9.7 cm

TUNNEL CONDUCTIVITY OF CUPRATES WITH NEGATIVE MAGNETORESISTANCE

V.Yu. Tarenkov, V.M. Svistunov, Yu.V. Medvedev and S.J. Lewandowski[a]
Donetsk Physical-Technical Institute of the National Academy of Sciences of Ukraine,
72 R.Luxemburg, Donetsk, 340114, Ukraine
[a]Instytut Fizyki, Polish Academy of Sciences, PL 02-668 Warszawa, Poland

We have performed tunneling experiments on ceramic LaSrMnO compounds exhibiting negative magnetoresistance. Two types of tunnel junctions were investigated: symmetric ceramic-insulator-ceramic and asymmetric ceramic-insulator-metal (lead). The conductance G of asymmetric junctions was very sensitive to the applied magnetic field H, both at null polarization V for temperatures $T > T_c$, where T_c denotes the superconducting transition temperature of lead, and at polarization beyond the gap voltage for $T < T_c$. Symmetric junctions of the "break" type exhibited hysteretic $G(H)$ dependence and 15% change of conductivity in applied magnetic field H=100 Oe. A characteristic feature of the observed characteristics is the presence of linear $G(V)$ background, indicating that tunneling takes place through a system of localized states inside the barrier. The existence of such states is characteristic for tunnel barriers constituted by metal oxides.

13.4 cm

Subject category :
4. Rare Earths and Actinides, Alloys and Compounds

Presentation mode :
poster

Corresponding author :
Vladimir Tarenkov

Address for correspondence :
Donetsk Physical-Technical Institute of NASU
72, str. R.Luxemburg
340114 Donetsk
Ukraine
FAX: (0622) 55-74-62

Email address :
medvedev@kinetic.ac.donetsk.ua