

This Week in PHOTONICS



Picometer Resolution
Powered by Virtually Imaged Phase Arrays (VIPAs), LightMachinery's HyperFine spectrometers offer single shot, picometer resolution laser spectrum analysis.

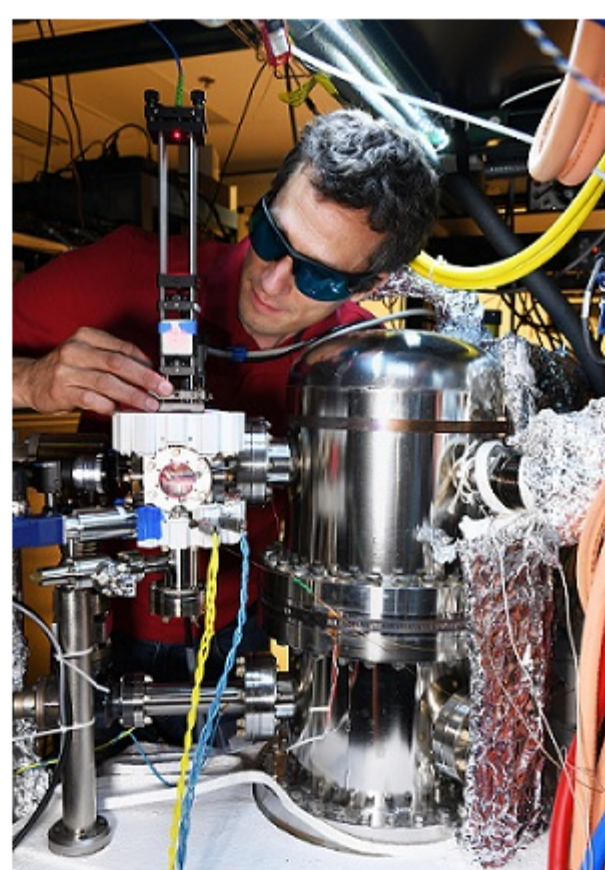


Top Stories

NIST Lays Groundwork for Vacuum Measurement Standards

A quantum-based vacuum gauge system passed what scientists considered to be its first step to become a primary standard. Measurement tests showed the system to be intrinsically accurate without the need for calibration. The advancement is of particular importance to semiconductor fabricators that manufacture chips layer-by-layer in vacuum chambers operating at or below one hundred-billionth the pressure of air at sea level.

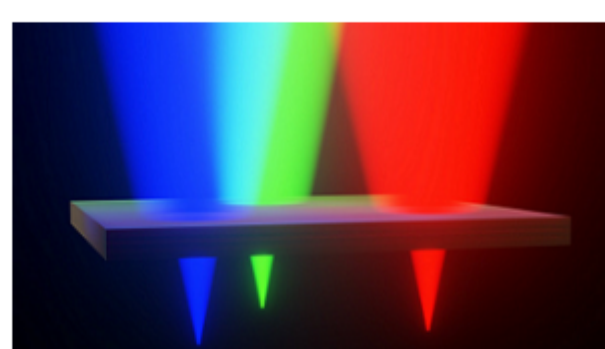
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Understanding Limits Solidifies Spaceplates in Optical Systems

Researchers at Cornell University have proposed a definition for the fundamental and practical limits of spaceplates, a technology developed to support the miniaturization of optical systems. The researchers believe their attempt marks the first time spaceplate bounds have been identified.

