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Optical active plasmonic nanoassemblies for sensory applications

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An important number of applications has arisen reporting the use of nobel metal nanoparticles (NPs) as optical markers in single-molecule assays, as molecular rulers, as local orientation- or sensitive biochemical- nanosensors and enhance Raman scattering of surface-bound molecules (SERS). Assembly of several NPs has also been used to develop scalable fabrication of new nanodevices, just by playing with a controlled coupling chemistry. However, this rational clustering of two NPs (dimers or hot-spots with high electromagnetic enhancements in SERS application) by solutions methods has been a notable challenge, since nanoassembly's dissociation or aggregation must be avoided during performance or application. In this talk, we will present our alternative approach based on a postsynthetic purification method which ahs overcome this difficulty yielding highly desirable optical SERS active nanoassemblies for nanosensors.

Biography

Nekane Guarrotxena has completed PhD from the University of Complutense, Madrid-Spain and Post-doctoral researcher at the Ecole Nationale Supérieure d'Arts et Métiers (ENSA), Paris (France) and the University of Sciencell, LEM-Montpellier (France). From 2008-2011, she was visiting Professor in the Department of Chemistry, Biochemistry and Materials at the University of California, Santa Barbara (USA) and the CastL at the University of California, Irvine (USA). She is currently Research Scientist at the Institute of Polymer Science and Technology (ICTP), CSIC-Madrid (Spain). Her research interest focuses on the synthesis and assembly of hybrid nanomaterials, nanoplasmatics, and their uses in nanobiotechnology applications (bioimaging, biosensing, drug delivery and therapy).

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