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Smart functional nanoscale-hybrid materials: Surface modification and applications

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The unique feature to respond to small changes in its environment, usually reversibly, has made the stimuli-responsive polymers very promising in the generation of smart materials for medical and engineering applications. Very interesting and appealing seems to be their combination with inorganic nanoparticles to yield nano hybrids which combine the interesting and intriguing properties of the individual components, modify them, or exhibit novel properties. Within this presentation, we want to highlight some of our recent progress in their successful integration via multidentate grafting to conjugation which accomplishes the highly desirable features, such as hydrodynamic size compression, amphiphilic, pH- and thermo-responsiveness, and enhanced optical properties for future biological and technological applications of our functional nano hybrids.

Biography

Nekane Guarrotxena completed her PhD at University of Complutense, Madrid-Spain and Post-doctoral research at Ecole Nationale Superieure d´Arts et Metiers (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; an 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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