

SPECTROSCOPY

Tech Pulse

PHOTONICS MEDIA

November 2017
Spectroscopy Tech Pulse is a special edition newsletter from Photonics Media covering key developments in spectroscopy technology. Manage your Photonics Media membership at Photonics.com/subscribe.

NASA Mars 2020 to Use Spectroscopy, Fluorescence Imaging in Biosignature Analysis
NASA's Mars 2020 mission, which will look for signs of past life on Mars, will use smart methods originally developed to find the oldest life on Earth. The 2020 mission builds on the successes of prior rovers to make coordinated measurements that could detect signs of ancient life in their original spatial context. These techniques, known as spatially resolved biosignature analysis, derive from geochemical analysis of early life on Earth.



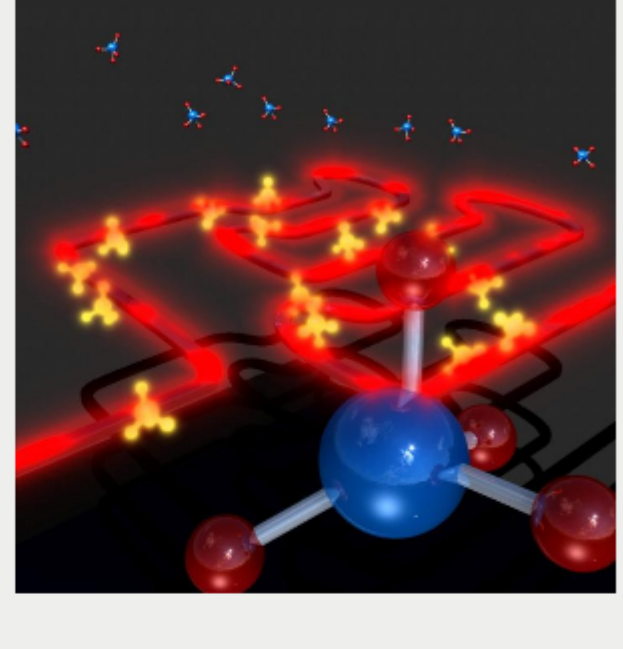
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Shrinking FT-NIR Spectrometers Empower Consumers, Businesses
Chip-scale sensor integration has brought us to the edge of new market opportunities that are poised to transform business practices and consumer lifestyles. The ability to incorporate miniaturized sensors into small devices and broad networks means that actionable data can be collected anywhere, anytime. This new capability enables consumers and businesses to monitor goods, conditions and operations in real time and to make changes and adjustments on the fly to optimize safety, health, quality control and production, and even care for the environment.



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Spectrometer Uses Silicon Photonics to Monitor Gas Leaks More Efficiently
A chip-based spectrometer that is smaller than a dime has demonstrated the ability to detect methane in concentrations as low as 100 parts-per-million. The spectrometer leverages silicon photonics technology to realize a compact, cost-effective design that provides IR tunable diode-laser absorption spectroscopy (IR-TDLAS) on a CMOS-compatible platform. It uses an approach similar to absorption spectroscopy; but instead of a free-space setup, the laser travels through a narrow silicon waveguide.



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Diffraction Grating Solutions
Optometrics Corporation
Diffraction efficiency and dynamic range are critical parameters in many spectrometric instrument designs. Understanding why a particular reflective or transmission diffraction grating may have small yet necessary performance differentiation for instrument optimization success can be critical.

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AvaSpec-HERO: Resolution and Sensitivity!
Avantes BV
This combination will give you an excellent instrument offering the ideal balance between sensitivity and resolution, capability of using longer integration times in low light applications yet ensuring perfect signal to noise performance. A real Hero for your application!

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MIDORI rvi/ndt Fiber-Optic LED Light Source
USHIO America Inc.
For decades, Ushio America, Inc. has consistently provided high quality illumination products in specialty markets world-wide. Responding to needs of customers with discerning applications, Ushio engineers have developed exceptional LED fiber-optic illuminators in compact sizes.

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Low-Cosmetic Defect IR Filters for Thermal Imaging
Spectrogon US
Spectrogon manufactures infrared filters and windows with high transmission, high rejection outside the passband, and introducing low cosmetic defects -- while maintaining excellent coating uniformity --- for thermal imaging applications such as cryogenically cooled IR detectors and for uncooled microbolometers.

