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Surfactant-Directed Growth of (Chiral) Plasmonic Nanoparticles

Prof. Luis M. Liz-Marzán

(Ikerbasque Professor at CIC biomaGUNE, Donostia-San Sebastián, Spain)

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Room Pedferri, Bulding 6
Piazza Leonardo da Vinci, 32 Milano

live | online

link will be emailed to registered participants

[Registration Form](#)

Info: www.cmic.polimi.it

The response of noble metals to light changes dramatically when the size of the metal particles is reduced to the nanometer scale. The interaction of light with conduction electrons then results in coherent oscillations that can achieve resonance with certain electromagnetic frequencies. Such phenomena are called localized surface plasmon resonances (LSPRs) and can be finely tuned through the size and morphology of the nanoparticles, so that the whole visible and near-IR ranges can be covered. Recent development of sophisticated characterization techniques and modeling methods has dramatically reactivated the field. Exquisitely accurate synthetic methods have been devised toward the growth of metal particles with both spherical and anisotropic geometries, with narrow size distributions. Further tuning of morphological and optical properties can be achieved by post-synthesis chemical transformations, typically leading to morphological changes that offer advantageous application, e.g. in photothermal effects or surface enhanced spectroscopies. This will discuss some ideas regarding the combination of anisotropic seeded growth and post-synthesis transformations in metal nanoparticles, as well as some examples of their effects in different types of optical spectroscopy, including plasmonic optical activity.

Luis Liz-Marzán is an Ikerbasque Professor at CIC biomaGUNE, in San Sebastián (Spain), where he also served as Scientific Director from 2012 to 2020. Prof. Liz-Marzán graduated in chemistry from the University of Santiago de Compostela (Spain), was postdoc at Utrecht University (The Netherlands) and then Professor at the University of Vigo (1995–2012), where he currently holds a part-time position as Professor of Physical Chemistry. He additionally holds an Honorary Chair at Soochow University. He has also been visiting professor at various research institutions worldwide (USA, Europe, China, Australia) and received numerous scientific awards and honors, including the ACS Nano and Langmuir Lectureship Awards, European Colloid and Interface Society Rhodia Prize, Jaime I Prize on Basic Sciences, Spanish National Award on Chemical Science and Technology, and Lilly Foundation Award on Preclinical Biomedical Research, among others. He is also a member of the Spanish Royal Academy of Sciences, European Academy of Sciences, Academia Europaea and National Academy of Engineering (USA). He currently serves as an executive editor at ACS Nano, and on the editorial advisory board of several journals including Science. Prof. Liz-Marzán has co-authored more than 550 publications in major journals, being named Highly Cited Researcher every year since 2014. He is considered as one of the pioneers in the colloidal synthesis and self-assembly of metal nanocrystals, as well as the characterization and application of their plasmonic properties. More recently, his research has broadened into the biomedical applications of plasmonic nanostructures.