

CRITICAL BEHAVIOR OF A $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$
CRYSTAL IN THE VICINITY OF ITS
TRANSITION TO FERROMAGNETIC STATE

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S u m m a r y

Magnetostatic properties of a $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ single crystal have been studied in the vicinity of its critical temperature T_c . A nonlinear temperature dependence of the inverse magnetic susceptibility which is characteristic of the Griffiths phase, has been found in the minimal measuring magnetic field at temperatures slightly above the temperature of ferromagnetic (FM) ordering. A conclusion was made that such a nonlinearity arises owing to the formation of magnetic polarons. The applicability of the Belov–Arrott plots to the systems with the Griffiths phase has been analyzed, and their characteristic features have been revealed. These features have been demonstrated to present in the Belov–Arrott plots for the experimental data on $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$. It has been shown that the critical properties of the $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ crystal are described by somewhat different sets of critical indices in the FM, $T < T_c$, and paramagnetic, $T > T_c$, phases.