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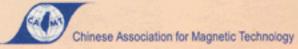
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THE CHARGE STRUCTURE OF COMBINEED SYSTEM (La_{0.6}Sr_{0.4}MnO₃)_{0.7}(La_{0.6}Sr_{0.4}FeO₃)_{0.3} AS INVESTIGA

TED BY MÖSSBAUER SPECTROSCOPY

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The charge structure of combined system of (La_{0.6}Sr_{0.4}MnO₃)_{0.7}(La_{0.6}Sr_{0.4}FeO₃)_{0.3} and La_{0.6}Sr_{0.4}FeO₃(LSMO) is investigated by mainly Mössbauer spectroscopy. The prototypical half metal with 100 % spin polarized La_{0.6}Sr_{0.4}MnO₃ have low Néel temperature(T_N) of 320 K, which is measured by SQUID magnetometer. The antiferroma gnetically ordered La_{0.6}Sr_{0.4}FeO₃(LSFO) have possible charge ordering state of Fe³⁺Fe⁴⁺Fe³⁺Fe⁴⁺, which include lo w-spin state of Fe⁴⁺ at and above 230 K. The LSFO with T_N of 370 K is founded to be disordered phase resulting in low spin tetravalent iron with no magnetic hyperfine field of 0 kOe. However, The metastable Fe⁴⁺ ion is founded instead of low-spin(¹T_g) state in combined (LSMO)_{0.7}(LSFO)_{0.3} system. The temperature dependence of Mössbauer spectra for La_{0.6}Sr_{0.4}FeO₃ and combined (LSMO)_{0.7}(LSFO)_{0.3} system are fitted as three sets of Zeem an pattern corresponding to Fe³⁺ and Fe⁴⁺ below 230 K. At and above 230 K, The fitted Mössbauer spectra for combined system are same at all temperature ranges. In case of La_{0.6}Sr_{0.4}FeO₃ consists of two sets of six Lorent zians Fe³⁺ and one line for low spin of Fe⁴⁺ above 230 K. It is notify induced large field in combined system.

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