Spin dynamics in weakly and strongly interacting NiO nanoparticles

The spin dynamics of plate-shaped nanoparticles of NiO has been studied by inelastic neutron scattering and Mossbauer spectroscopy. A value of the in-plane anisotropy energy constant significantly larger than the bulk value has been measured. The temperature and field dependence of the energy of the antiferromagnetic resonance mode associated with this in-plane anisotropy has been studied. Both Mossbauer spectroscopy and neutron scattering data show that the magnetic fluctuations are strongly affected by the strength of interparticle interactions.
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