MAGNETOELASTIC AND OPTICAL STUDIES OF LOW TEMPERATURE MAGNETIC RELAXATION IN RARE-EARTH ORTHOALUMINATES WITH ISING IONS

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9.7 cm

The new class of magnetic materials with low-temperature magnetic relaxation was studied. The volume crystal $DyAlO_3$ with antiferromagnetic ordered high anisotropy rare-earth ions had the exponential magnetic relaxation was found. For the first time the low temperature relaxation was investigated by means of magnetostriction and rare-earth absorption spectra instead of a routine magnetization measurements. The rare-earth subsystem metastable state was created as a result of a thermal shock at the sample temperature passing through T=2.18 K. The shift of $DyAlO_3$ absorption spectra for metastable and equilibrium states was evaluated as 10^{-1}. The possible mesoscopic nature of tunneling process is under consideration.
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