

Surface Enhanced Raman Scattering Researchgate

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Surface Enhanced Raman Scattering Researchgate

Surface-enhanced Raman scattering (SERS) is a molecular-specific spectroscopic technique that provides up to 10¹⁰-fold enhancement of signature Raman fingerprints using nanometer-scale 0D to 2D ...

Surface-enhanced Raman scattering holography | Request PDF

Abstract On the basis of different types of experiments, the authors develop implicitly the model of surface-enhanced Raman scattering (SERS) of adsorbates on metal surfaces. The long-range...

(PDF) Surface-Enhanced Raman Scattering - ResearchGate

Surface-enhanced Raman scattering (SERS) is a powerful technique for detection and characterization because of its extremely high sensitivity and the rich structural information that it can offer.

Surface-Enhanced Raman Scattering - ResearchGate

It is shown that surface enhanced Raman scattering (SERS) average signals and fluctuations can be used to characterize the spectral dependence of plasmon resonances, and are particularly sensitive...

Surface Enhanced Raman Scattering - ResearchGate

With the discovery of surface-enhanced Raman scattering (SERS) in 1973 by Martin Fleischmann, the interest of the research community in Raman spectroscopy as an analytical method has been revived.

Surface-Enhanced Raman Scattering - ResearchGate

Surface-enhanced Raman scattering (SERS) is a phenomenon resulting in strongly increased Raman signals when molecules are attached to nanometersized metallic structures.

Surface-Enhanced Raman Scattering - ResearchGate

Surface Enhanced Raman spectroscopy (SERS) technique was developed to provide a high enhancement of Raman scattering from molecules adsorbed on nanostructured noble metal surfaces.

Concluding Remarks Surface enhanced Raman scattering ...

A linear, methacrylamide polymer affinity agent was explored to capture two mycotoxins, deoxynivalenol (DON) and ochratoxin A (OTA), for multiplex surface-enhanced Raman scattering (SERS) detection. These mycotoxins are naturally occurring small molecules from fungi that can be dangerous at low concentrations. SERS

Multiplex surface-enhanced Raman scattering detection of ...

Antimicrobial resistance and multidrug resistance are slower-moving pandemics than the fast-spreading coronavirus disease 2019; however, they have potential to cause a much greater threat to global health. Here, we report a clustered regularly interspaced short palindromic repeats (CRISPR)-mediated surface-enhanced Raman scattering (SERS) assay for multidrug-resistant (MDR) bacteria. This ...

Clustered Regularly Interspaced Short Palindromic Repeats ...

Nanogap-rich silver nanoislands with fascinating optical properties are desirable substrates for surface-enhanced Raman scattering (SERS). Here, we propose a simple and high-throughput approach through the laser molecular beam epitaxy (LMBE) technique for preparing silver nanoislands containing large numbers of intra-nanogaps on a silicon wafer (6x6 cm²).

OSA | Wafer-scale silver nanoislands with ~5 nm ...

Surface-enhanced Raman spectroscopy or surface-enhanced Raman scattering is a surface-sensitive technique that enhances Raman scattering by molecules adsorbed on rough metal surfaces or by nanostructures such as plasmonic-magnetic silica nanotubes. The enhancement factor can be as much as 10¹⁰ to 10¹¹, which means the technique may detect single molecules.

Surface-enhanced Raman spectroscopy - Wikipedia

One method to amplify weak Raman signals is to employ surface-enhanced Raman scattering (SERS). SERS uses nanoscale roughened metal surfaces typically made of gold (Au) or silver (Ag). Laser excitation of these roughened metal nanostructures resonantly drives the surface charges creating a highly localized (plasmonic) light field. When a molecule is absorbed or lies close to the enhanced field at the surface, a large enhancement in the Raman signal can be observed.

Surface-enhanced Raman Scattering - Semrock

Surface-Enhanced Raman Scattering - researchgate.net Surface-enhanced Raman scattering (SERS) is a powerful technique for detection and characterization because of its extremely high sensitivity and the rich structural information that it can offer. Surface-Enhanced Raman Scattering - ResearchGate

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Surface-enhanced Raman spectroscopy or surface-enhanced Raman scattering (SERS) is a surface-sensitive technique that enhances Raman scattering by molecules adsorbed on rough metal surfaces or by nanostructures such as plasmonic-magnetic silica nanotubes.

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Abstract. We report a surface-enhanced Raman scattering (SERS) substrate with plasmon resonances at both excitation and Stokes frequencies. This multilayer structure combines localized surface plasmons on the nanoparticles with surface plasmon polaritons excited on a gold film.

Double-Resonance Plasmon Substrates for Surface-Enhanced ...

In this work, we report on the optical study of LSP modes supported by square arrays of gold nanodiscs deposited on an indium tin oxyde (ITO) coated glass substrate, and its impact on the surface enhanced Raman scattering (SERS) of a molecular adsorbate, the mercapto benzoic acid (4-MBA).

Surface Enhanced Raman Scattering on Regular Arrays of ...

In the late 1970s, signal intensity in Raman spectroscopy was found to be enormously enhanced, by a factor of 10^6 and more recently by as much as 10^{14} , when an analyte was placed in the vicinity of a metal nanoparticle (particularly Ag).

A Unified View of Surface-Enhanced Raman Scattering ...

Surface-enhanced Raman scattering (SERS) spectroscopy, when utilizing plasmonic nanogaps, has the relatively unique capacity to reach trace molecular detection limits in a label-free format, yet large-area device fabrication incorporating nanogaps with this level of performance has proven difficult.