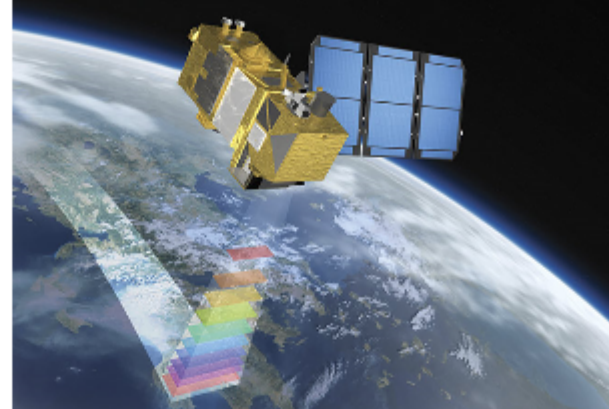
The classic example of a freeform surface in ophthalmic applications is the varifocal lens commonly used in eyeglasses. Due to the normal aging process, the eye's ability to adapt between near and far slowly decreases. This leads to discomfort, especially at close range. The great advantage of varifocal lenses is that they combine different strengths in one lens. In contrast to single-vision lenses, they allow for a combination of three vision ranges: distance, intermediate, and near vision. Compared with simple rotationally symmetrical lenses, however, the description of these freeform surfaces is very complex and the calculation costly, as they are individually adapted to each spectacle wearer and each eye for optimal results.



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Earth Imaging Reveals the True State of Land, Sea, and Air

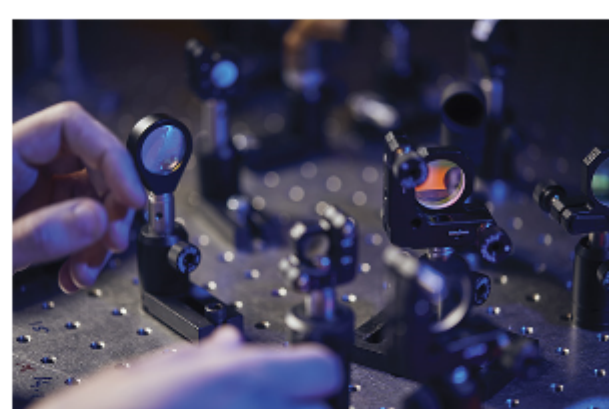
Stephen Hawking once said, "Remember to look up at the stars and not down at your feet." This deep-seated urge to make sense of where we came from and to try to understand what makes the universe tick is a defining aspect of what makes us human.



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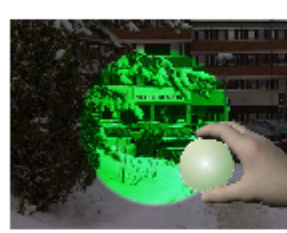
Ultrafast Lasers Probe the Fingerprint Region

Over the past decade, the growing demand for faster, higher-resolution, and more precise spectroscopy tools — coupled with developments in ultrafast laser technology — has contributed to a resurgence in the use of optical techniques. For applications that require rapid quantification and qualification of chemicals present in the atmosphere, for example, vibrational techniques such as Raman spectroscopy are replacing slower methods. Consequently, these faster approaches are now widely used in sectors ranging from food safety and agriculture to petrochemical and pharmaceutical.



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.: Featured Products



IR Filters for Thermal Imaging and Gas Detection

Spectrogon US
Spectrogon manufactures infrared filters and windows with high transmission, high rejection outside the passband, while maintaining excellent coating uniformity — for thermal imaging and gas detection applications such as cryogenically cooled IR detectors and for uncooled microbolometers.

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The READYBeam™ Combines three Lasers in one Housing

FISBA AG
The READYBeam™ is an extremely compact multi-color laser module including driver electronics and temperature control. Different diode combinations are available which cover a range of applications from microscopy and flow cytometry to display and projection techniques.

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Defense & Aerospace

Photonics Media
Drawing mainly from the pages of Photonics Spectra and focusing on the last decade or so of developments, Defense & Aerospace offers an overview of these industries as only Photonics Media can present it — from laser paint removal and laser bonding in aerospace, to breakthroughs in quantum sensing.

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Norland Optical Splice - Easy To Use!

Norland Products Inc.
The Norland UVC Optical Splice is the first really easy to use, high performance connection for optical fibers. This splice incorporates a precision TRW glass alignment guide and a proactive glass sleeve in a unique one piece design that minimizes handling of bare fiber.

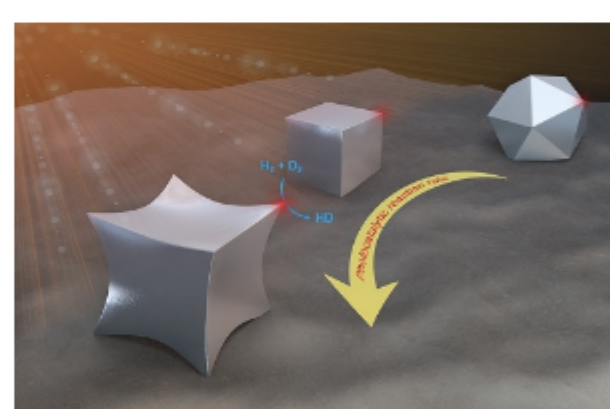
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.: In Case You Missed It

Shaping Light-Activated Nanocatalysts

A comparative study from Rice University researchers in the college's Laboratory for Nanophotonics demonstrated how the shape of nanoparticles affects their ability to drive light-activated reactions. The work is part of LANP's ongoing green chemistry initiative to develop commercially viable, light-activated nanocatalysts that can insert energy into chemical reactions with surgical precision.



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Lasers Optimize Graphene Microbubble Generation Process

Researchers from five institutions collaborated to develop a method to generate precisely controlled graphene microbubbles on a glass surface using laser pulses. Microbubbles, with applications in pharmaceuticals, biofilm control, water treatment, and beyond, are traditionally unstable structures. The new, laser-reliant method produced well-controlled and stable microbubbles using a technique compatible with existing processing technologies.

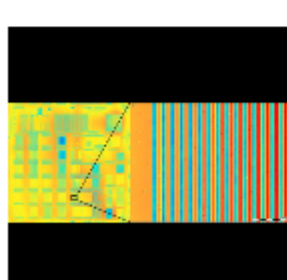
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Nanohmics to Test Hyperspectral Imager on ISS

Nanohmics Inc., in collaboration with the University of Maryland and the NASA Langley Research Center, will send a prototype compact hyperspectral imager to the International Space Station where it will be tested for calibration. The launch will take place in 2021.

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.: Upcoming Webinars



Optical-Based Surface Metrology for CMP Optimization and Die Flatness Control

Tue, Nov 17, 2020 11:00 AM - 12:00 PM EST
This webinar with Samuel Lesko, Ph.D., highlights the use of optical profilers (based on white light interferometry, WLI) to assess die flatness on semiconductor wafers, as well as to optimize the chemical mechanical polishing (CMP) process. Lesko will discuss unique combination of nanometer accuracy and micron lateral resolution to automatically identify hot spots, unwanted erosion, or dishing along the die map and reference position on wafers. Presented by Bruker.

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Features

Solar Imaging, Optical Metrology, Lasers for Quantum Applications, and more.

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 Daniel McCarthy, Senior Editor, at Daniel.McCarthy@Photonics.com, or use our online submission form www.photonics.com/submitfeature.aspx.

About Photonics Spectra



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