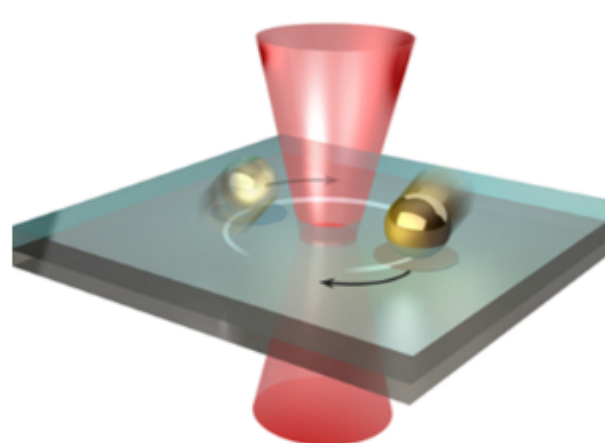
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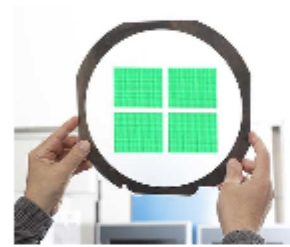
Light-Powered Nanomotors Perform as Ultrasmall Energy Converters

Researchers at the University of Texas designed a solid-state, optical nanomotor that uses light to power functional devices at the nanoscale — without the challenges that hinder nanomotors operating in liquid environments. The team said its light-driven nanomotor, which is less than 100 nm in width, is the first such device to operate in a solid state.

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Featured Products & Services



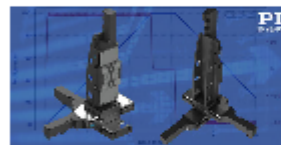
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Delta Optical Thin Film A/S
Point of Care (PoC)

instruments have various uses in medical diagnostics, including the detection of infectious diseases such as Covid-19. These types of tests only require a single drop of blood, saliva, or urine and can be performed by a GP within minutes.

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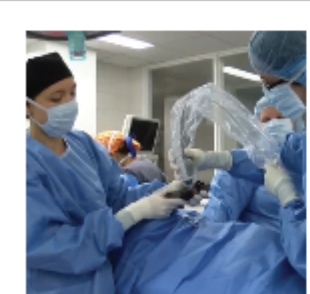
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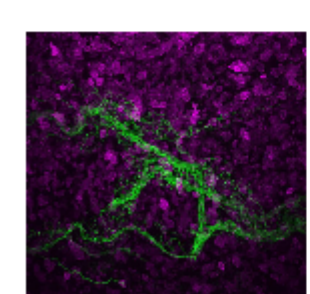


Intraoperative OCT in Veterinary Surgery for Cancer

Tue, Aug 16, 2022 1:00 PM - 2:00 PM EDT

Surgery is a common cancer treatment performed in dogs and cats but the process of assessing the tumor takes several days and is only able to evaluate a small portion. Optical coherence tomography (OCT) is a non-invasive optical imaging technique that helps solve issues that accompany this process. OCT enables real-time intraoperative surgical margin assessment, allowing rapid visualization of the tissue microstructure at the surgical margins. To date, Dr. Laura Selmic, and her team have found high sensitivity and specificity for detection of incomplete margins after surgical excision of skin tumors, including STS and mast cell tumors, in dog and feline injection site sarcoma. The results reveal that OCT has potential for showing the demarcation between tumor and other normal tissues including muscle, fat, and skin.

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Sub-Cellular Biology at Tissue Scales with Cleared Tissue Axially Scanned Light-Sheet Microscopy

Wed, Aug 17, 2022 1:00 PM - 2:00 PM EDT

Large-scale interdisciplinary efforts have worked to comprehensively catalog cellular architectures in health and disease. Kevin Dean Ph.D. shares on the scalable imaging platform, Cleared-Tissue Axially Swept Light-Sheet Microscopy (CT-ASLM), that helps further this research. The CT-ASLM leverages high-speed, aberration-free, remote focusing to achieve an isotropic resolution of approximately 300 nm-scale subcellular imaging with an unparalleled optical sectioning capacity and large field of view. The platform provides global tissue architectures as well as quantitatively detailed morphological and biochemical descriptions of the individual cells that compose tissues in health and in disease. Sponsored by Power Technology, Intelligent Imaging Innovations Inc., and Applied Scientific Instrumentation, Inc.

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