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Novel Hyperspectral Imager for Airborne Applications
BaySpec Inc.
BaySpec's OCI series of hyperspectral imagers represent a new class of imaging sensors specifically designed to address quality and ease-of-use issues in legacy hyperspectral imaging systems. BaySpec's line-up offers flexibility in selecting a wavelength range, spectral resolution and spatial resolution tailored for your applications.

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Three-Detector UV-VIS-NIR
Shimadzu Scientific Instruments Inc.
Shimadzu's UV-3600 Plus UV-VIS-NIR spectrophotometer is equipped with three detectors -- a PMT (photomultiplier tube) for ultraviolet and visible regions, and InGaAs and cooled PbS detectors for the near-infrared region.

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Optical Biomedical Imaging
Photonics Media
At last, a reference work has been compiled that offers in one place a broad survey of technologies, applications and markets for optical biomedical imaging, as only Photonics Media could produce it. This collection is a practical resource for those engaged in the research and development of relevant technologies.

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Rhea: High-End Spectrometers
Admesy BV
Admesy's Rhea is a high-end configurable spectrometer platform that has been developed with industrial and R&D analysis applications in mind. This spectrometer series can be fine-tuned for different applications in the spectral range between 200 and 1100nm.

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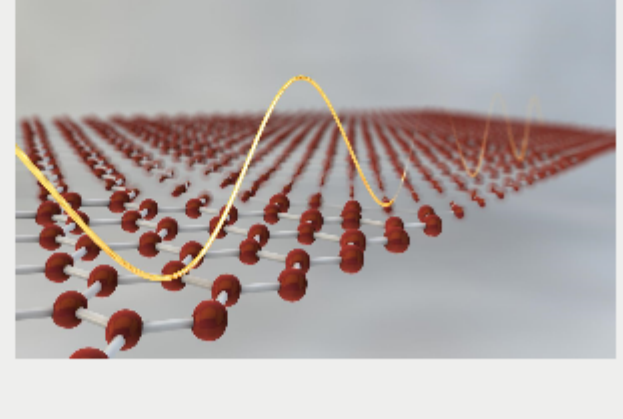
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NIRS and Chemometrics Offer Insights Into Earth's Surface
When applied to hyperspectral remote sensing images, the techniques of near-IR spectroscopy and multivariate chemometric calibrations, such as partial least squares regression, enable quantitative mapping of the properties of Earth's surface.



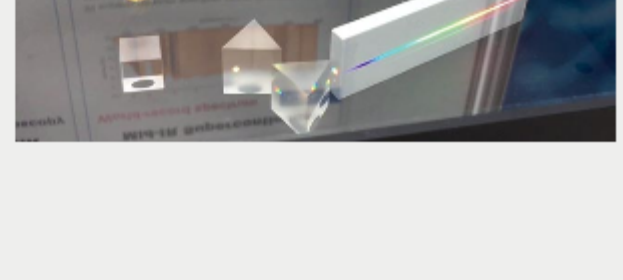
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Graphene-Based Absorbers Could Enable Ultrafast Lasers in THz Range
A terahertz saturable absorber has been created using printable graphene inks produced by liquid phase exfoliation (LPE) and deposited by transfer coating and ink jet printing. Such an absorber could enable the development of ultrafast lasers in the THz range. These lasers could be useful in applications where short time scale excitation of specific transitions is important, such as time-resolved spectroscopy of gasses and molecules.



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Better Beer, Bread Thanks to Supercontinuum Lasers
Most beer is made from four primary ingredients: grains, hops, yeast and water. The basic ingredients for bread are flour, yeast, water and salt. Throw a supercontinuum laser combined near-IR into the mix and researchers say they can produce better quality beer and healthier bread.



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Webinars

Practical Solutions for Laser Safety
Tue, Nov 14, 2017 12:00 PM - 1:00 PM EST
This webinar will explain the most important elements of laser safety and provide practical advice on how to implement a laser safety program in a research, academic and/or product development laboratory setting. Presenter Ken Barat, a laser safety consultant and long-standing expert in the field, will present a number of lessons he has learned on lab design for a safe environment and laser accident prevention. He will also address common misconceptions about laser safety, before opening the floor to questions from attendees.

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