Wednesday, August 02, 2017

SPECTROSCOPY Tech Pulse

PHOTONICS MEDIA

August 2017

Spectroscopy Tech Pulse is a special edition newsletter from Photonics Media covering key developments in spectroscopy technology.

Portable Spectroscopy and the Fight Against Food Fraud

Food fraud and adulteration is a serious and increasing problem with significant health and economic impacts. Although robust and sophisticated laboratory methods have been developed to detect fraud, the question of how that experience can be deployed in the field remains. Ideally, handheld instruments operated by nonscientists would be used at a port, in a food distribution center or on a supermarket loading dock.

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Princeton Instruments Announces New Spectroscopy Grant Program

Camera developer Princeton Instruments has introduced the Scholars Grant Program, a financial assistance program for researchers and educators who are seeking the latest high-performance spectroscopy tools for their labs and classrooms.

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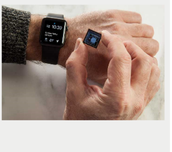
Spectroscopy for the Masses

The availability of low-cost, compact spectrometers and sensors has driven developers to find numerous new usage models that may completely change our personal connection to fitness, health care and our homes. Advanced optical technology, along with creative programming, are birthing a whole new cadre of next-generation consumer devices that could create a billion dollar market by 2021.



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Optical Sensors Advancing Precision in Agricultural Production

Emerging methods for plant phenotyping involve optical sensors — from simple RGB image sensors to NIR and Raman spectroscopy. New sensor and imaging technologies are among the most important and exciting new tools that will be incorporated to see and respond to what has previously been intractable. Photonics will help researchers and farmers apply discoveries on the farm to more rapidly, cheaply and accurately manage crops.

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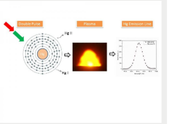
Spectroscopy-Based Tool Detects, Measures Contaminants in Landfills

A method known as laser induced breakdown spectroscopy (LIBS) could offer a cleaner, faster and simpler approach than existing technologies for detecting contaminants in the fluids coming from landfills. Although conventional LIBS presents some limitations when used in the single-pulse configuration, the use of LIBS in the double-pulse (DP) configuration demonstrated rapid detection of mercury (Hg) and could potentially be applied to other contaminants.



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SERS-Based Sensor Detects Toxins at Ultralow Concentrations

A chemical sensor equipped with organic chemical compounds could provide selective, reproducible detection of minuscule amounts of heavy metal ions quickly. The sensor is based on a plasmon-polariton surface-enhanced Raman spectroscopy (SERS) platform.

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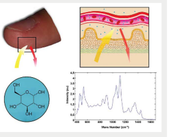
Spectroscopy and the Holy Grail

Researchers have long pursued a noninvasive way to measure blood glucose. Spectroscopy checks off all the right boxes for the technology behind a noninvasive monitor. Spectroscopic probes are pain-free and typically do not harm the body. The technology is reliable. And it can lend itself to the kind of miniaturization required for a wearable. But the prize remains elusive. To get a clearer picture of the reasons why this is so — and why spectroscopy particularly holds so much promise — we reached out to three experts in field.



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Products

New Super Fast Spectrometer OCEAN FX

Ocean Optics Inc.

The next innovation in miniature spectrometers from Ocean Optics — Ocean FX™ — offers high-sensitivity detector performance, acquisition speed up to 4,500 scans per second, and a robust communications module that accommodates Ethernet and Wi-Fi.

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771 Series Laser Spectrum Analyzer

Bristol Instruments Inc.

The 771 Laser Spectrum Analyzer is a very unique instrument that operates as both a high-accuracy wavelength meter and a high-resolution spectrum analyzer. Laser wavelength is determined to an accuracy as high as ± 0.2 parts per million.

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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.

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Compact SERS Spectrometer

Hamamatsu Corporation

The size of a deck of cards, Hamamatsu's C13560 is a compact SERS spectrometer that includes all functions needed to perform surface-enhanced Raman measurements using the compatible J13856 SERS substrate. The C13560 incorporates a 785 nm light source and measures Raman signals within 1850-400 wavenumbers.

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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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Raman Microscopy for Polymorphs

Bruker Optics Inc.

Polymorph studies have developed into an important domain in pharmaceutical research. Raman spectroscopy can provide fundamental insights with comparatively little time and effort. Polymorphs have identical chemical formulas but different crystal structure forms.

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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 image 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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New Era in Photoluminescence Launched

Edinburgh Instruments Ltd.

The newly launched FLS1000 from Edinburgh Instruments sets the standard in both steady state and time-resolved photoluminescence spectroscopy for both fundamental research and routine laboratory applications.

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Successful Advanced Technology Commercialization for Everyone!

Photonics Media

A new, 12-lecture course from successful scientist-turned-businessman David Krohn will show you how to identify market opportunities and develop a roadmap for successful commercialization. Commercialization of Innovative Technology through Entrepreneurship – CITE – demonstrates how to move advanced technology into successful commercial products.

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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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