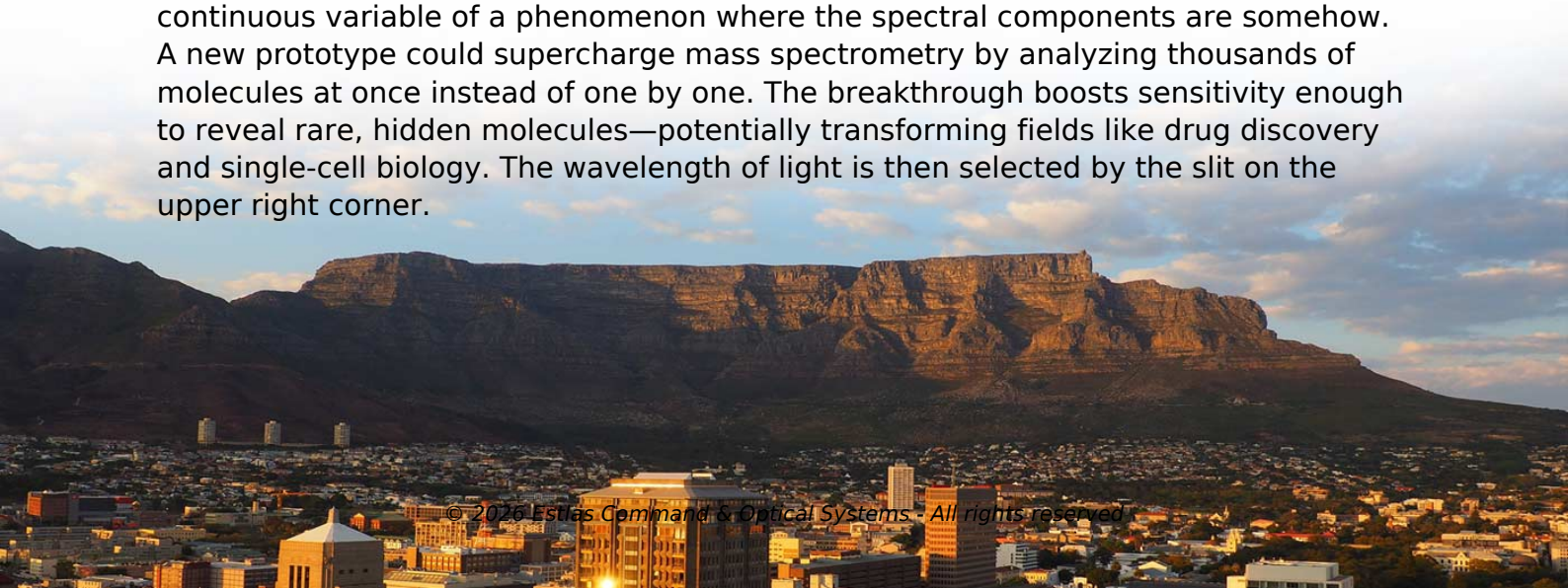
Estlas Command & Optical Systems

New type of spectrometer

Overview

Researchers from the University of Cambridge and GlitterinTech, a startup founded by the same research group, have unveiled a fundamentally new type of optical spectrometer that delivers laboratory-grade precision in a device small enough to be embedded in portable and wearable. Researchers from the University of Cambridge and GlitterinTech, a startup founded by the same research group, have unveiled a fundamentally new type of optical spectrometer that delivers laboratory-grade precision in a device small enough to be embedded in portable and wearable. Researchers from the University of Cambridge and GlitterinTech, a startup founded by the same research group, have unveiled a fundamentally new type of optical spectrometer that delivers laboratory-grade precision in a device small enough to be embedded in portable and wearable technologies. By. From non-invasive glucose monitoring to rapid food and materials analysis, a new class of optical spectrometer could transform how and where high-precision measurements are made. Researchers from the University of Cambridge and GlitterinTech (a start-up founded by the same research group) have. A spectrometer (/ spɛkˈtrɒmɪtər /) is a scientific instrument used to separate and measure spectral components of a physical phenomenon. Spectrometer is a broad term often used to describe instruments that measure a continuous variable of a phenomenon where the spectral components are somehow. A new prototype could supercharge mass spectrometry by analyzing thousands of molecules at once instead of one by one. The breakthrough boosts sensitivity enough to reveal rare, hidden molecules—potentially transforming fields like drug discovery and single-cell biology. The wavelength of light is then selected by the slit on the upper right corner.



Article Content

Advancements and Emerging Techniques in Mass Spectrometry: A ...

