

# PHOTONICS spectra®

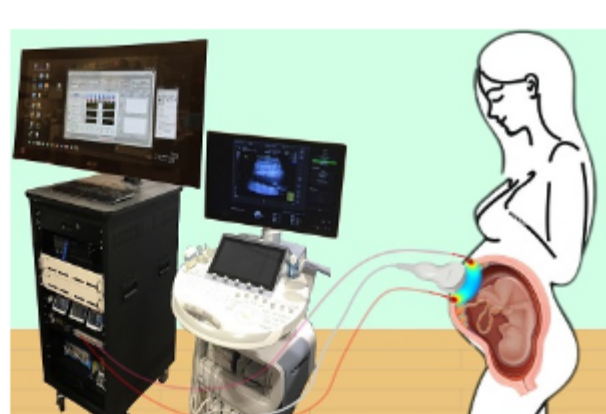
## SPECTROSCOPY NEWSLETTER

The latest news, features, and product developments in spectroscopy technology – brought to you by Photonics Media. Manage your Photonics Media membership at [Photonics.com/subscribe](https://www.photonics.com/subscribe).

### Measurement-, Imaging-Based Monitoring Improves Pregnancy Outcomes

An optical technique for measuring placental blood flow and oxygenation in real time provides information about placental hemodynamics that could aid in the early detection of adverse pregnancy outcomes. The technique is the result of a collaboration between the University of Pennsylvania and the Children's Hospital of Philadelphia.

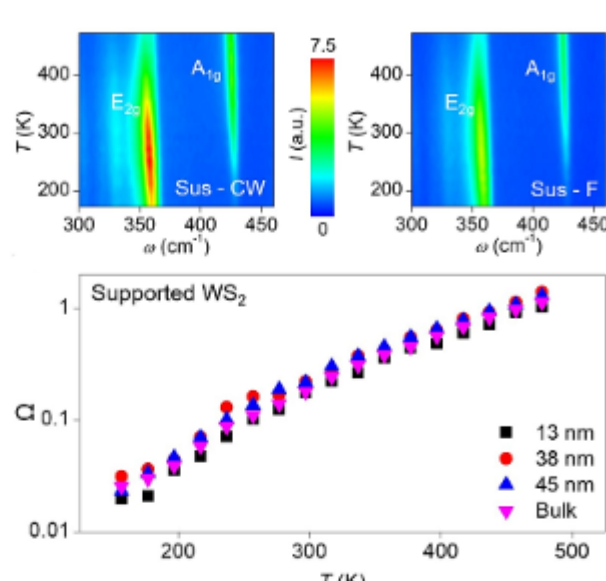
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### Nanofilms Optimize Raman Thermometry for Extreme Manufacturing

Collaborating researchers demonstrated an approach to the thermal probing of nanomaterials in which the ratio of two resonance Raman peak intensities of a 2D material, tungsten disulfide (WS<sub>2</sub>), could be used as an indicator for high-sensitivity temperature measurements. The technique, called the Resonance Raman Ratio (R3) technique, precisely measured absolute temperature rise in nanomaterials.

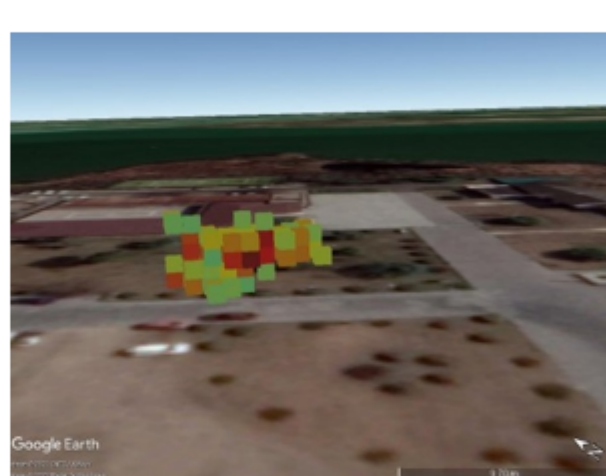
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### Imaging Technique Enables Gas Leak Tracking in 3D

Researchers developed a method to create a 3D image of a leaked gas cloud. The image provides detailed information about the leak, such as its location, volume, and concentration. The method combines information from two remote FTIR imaging systems with precise positioning information from gyroscope sensors and GPS to create a 3D image of the gas cloud superimposed on a Google Earth digital map.

