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## Engineering optical Raman active nanoassemblies for nanosensor purposes

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An important number of applications reports the use of noble metal nanoparticles (NPs) as optical tags in single-molecule assays, as local orientation- or sensitive biochemical- nanosensor and enhance Raman scattering of surface-bound molecules (SERS). Assembly of several NPs has also been used to develop scalable fabrication of new nano devices, just by playing with a controlled coupling chemistry. This condition requires positioning the reporting molecule within special sites in nanostructured metal surfaces where the enhancement is greatest. However, this rational clustering of two NPs (dimers or SERS hot-spots application) by solutions methods has been a notable challenge, since the current nanofabrication strategies are still far from ideal nano assembly-dissociation/aggregation controls during performance or application. This communication reports a post synthetic purification approach which has overcome this difficulty yielding highly desirable optical Raman active nanoassemblies for nano sensors.

### Biography

Nekane Guarrotxena completed her PhD at University of Complutense, Madrid-Spain and Post-doctoral research at Ecole Nationale Supérieure d'Arts et Métiers (ENSAM), Paris-France and University of Science II, Montpellier-France. She was a Vice-Director at Institute of Polymer Science and Technology (ICTP-CSIC) from 2001 to 2005 and; Visiting Professor at University of California, Santa Barbara-USA and University of California, Irvine-USA from 2008 to 2011. Currently, she is a Research Scientist at ICTP-CSIC (Spain); an Editorial Board Member of some Materials Science and Chemistry journals and; External Expertise Consultant on I+D+I management policy for national and international agencies. Her research interest focuses on "The synthesis and assembly of hybrid nanomaterials, nanoplasmonics, and their uses in nano-biotechnology applications (bio-imaging, drug delivery, therapy and bio-sensing)".

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