

Abstract Submitted
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Novel Multifunctional Properties Induced by Interface Effects in Perovskite Oxide Heterostructures¹ KUIJUAN JIN, HUIBIN LU, KUN ZHAO, CHEN GE, MENG HE, GUOZHEN YANG, Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China — Multilayers may lead to interesting artificial materials with novel properties. In this meeting we will show that the introducing of interfaces into perovskite oxides can induce a series of novel properties including an unusual positive magnetoresistance, great enhancement of lateral photovoltage in $\text{La}_{0.9}\text{Sr}_{0.1}\text{MnO}_3/\text{SrNb}_{0.01}\text{Ti}_{0.99}\text{O}_3$, and an electrical-modulation of the magnetoresistance in multi- $p-n$ heterostructures of $\text{SrTiO}_{3-\delta}/\text{La}_{0.9}\text{Sr}_{0.1}\text{MnO}_3/\text{SrTiO}_{3-\delta}/\text{La}_{0.9}\text{Sr}_{0.1}\text{MnO}_3/\text{Si}$. The novel positive magnetoresistance is attributed to the creation of a space charge region at the interface where the spin of carriers is anti-parallel with the spin of carriers in the region far from the interface of manganese oxide in the heterostructures [1].

[1] Kui-juan Jin, Hui-bin Lu, Kun Zhao, Chen Ge, Meng He, and Guo-zhen Yang, Adv. Matter. 21, (2009 in press).

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