

MAGNETIC DYNAMICS OF A MULTIFERROIC WITH AN ANTIFERROMAGNETIC LAYER

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S u m m a r y

Shape effects in magnetic particles are widely studied, because of the ability of the shape and the size to control the parameters of a sample during its production. Experiments with nano-sized samples show that the shape can affect also the properties of antiferromagnetic (AFM) materials. However, the theoretical interpretation of these effects is under discussion. A model to study the shape-induced effects in AFM particles at the AFM resonance frequency is proposed. The Lagrange function method is used to calculate the spectrum of resonance oscillations of the AFM vector in a synthetic multiferroic (piezoelectric + antiferromagnet). The influence of the specimen shape on the AFM resonance frequency in the presence of an external magnetic field is studied. Conditions for a resonance under the action of an external force or for a parametric resonance to arise in the magnetic subsystem are considered.