

Low-Temperature Resistance and Magnetoresistance Hysteresis in Polycrystalline $(La_{0.5}Eu_{0.5})_{0.7}Pb_{0.3}MnO_3$

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The behavior of temperature dependences of electrical resistance and magnetoresistance of polycrystalline substituted lanthanum manganite $(La_{0.5}Eu_{0.5})_{0.7}Pb_{0.3}MnO_3$ at low temperatures was thoroughly studied. A broad hysteresis was found in the field dependences of electrical resistance in the low-temperature region. Above 40 K, no hysteresis feature was observed. The temperature $T = 40K$ coincides with the temperature of minimum electrical resistance and temperature T_N of the antiferromagnet-paramagnet phase transition of the material of the intergrain boundaries. In this work we propose the model which explains the observed features of the $\rho(T)$ and $\rho(H)$ curves at temperatures below T_N by the formation of a network of ferromagnet-antiferromagnet-ferromagnet tunnel contacts.