# Plasmonic Hybrid Composites as Excellent Nanoplatform for Surface-Enhanced Raman Scattering-based Sensors

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Surface enhanced Raman scattering (SERS) is known to provide very sensitive detection of molecular species even down to the single molecule regime.[1] The implementation of SERS in environmental and biosciences is becoming very popular as it provides significant information about the studied system even directly from complex environments such as seawater, biological fluids, living tissues and cells.[2, 3] SERS can be achieved and maximized by carefully controlling both electromagnetic and chemical effects, mainly through careful design of the optical enhancing substrates.[1] Therefore, the preparation of optical platforms with optimized properties is a very dynamic field of research, and, as there is no universal best SERS platform, careful consideration of the analytical problem is required before choosing/designing a SERS sensor. Controlling the morphology provides a method to tune the optical and spectroscopic response of metallic nanostructures. This plasmonic nanomaterials in combination with other components, enable the enhancement of specific properties such as optical, magnetic, or mechanical, due to the creation of hybrid composites.[4] This opens the possibility of the enhancement of flexible handling and efficient analytical capabilities of these plasmonic hybrid composites to be used as SERS substrates. This talk will be focused to demonstrate the ability of plasmonic hybrid composites as reproducible, stable and simple SERS-active platform for sensing applications.

**References**

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