

The Chemist's Interactions

Seminars @ the Chemistry Department

Friday, 27th November 2020



Dr. Santiago Sánchez Cortés
Institute of Structure of the Matter – CSIC

LIVE
STREAM
h 14:30

Plasmonic-Enhanced Raman Scattering and its applications in Molecular Detection, Bidiagnostic and Cultural Heritage

Plasmonic-based spectroscopy relies on the localization of light in the nanoscale occurring in plasmonic materials and provide the best conditions for molecular detection, even single-molecule detection. This can only be achieved by the use of spectroscopy in the nanoscale. The high sensing potential of these techniques is based on the huge field enhancement occurring on highly active plasmonic nanostructures as a consequence of the localized surface plasmon resonance (LSPR). The development of functional nanostructured devices to obtain sensitive and selective platforms, with applications in molecular detection, biodiagnosis and Cultural Heritage is presented here. Plasmonic effects are highly activated in nanostructures substrates bearing a specific morphology or in interparticle gaps. The nanofabrication of metal nanoparticles with special morphology, such as nanoprisms or nanostars, was done for the specific case of silver. The functionalization with bifunctional molecules gives rise to highly active gaps that can be employed in the molecular detection of pollutants. Another important application of these nanostructured platforms is the functionalization with biological molecules for bioanalytical applications and the detection of dyes and biomolecules of interest in the Cultural Heritage field.



The Virtual Seminar Series will be broadcast with the Zoom software.

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