

This Week in PHOTONICS



Picometer Resolution

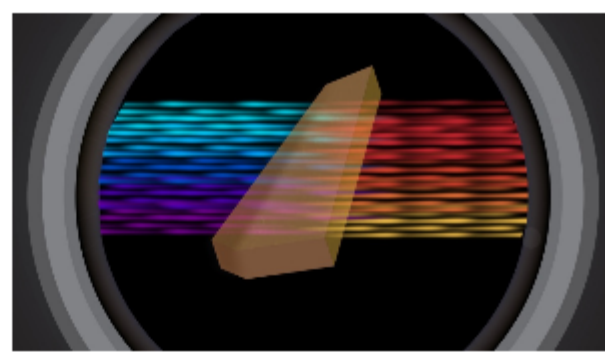
Powered by Virtually Imaged Phase Arrays (VIPAs), LightMachinery's HyperFine spectrometers offer single shot, picometer resolution laser spectrum analysis.



Top Stories

Miniaturized Frequency Converters Support Ultrasmall Optical Circuit Chips

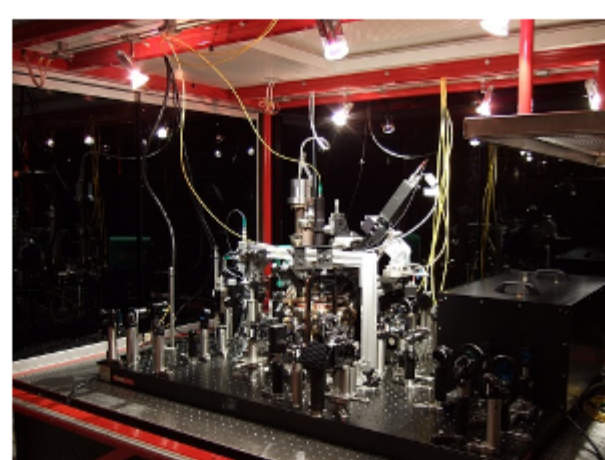
Researchers from Columbia University and Politecnico di Milano used an atomically thin material to build microscopic color converters. The advancement is a first step toward replacing the standard materials used in today's tunable lasers, which are measured in millimeters and centimeters.



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Fourteen Entangled Photons Expel a Quantum Computing Bottleneck

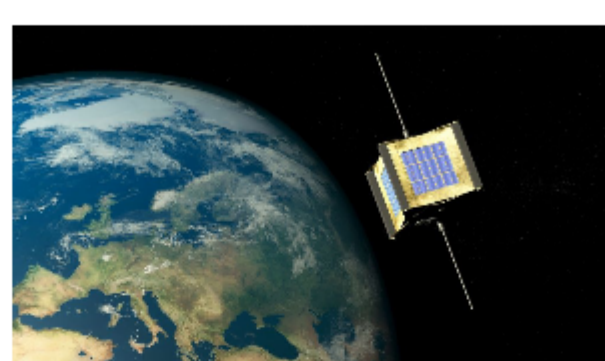
Physicists at the Max Planck Institute of Quantum Optics developed a method that could facilitate the construction of powerful and robust quantum computers, as well as the secure transmission of data. The physicists generated up to 14 entangled photons, in an optical resonator, which could be prepared into specific quantum physical states in a targeted and efficient manner.



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Quantum Sensors for Satellite Control Enable High-Speed Connectivity

A German consortium composed of Q.ANT, Bosch, TRUMPF, and the German Aerospace Center (DLR) plans to use quantum technology to permanently enhance satellite measurement stability. The partners will develop space-qualified attitude sensors in a project will improve internet access, particularly in remote regions.

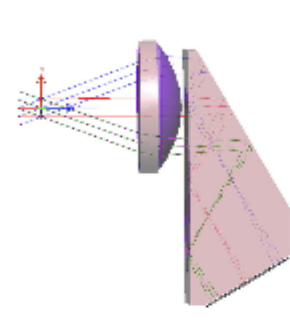


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HyperFine Brillouin Spectrometer

LightMachinery Inc.

The great challenge with Brillouin spectroscopy is that the scattered signal from the un-shifted wavelength of the laser can overwhelm the small Brillouin shifted return signal. LightMachinery has combined its leading-edge HyperFine spectrometer with a very narrow band tunable filter to suppress the bright un-shifted laser frequency.

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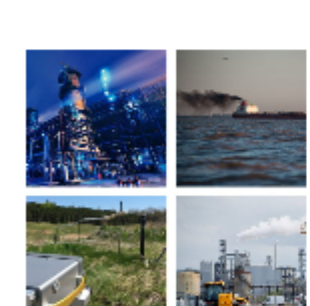


Affordable, Low-Profile Solutions for Gas Sensing

Thu, Sep 8, 2022 1:00 PM - 2:00 PM EDT

Brian Sanders and Alfred Mottola of VIGO Photonics share the latest advancements in infrared (IR) detectors for the gas sensing market. These detectors are able to be deployed in small form factor solutions across multiple industries while remaining cost effective. Sanders and Mottola highlight several of the methodologies that can be used for gas sensing and explain what types of gas can be detected using the various methods. Presented by VIGO Photonics.

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Airborne Remote Methane Quantification Using Thermal Infrared Hyperspectral Imaging

Thu, Sep 15, 2022 1:00 PM - 2:00 PM EDT

Methane is a powerful greenhouse gas. Many regulatory bodies around the world are taking significant steps toward sharply reducing emissions from the oil and gas sector. Airborne infrared hyperspectral imaging can visualize and quantify these emissions and gas leaks under various environmental conditions and industrial contexts. Benjamin Saute of Telops, shares on the capabilities of airborne-based methane emission detection systems were recently demonstrated in a measurement campaign composed of multiple controlled releases with methane flow rates. This test showed that infrared hyperspectral imaging is a highly efficient and sensitive tool for the detection and quantification of methane leaks.

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