



ΣΕΜΙΝΑΡΙΟ: Nanomagnetism by design



Nanostructured Hard-Magnets by Interface Design

Dr. Ulf Wiedwald

Universität Duisburg-Essen, Germany

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Magnetic nanorods and nanowires based on 3d transition metal alloys might be suitable candidates for alternative rare-earth free permanent magnets. Exploiting the alignment of magnetocrystalline and shape anisotropy axes in conjunction with exchange anisotropy is one strategy for maximized hysteretic energy products. In my lecture, I will briefly introduce the important anisotropic energies in nanomagnetism leading to design rules for optimized permanent magnets.

CoO octahedra with a Ferromagnetic Interface between two Antiferromagnets

Dr. Marina Spasova

Universität Duisburg-Essen, Germany

Τρίτη 15.12.2015 11¹⁵



Polar oxide interfaces are an important focus of research due to their novel functionality which is not available in the bulk. In my lecture I will discuss the origin of a robust -above room temperature -environmentally stable -ferromagnetically coupled interface layer between the antiferromagnetic rocksalt CoO core and a 2–4 nm thick antiferromagnetic spinel Co_3O_4 surface layer in octahedron-shaped nanocrystals.