RELAXATION IN MAGNETIC NANOSTRUCTURES

M. A. Novak

Instituto de Física, Universidade Federal do Rio de Janeiro, Brasil.

Nanostructured magnetic materials present a wide range of magnetic relaxation phenomena. The main problem in studying nanomagnetic materials is the strong dependence of the relaxation with the anisotropy barrier thus even a narrow distribution of sizes or orientation of the nanotructures brings difficulties in interpreting the experimental data. In addition the disorder and break of translational symmetry at the surface or interface of the nanoentities brings in an extra ingredient difficult to tackle. On the other hand molecular magnetism, with the chemists bottom-up approach to build molecular nanostructures, provided this field with some beautiful model systems, well ordered crystals of Single Molecule Magnets, Single Molecule Chains, molecular magnetic multilayers and surely many others novelties will appear. Most of these system present very slow relaxation of different origins and the study of these well characterized nanomaterials will elucidate many features that are difficult to grasp in other materials. In this paper we will review some fundamental aspects of magnetic relaxation, and specially the influence of weak interactions of dipolar origin.