Thursday, July 3, 2025

PHOTONICS spectra

Weekly News

Featured Video

An Alternative to Silicon in Image Sensors, Trial Completed for Cold Atom-Based Atomic Clock

The Hawthorn Photonics Group is adding to its portfolio by integrating laser equipment supplier, Radiantis. Radiant Opto-Electronics is in the process of purchasing Inkron, a Finnish leader in the manufacturing of advanced optical materials. Researchers have discovered a way to use lead halide perovskite as a substitute for silicon in image sensors. EFFECT Photonics raised $24 million in series D funding. And quantum sensing company, Aquark Technologies, has completed a second maritime trial of a cold atom-based atomic clock. Sponsored by Thorlabs.

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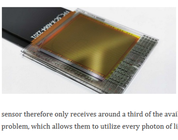
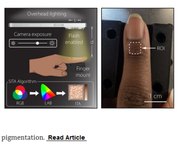
Industry-Academia Collaboration Fabricates Chips to Optimize Mobile Traffic

Vodafone and the Photonics and Radiofrequency Research Lab, at the University of Malaga, are developing photonic computer chips capable of directing a mobile signal straight to a user's smartphone. The collaborators are using optical beamforming to process, steer, and focus mobile traffic, such as video streaming sessions, to the user. Read Article



Perovskite Emerges as Alternative to Silicon in Image Sensors

Most image sensors are made of silicon; this material normally absorbs light over the entire visible spectrum. To manufacture it into RGB image sensors, the incoming light must be filtered. Pixels for red contain filters that block (and waste) green and blue, and so on. Each pixel in a silicon image sensor therefore only receives around a third of the available light. Now, researchers have proposed a solution to this problem, which allows them to utilize every photon of light for color recognition. Read Article



Accurate Skin Tone Measurement with Smartphone Improves Pulse Oximetry

A smartphone-based imaging technique for measuring skin pigmentation could improve the accuracy of pulse oximetry readings, particularly for people with darker skin tones. Researchers at Brown University and Morgan State University developed a method to extract individual typology angle (ITA) values from a patient's skin using a smartphone camera. ITA values are the metric that is used to classify levels of skin pigmentation. Read Article

Featured Products & Services

Photonics Spectra Reference Chart

Photonics Media

This full-color, 29.5 × 20.5-inch poster of the photonics spectrum displays the major commercial laser lines, detectors, and optical materials in the ultraviolet to the far-infrared and beyond. The convenient format makes it easy to quickly find the information you need.

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PHOTONICS marketplace

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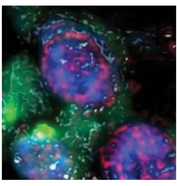
PowerPhotonic Names Group CEO: People in the News: 7/2/25

Hawthorn Photonics Integrates Radiantis

Radiant Opto-Electronics Acquires Inkron Oy

Collaboration Trials AI-Enabled Approach to Bolster Thin-Film Research

Latest Webinars



Advancing Raman Spectroscopy by Using Bioresponsive Optical Nanomaterials

Tue, Jul 8, 2025 1:00 PM - 2:00 PM EDT

Raman spectroscopy provides label-free molecular characterization by detecting chemical bond vibrations, enabling direct visualization of molecular responses in living cells and tissues. Despite significant advancements, the clinical translation of Raman spectroscopy has been hindered by two key challenges: limited detection sensitivity and insufficient specificity. For instance, it has not found use in imaging enzyme activity, a significant aspect of biomedical research.Leveraging nature-inspired self-assembly strategies, intracellular bioorthogonal enzyme-responsive nanoprobes (nanoSABER) have been developed. Engineered from enzyme-responsive peptides, these nanoprobes assemble into supramolecular structures with distinct Raman-active vibrational signatures upon interaction with targeted enzymes. Incorporating vibrational tags such as alkyne (C≡C) and nitrile (C≡N) groups within the cell-silent Raman window (1800 to 2600 cm^{-1}), nanoSABER specifically images enzyme activity with minimal interference from endogenous cellular signals. Sponsored by DiaLAct Corporation and OceanOptics.

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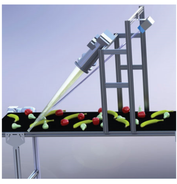

Optimization of LED Illumination for Hyperspectral Imaging Applications

Wed, Jul 9, 2025 11:00 AM - 12:00 PM EDT

This webinar introduces key principles of inline hyperspectral imaging and focuses on the often-overlooked design and integration of illumination. Attendees will learn how to optimize system throughput, sensitivity, and spectral accuracy by properly matching illumination performance to the capabilities of their spectral imaging cameras. We will compare traditional broadband sources, such as tungsten-halogen lamps, to modern solid-state LED systems—evaluating factors such as spectral coverage, uniformity, angular distribution, thermal stability, and cooling techniques. Whether you are developing new HSI camera systems or integrating spectral imaging into existing automation platforms, this webinar will offer practical insight into achieving better results through optimized, application-specific illumination strategies. Hyperspectral imaging (HSI) is revolutionizing industries like food processing, materials recycling, and pharmaceuticals by enabling high-speed, non-contact identification of product characteristics. Yet, one of the most underestimated—and absolutely critical—determinants of overall system performance is the illuminator. This webinar will reveal how optimized, performance-driven LED illumination strategies can dramatically improve results, unlock new capabilities, and give your solutions a competitive edge in the marketplace. Presented by Innovation In Optics, Inc.

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Quantum Sensing with Atomic Systems and Reconfigurable Instrumentation

Wed, Jul 23, 2025 1:00 PM - 2:00 PM EDT

Quantum sensing leverages the fundamental quantum behavior of atoms and light to measure weak signals with precision beyond that of classical methods. These measurements make use of trapped ions and cold atoms, and include applications such as magnetic field sensing, optical atomic clocks, and quantum gravimetry. Critical to these techniques are ultra-cold temperatures, coherent quantum control, and sensitive optical readout, which pose significant hardware challenges with regard to laser stabilization, timing, and noise suppression. During this presentation, find out how to generate and detect synchronized RF pulse trains, such as a Ramsey sequence, using a software-defined waveform generator and lock-in amplifier. Plus, see new ways to stabilize your systems with a laser lock box and measure clock stability with a phasemeter, using a reconfigurable suite of instruments in a single device. Finally, in a live demonstration, learn how to deploy these instruments simultaneously for maximum flexibility, and how to use Python to interface with each. Presented by Liquid Instruments.

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