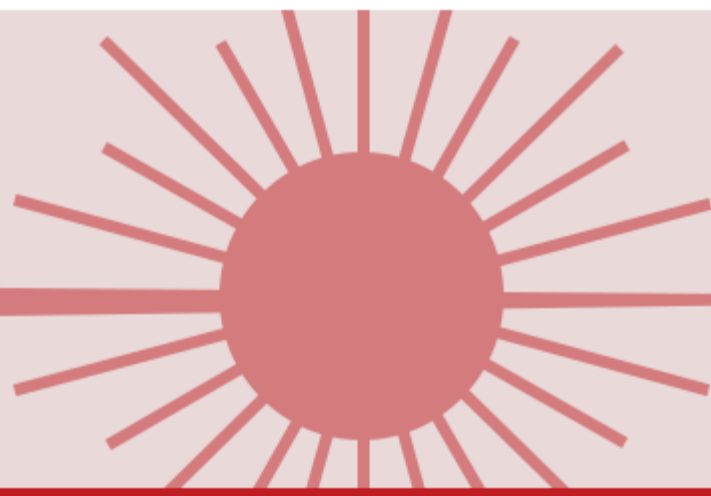


LASERS



Tech Pulse



PHOTONICS MEDIA

April 2020

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Laser Wavelength Measurement and Spectral Analysis

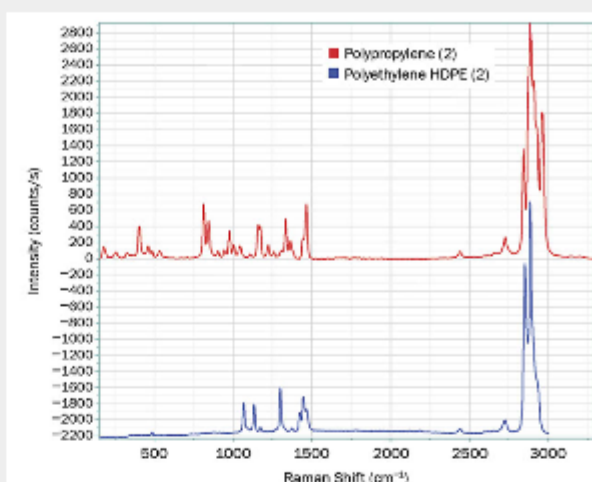
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BRISTOL INSTRUMENTS

Characterizing Microplastics with Raman Spectroscopy

As the need to manage plastic waste increases, researchers are using Raman spectroscopy to characterize the toxicity of polymers and identify their sources. Several technologies exist for characterizing microplastics, including pyrolysis gas chromatography/mass spectrometry, Fourier transform infrared spectroscopy (FTIR), and Raman spectroscopy.



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PROMOTED CONTENT

Bristol Instruments Inc.

MIR Laser Spectrum Analyzer

The 772B-MIR Laser Spectrum Analyzer from Bristol Instruments combines proven Michelson interferometer technology with fast Fourier transform analysis to characterize the spectral properties of lasers that operate from 1 to 12 μm . It is the ideal solution for scientists and engineers who need to know the spectral properties of their pulsed mid-IR lasers.

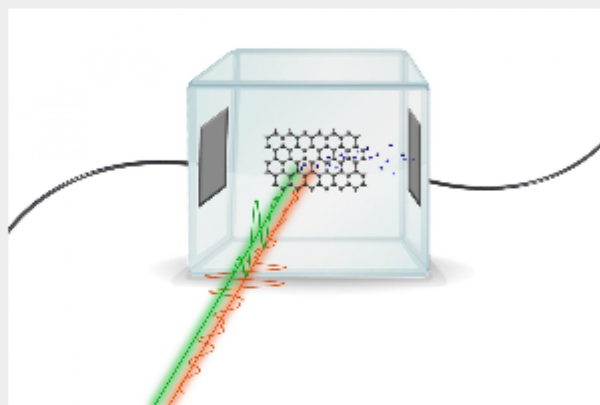


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Less Complex Approach to Laser Pulse Measurement Provides Precise Information

Until now, a complex experimental setup was required to measure the shape of a laser lightwave with a high degree of accuracy. This measurement can now be done using a small crystal with a diameter of less than 1 mm. The new method uses extremely short pulses, with a duration in the order of femtoseconds.

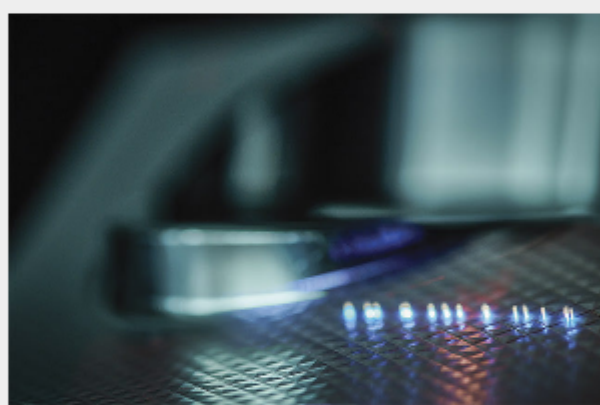


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Improved Lasers and Techniques Benefit Materials Processing

For laser materials processing systems, power levels are up, costs are down, and there are innovations in beam delivery and control. These developments are expanding the use of lasers in welding, cutting, surface treatment, and other applications.

