

MAGNETIC NANOHYBRIDS: STATUS AND CHALLENGES

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Composite magnetic nanostructure consisting of different materials offer many functionalities for applications ranging from medical diagnostics and therapy to water waste treatment and magnetic sensors. Examples for the synthesis of magnetic capsules, magnetic luminescent particles and core-shell structures with tunable magnetic properties [1,2] will be presented. Using recent work on FePt nanoparticles [3,4,5] as examples it will be demonstrated that the crystalline structure as well as the magnetic composition of objects with diameters of less than 10 nm is not uniform and that special techniques are required to identify structural relaxations at the surface and the element-specific magnetism of nanoparticles.

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