



Optics Tech Pulse is a special edition newsletter from Photonics Media and LaCroix Precision Optics covering key developments in optics technology.



### Five-Year Search for Dark Energy Begins

The Dark Energy Spectroscopic Instrument (DESI) has begun its five-year search for dark energy. The device, housed at Kitt Peak National Observatory near Tucson, Ariz., will aim its robotic array of 5000 fiber optic "eyes" at the night sky to gather and study the light from tens of millions of galaxies and other distant objects within the universe.

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### LaCroix Precision Optics Custom Precision Aspheres

LaCroix Precision Optics specializes in ground and polished aspheres. We employ various top-of-the-line aspheric machinery that utilizes unique kinematics to reduce mid-spatial frequencies and improve form error. By utilizing our prototype expedited delivery service (PEDS), we're able to provide quick turn aspheres...

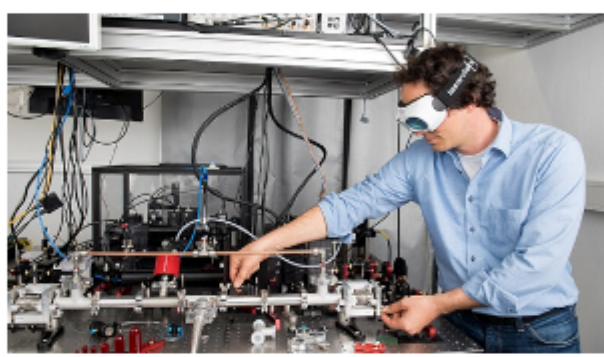
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### Ultralow-Loss Mirrors Boost Spectroscopy, Detection

Collaborators from the University of Vienna, The University of Kansas, and Thorlabs have demonstrated high-performance laser mirrors in the mid-infrared range that absorb fewer than 10 out of a million photons. The mirrors' properties show promise for high-sensitivity applications, such as sensitive molecular spectroscopy.

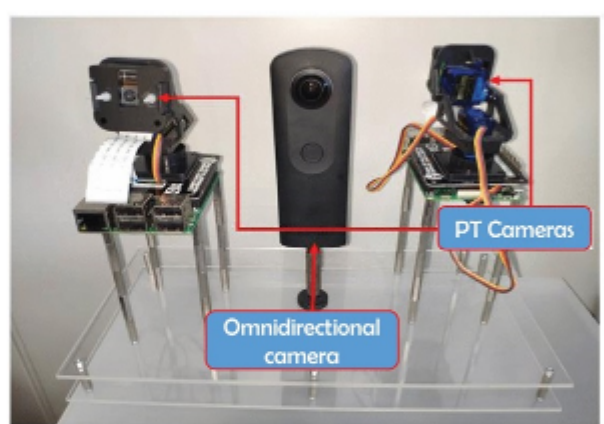
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### Camera System Combines Wide Field of View with High-Res Capture

A hybrid camera system built by researchers at Shibaura Institute of Technology (SIT) combines wide-angle target monitoring with high-resolution image capture.

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### 3D-Printed Microlenses Correct Color Distortions in Small-Scale Images

Researchers from the University of Stuttgart used a 3D-printing process called two-photon lithography to make highly precise lenses that are just a few micrometers in size and that reduce chromatic aberrations.

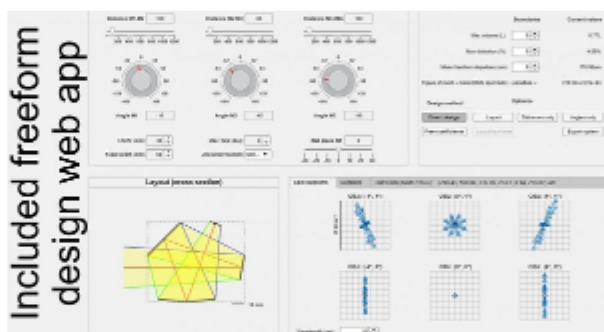
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### Deterministic Approach Reduces Error Potential in Freeform Design Process

Researchers at Brussels Photonics (B-PHOT), Vrije Universiteit Brussel, Belgium, developed a deterministic direct optical design method for freeform imaging systems.

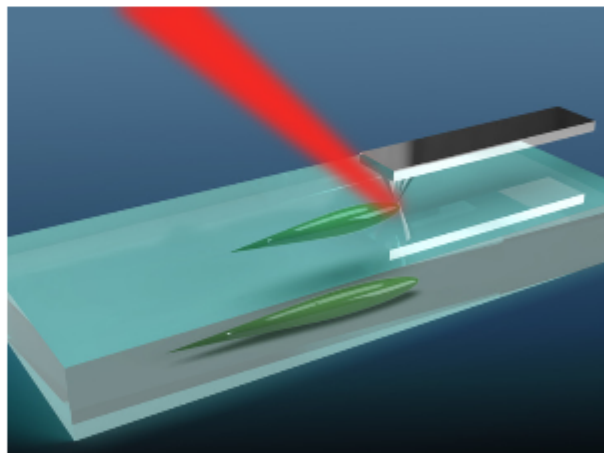
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### Spectroscopy Technique Reveals Glass Surface Damage at the Nanolevel

A spectroscopy technique created by collaborators from Penn State, Southwest University of Science and Technology (SWUST), and neaspec GmbH has enabled the study of nanolevel imperfections in the surface of glass.

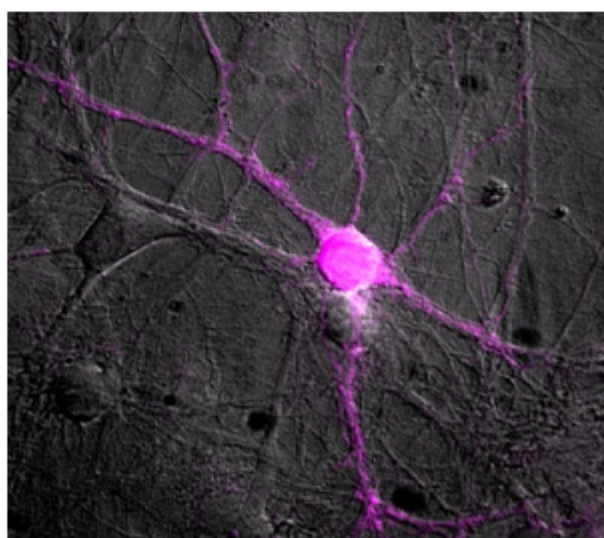
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### Organic Optogenetics Tool Shines Light on Brain's Communication Pathways

A mosquito-derived protein discovered by scientists at the Weizmann Institute of Science provides precise, spatiotemporal control of synaptic activity in the brain. The protein's use as an optogenetics tool could further scientists' understanding of the functional roles of specific neuronal pathways.

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