Abstract Submitted
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The magnetic and magneto-transport properties of double perovskite $Sr_2Fe_{1-x}Mn_xMoO_6$ system[1] LINA CHEN, Louisiana State University, LI PI, SHUN TAN, ZHE QU, High Magnetic Field Laboratory, University of Science and Technology of China, China — We have investigated the electrical and magnetic properties of $Sr_2Fe_{1-x}Mn_xMoO_6$ with $0 \leq x \leq 0.5$. In the range of $0 < x \leq 0.5$, X-ray photoemission spectroscopy indicates the valences of Mn ions are mainly 3+ instead of 2+. B-site irons become more ordered with increasing x such that the area of antiphase boundary decreases, so as the low field magnetoresistance. For $x \geq 0.3$, the magnetization under low field drops greatly below 37K. Our results suggest that this interesting behavior should be attributed to the enhancement of the magnetic anisotropy and domain wall pinning due to the substitution of Mn for Fe. Detailed analysis of isothermal magnetization data suggests that the magnetic moments of Mn ions couple in antiparallel with those of Mo ions nearby in $Sr_2Fe_{1-x}Mn_xMoO_6$ with $0 < x \leq 0.5$.

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Lina Chen
Louisiana State University

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