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Katerina Soulantica

LPCNO-INSA, France

Towards the implementation of cobalt nanocrystals in real systems

The recent progress in the synthesis of colloidal nanocrystals by chemical routes has made available a great number of nanomaterials in a variety of sizes and shapes. Implementation of nanoscale objects in technologically important domains depends on the possibility to integrate them in various systems. Even for the best adapted candidate, some inherent characteristics are very often incompatible with specific requirements associated to each application. Magnetic nanocrystals constitute a class of materials that can be used in several applications such as magnetic recording, permanent magnets, catalysis, and biomedicine. Taking as an example metallic cobalt nanocrystals, we will discuss how chemistry can appropriately modify their shape, composition and organization, (Figure) towards applications in magnetic recording, biomolecular *in vitro* detection and catalysis.

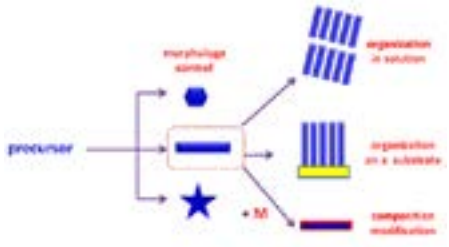

Figure 1: Starting from a Co precursor we can prepare Co nanocrystals of different forms. Cobalt nanorods are the most interesting candidates in different domains after adapting them to the requirements of each application.

Biography

Katerina Soulantica received her PhD in Chemistry from the University of Athens (Greece). After a Post-Doctoral Fellowship in the University of Valladolid (Spain) she joined the group of B Chaudret in the Laboratoire de Chimie de Coordination (Toulouse) and worked on the synthesis of metallic nanoparticles. She then joined the Laboratoire de Physique et Chimie des Nano-Objets (Toulouse). She is interested in the synthesis and formation mechanism of nanocrystals, in the tailoring of their physical and chemical properties through their structure, as well as in the design of multifunctional nanosystems for applications spanning from magnetic recording and biosensing to catalysis.

ksoulant@insa-toulouse.fr

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