

Functionalized Nanoparticles: Advanced Materials for Optoelectronics and Nanomedicine Applications

Ilaria Fratoddi

Sapienza University of Rome, Italy



Abstract

Functionalized nanoparticles depict a suitable platform for the development of efficient multi-functional responsive systems. A wide range of advanced applications are based on the use of metal nanoparticles (MNPs) or polymeric nanoparticles (PNPs), because of their unique chemical and physical properties and versatile synthesis, that allows to obtain functionalized surfaces with neutral or charged, hydrophilic or hydrophobic, organic or organometallic molecules. In particular, the research in biomedicine, catalysis, energy conversion and sensors are strongly influenced by these materials. The aim of this talk is to introduce the chemistry of functionalized nanoparticles with different surface functionalities. In particular, the growth of MNPs and PNPs, obtained by wet chemical methods will be presented together with spectroscopic and structural studies. These systems are particularly suitable for drug delivery applications, thanks to their cytocompatibility and easy preparation of bioconjugates with different drugs. Their chemical versatility offer the opportunity to have electronic conjugation that can be used in optical and electronic applications, such as chemical sensors.

Biography

Ilaria Fratoddi research interests deals with of Inorganic Chemistry, and specifically chemical synthesis, structural and functional characterizations of innovative and nanostructured materials with the final aim of developing knowledge-based materials for advanced technological applications. She is Associate Professor at the Department of Chemistry, University Sapienza of Rome, Italy. She has over 100 publications, her publication H-index is 29.

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