Mass spectrometry (MS) stands at the forefront of the analytical sciences, offering unparalleled sensitivity and precision for the identification and quantification of a wide array of

A completely new type of microscopy based on quantum sensors

A completely new type of microscopy based on quantum sensors Researchers combine magnetic resonance spectroscopy with fluorescence microscopy Date: February 25, 2025 Source: Technical

Development of mass spectrometry imaging techniques and its latest ...

Mass spectrometry imaging has been performed by using a range of various ionization techniques coupled with different types of mass spectrometers. After decades of development, from

Optical spectrometer

Modern spectroscopes generally use a diffraction grating, a movable slit, and some kind of photodetector, all automated and controlled by a computer.

Current advances in imaging spectroscopy and its state-of-the-art ...

The current state of imaging spectroscopy spans diverse applications including but not limited to air-borne and ground-based computer vision systems.

Miniature integrated spectrometers towards high-performance and

Therefore, developing a new type of miniaturized, low-cost, and integrated spectrometer is necessary and urgent. To miniaturize spectrometers, mechanical structures in traditional...

New Spectrometer Is Small Enough to Fit on Your Phone

However, the smallest spectrometers on the market are still fairly bulky. “We''ve created a spectrometer that operates quickly, at low voltage, and that is sensitive to a wide spectrum of light,”

Why this $10 spectrometer chip could bring real-time chemical sensing ...

Researchers from the University of Cambridge and GlitterinTech, a startup founded by the same research group, have unveiled a fundamentally new type of optical spectrometer that delivers...

Reconstructive spectrometers: hardware miniaturization and ...

Recent advancements in miniaturization and computational capabilities have enabled the development of compact, portable, and cost-effective spectrometers, which offer the advantage of

Spectroscopy

Spectroscopy Uncover the latest and most impactful research in Spectroscopy. Explore pioneering discoveries, insightful ideas and new methods from leading researchers in the field.

A Review on the Development of Single-Moderator-Based Neutron Spectrometers

The single-moderator neutron spectrometer is the result of developments in multisphere neutron spectrometer design. Multisphere is a multimoderator-based neutron spectrometer technique

A New Way to See Life''s Hidden Chemistry: Mass

Researchers from the University of Cambridge and GlitterinTech (a start-up founded by the same research group) have unveiled a fundamentally

New laser “comb” can enable rapid identification of chemicals with ...

Scientists can generate frequency combs using several types of lasers for different wavelengths. By using a laser that produces long wave infrared radiation, such as a quantum

Most mass spectrometers handle a few molecules. This new prototype ...

Researchers have developed a prototype called MultiQ-IT that can process large numbers of molecules at the same time. The work provides a framework for building faster and more sensitive...

Checking the quality of materials just got easier with a

SpectroGen, a new AI tool, serves as a virtual spectrometer for assessing a new material''s quality, offering a faster and cheaper option for

How Spectroscopy Is Revolutionizing Modern Research

Discover how spectroscopy works, its variations and applications in the lab and beyond, and how spectroscopic innovations are revolutionizing research.

Xevo CDMS | For Charge Detection Mass Spectrometry | Waters

Accelerate drug process development with the Xevo CDMS, a compact, easily operated benchtop charge detection mass spectrometer that can perform MS analysis of biomolecules in the

Scalable on-chip diffractive speckle spectrometer with high spectral ...

The proposed speckle spectrometer based on diffractive metasurfaces achieves a high spectral density which is promising to develop ultra-compact and high-performance spectrometers.

Frontiers | New advances and trends in mass spectrometry ...

New advances and trends in mass spectrometry instrumentation and technology, part I: introduction, single-cell analysis, metabolomics, lipidomics, and multi-omics integration

Mass Spectrometry Breakthrough Detects Billions of Molecules at Once

A new prototype takes mass spectrometry from analyzing a few molecules at a time to handling billions at once.

Spectrometer

Optical spectrometers (often simply called "spectrometers"), in particular, show the intensity of light as a function of wavelength or of frequency. The different wavelengths of light are separated by refraction in a prism or by diffraction by a diffraction grating. Ultraviolet–visible spectroscopy is an example. These spectrometers utilize the phenomenon of optical dispersion. The light from a s

This spectrometer is smaller than a pixel, and it sees what we can''t

Researchers have successfully demonstrated a spectrometer that is orders of magnitude smaller than current technologies and can accurately measure wavelengths of light from ultraviolet to

How a Mass Spectrometer Works, Types of Instrumentation and ...

In this article, we take a look at the fundamentals of mass spectrometry, how it works, variations that can be used at each stage of the process and how they can be combined to suit

Towards Higher Sensitivity of Mass Spectrometry: A ...

The review offers us new insights into the development trends of mass spectrometers from a perspective of mass analyzers. It provides guidance to the selection of suitable mass

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