

Abstract Submitted  
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**Interface effect on the positive magnetoresistance in a heterostructure composed of two perovskite oxides** KUI-JUAN JIN, HUI-BIN LU, QING-LI ZHOU, GUO-ZHEN YANG, MENG HE, KUN ZHAO, Institute of Physics, Chinese Academy of Sciences — Different from the negative colossal magnetoresistance (CMR) of doped manganites, a positive CMR is discovered at low applied magnetic field and high temperature in the epitaxial  $p - n$  heterostructure with Sr-doped  $\text{LaMnO}_3$  and Nb-doped  $\text{SrTiO}_3$  fabricated by laser molecular-beam epitaxy [1,2]. We have found that such unusual positive CMR is an interface effect which causes a charge redistribution in at the interface with different electron spin polarization at Fermi level from that in the corresponding bulk CMR materials. Self-consistent calculation was carried out the band structure around the interface of the heterostructure and confirms the unusual behavior. Other puzzling CMR features with bias voltage, temperature and even composition are well explained by the present scenario. 1. Kui-Juan Jin et al., Phys. Rev. B **71**, 184428 (2005). 2. Qing-li Zhou, et al., Europhys. Lett. **71**, 1-7 (2005)

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