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## .: Featured Products & Services

### [Remote Sensing](#)

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From space and the sky around us to firmly on the ground, remote sensing is providing an important view of our surroundings that can't be seen with our eyes alone. A variety of optical technologies are having an impact on applications as diverse as agriculture and defense, weather and climate, and are now part of the payload on satellites, planes and drones, and riding in and even guiding vehicles on the highway.

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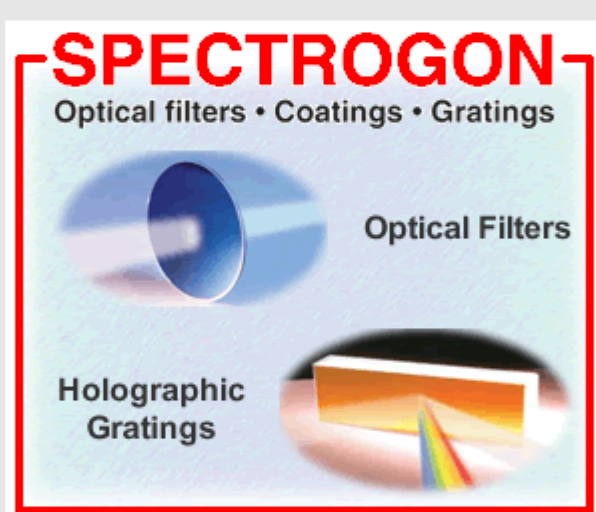
### [IR Filters for Thermal Imaging](#)

#### Spectrogon US Inc.

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 uncooled microbolometers. Our filters and windows range in dimension from Ø6.0 to Ø200.0 mm with dicing capabilities down to as small as 1.0 × 1.0 mm.

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## .: More News

### Researchers Increase Spatiotemporal Resolution of Imaged Lightwaves

A multi-institutional team developed a technique to measure the electrical field of ultrashort laser pulses in time and space. The technique makes it possible to take "photographs" of lightwaves with a previously unachieved spatial and temporal resolution, and the development could in turn lead to an improved quality in spatially resolved spectroscopy.

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### NASA Looks to Deploy Terahertz Laser to Resolve a Lunar Mystery

NASA Goddard Space Flight Center engineer Berhanu Bulcha is developing a heterodyne spectrometer that offers the power and resolution to offer a more definitive solution to the endeavor of locating water on Earth's moon. The instrument relies on a QCL, previously prototyped through NASA's SBIR program.

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### Raman Instrument Advances Study of Greener Fuels for Aerospace

Researchers have developed an instrument that performs coherent Raman spectroscopy (CRS), using an ultrafast laser, to obtain precise temperature and concentration measurements of H<sub>2</sub>. The team's approach could help advance the study of greener hydrogen-based fuels for use in spacecraft and airplanes.

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## .: Upcoming Webinars



### Harnessing Photons for Bond-Selective Imaging, Neuromodulation, and the Killing of Superbugs

Tue, Nov 1, 2022 10:00 AM - 11:00 AM EDT

Chemical microscopy utilizing fingerprint vibrational spectroscopic signals opens a new window to visualize the orchestra of molecules and biological structures inside living systems. Dr. Ji-Xin Cheng, professor at Boston University, and his research team have recently started to harness photons to modulate the behavior of cells, including the photoacoustic modulation of neurons at ultrahigh spatial precision and photolysis of intrinsic chromophores to eradicate drug-resistant bacteria.

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