

Conferencia: Engineering Nanoplasmonic Colloids into Sensing Devices

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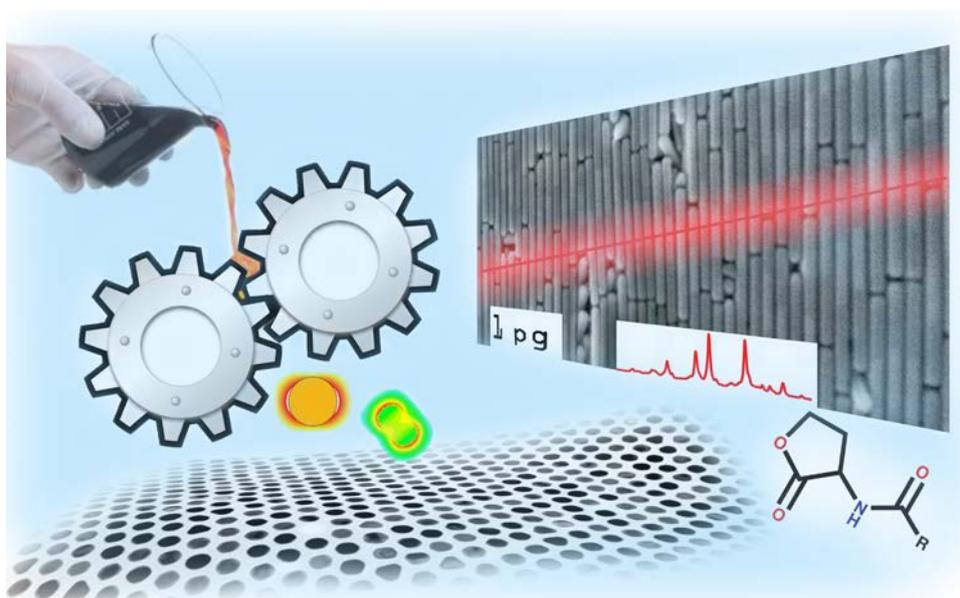
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The novel field of Nanoplasmonics focuses on the manipulation of light using materials with significantly smaller sizes than the radiation wavelength. This is typically achieved using nanostructured metals, since they can very efficiently absorb and scatter light because of their ability to support coherent oscillations of free (conduction) electrons. Although the remarkable optical response of “finely divided” metals is well known since more than 150 years ago, the recent development of sophisticated characterization techniques and modeling methods has dramatically reactivated the field. An essential pillar behind the development of nanoplasmonics is the great advance in fabrication methods, which have achieved an exquisite control over the composition and morphology of nanostructured metals. In particular, Colloid Chemistry has the advantage of simplicity and large scale production, while offering a number of parameters that can be used as a handle to direct not only nanoparticle morphology but also surface properties and subsequent processing. This talk will provide an overview of “colloidal nanoplasmonics” as a sufficiently mature field to bridge the basic fabrication of nanoplasmonic building blocks, all the way to devices that can be used for real applications in sensing and diagnostics.



Luis Liz-Marzán received his Bachelor as well as his Doctoral degree in Chemistry from the University of Santiago de Compostela in 1988 and 1992, respectively. After 2 years as an associate researcher at Utrecht University (Netherlands), he returned to the University of Santiago de Compostela as an assistant professor in 1995. Soon afterwards, he became assistant professor at the University of Vigo and was appointed titular professor in 1997. In 2006, he accepted the full professorship at the Department of Physical Chemistry at University of Vigo. Since 2005, he has been visiting professor at Tohoku University in Japan and the University of Michigan (Ann Arbor, USA). He spent some time as a Wilsmore fellow at University of Melbourne (Australia) and as a Humboldt research fellow in Golm at the Max-Planck-Institute of Colloids and Interfaces and the University of Hamburg (Germany). In 2012, he started to serve as Ikerbasque research professor and was appointed scientific director of CIC biomaGUNE.

Luis Liz-Marzán is the author of more than 300 peer-reviewed research papers and co-inventor of 6 patents. He is the principal investigator of more than 20 spanish/ european research grants and 4 major industrial grants. He has been awarded with the Humboldt Research Award and Physical Chemistry Award of the Spanish Royal Society of Chemistry in 2009, the DuPont Award for Science in 2010, the Burdinola Research Award in 2011 and the ACS Nano Lectureship Award in 2012. In 2013, he received the Rhodia Prize of the European Colloid and Interface Society and in 2014, the medal of the Spanish Royal Society of Chemistry. In addition, he has been appointed a fellow of the Royal Society of Chemistry, fellow of the Optical Society of America in 2012, Langmuir lecturer 2012 and he has received a prestigious ERC advanced grant in 2010. Luis Liz-Marzán has been invited for more than 100 talks at conferences and held 100 seminars and courses in 22 countries.