

# Magnetic and Magnetotransport Properties of $(1-x)[0.95 \text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3(\text{LSMO})-0.05\text{La}_2\text{O}_3]-x\text{Nd}_2\text{O}_3$ Composites

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Magnetic and magnetotransport properties of  $(1-x)[0.95 \text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3(\text{LSMO})-0.05\text{La}_2\text{O}_3]-x\text{Nd}_2\text{O}_3$  ( $x = 0.075, 0.1, 0.125$ ) composite polycrystalline samples were systematically studied. Samples were prepared using conventional solid-state reaction. Magnetic and magnetotransport properties were measured by a Quantum Design SQUID magnetometer. The ferromagnetic-paramagnetic transition temperatures ( $T_c$ ) of all composites were almost unaltered in the range of 350~360K. A significant enhancement in magnetoresistance is observed in the all composite systems compared with pure LSMO. It is suggested that enhanced magnetic disorder at interfaces and grain boundaries is responsible for the LFMR enhancement. Remarkably improved LFMR properties are attributed to LSMO grain boundaries acting as effective spin-dependent scattering centers.