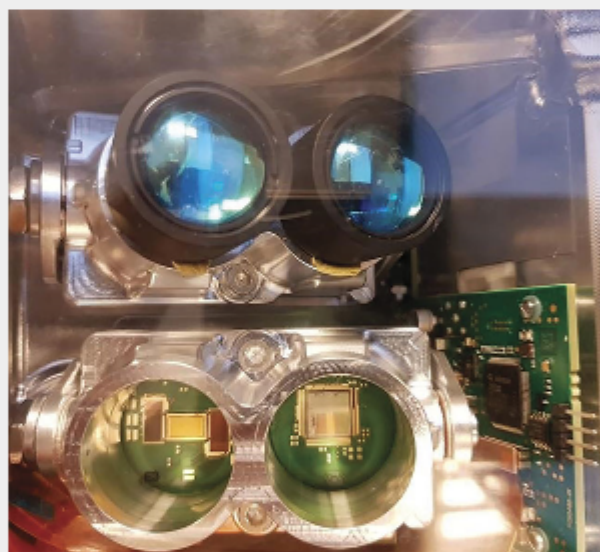


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Lidar: A Technology at Use in Daily Life

Lidars provide point cloud distribution — to represent the 3D environment — using the backscattering of a laser beam from the target surface. They have long been used for purposes of mapping and atmospheric sensing. Lidar is no longer a technology to consider for the future; it is becoming part of our daily lives.

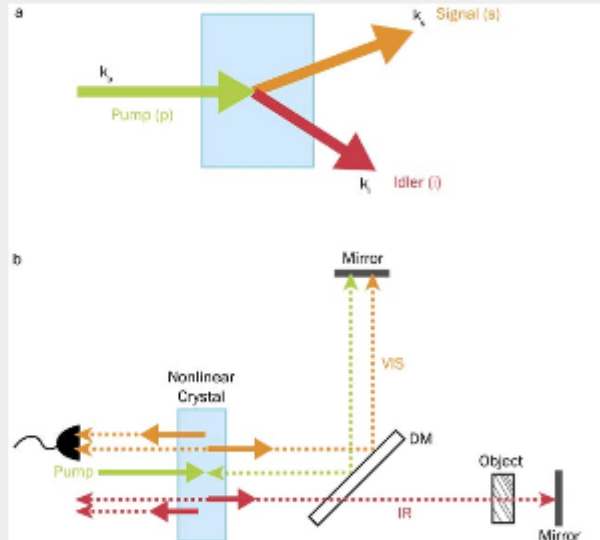


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IR Metrology with Visible Light

A new approach to IR metrology uses common optical components for the visible range. The technique is based on nonlinear interference of correlated photons, in which information about the photon in the IR range is inferred from the measurement of its correlated photon in the visible range.

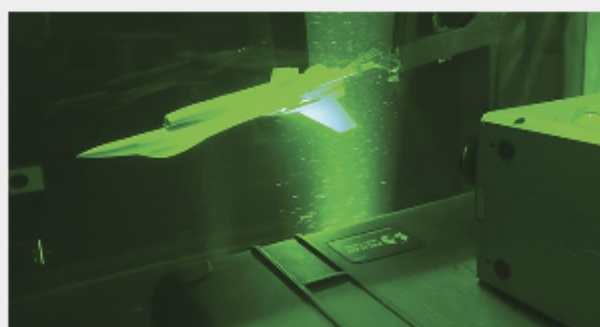


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Artificial Intelligence in Particle Image Velocimetry

The first article to use the term "particle image velocimetry" (PIV) was published in 1984. Since then, PIV has become a standard method for flow measurements. Continuous lasers or special double-pulse lasers, also known as PIV lasers, are used to generate laser light sheets with special optics.

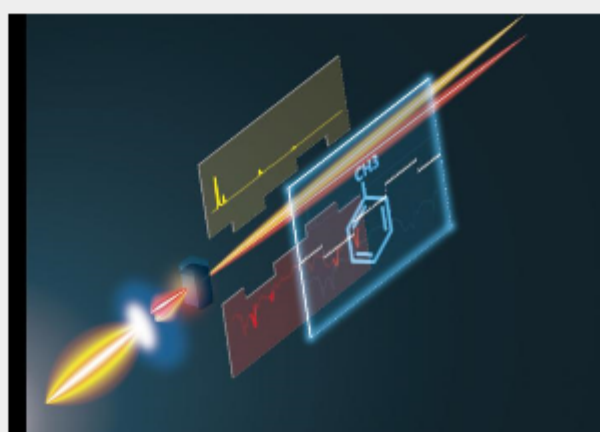


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Spectroscopy Technique Widens Spectra for Measuring Molecular Structure

Researchers have combined two current spectroscopy techniques — infrared absorption and Raman scattering spectrometry — to create complementary vibrational spectroscopy. The new technique employs IR absorption and Raman scattering spectroscopy simultaneously.



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