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Magnetoresistance in double perovskites $Ba_{2-x}La_xFeMoO_6$

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Abstract

We have studied effects of the partial substitution of La^{3+} for Ba^{2+} on the magnetoresistance (MR) in Ba_2FeMoO_6. The substitution of La^{3+} for Ba^{2+} results in the increase of antisite disorder which reduces the magnetic moment. The magnitude of MR of Ba_2FeMoO_6 is greatly reduced by La doping. The MR with low magnetic field of 7 kOe for $x = 0$ and 0.5 are 5% and 0.5% at room temperature, respectively. These phenomena are explained in terms of an intergrain tunneling at grain boundary and a spin dependent crossing of intragranular barrier originated from antisite disorder.

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