

Abstract Submitted
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Magnetic, Electrical and Dielectric Properties of $\text{LaMnO}_{3+\eta}$ Perovskite Manganite.¹ PUNITH KUMAR V, VIJAYLAKSHMI DAYAL, Department of Physics, Maharaja Institute of Technology, Mysore, Sri Rangapatna, Mandya, Karnataka 571438, India — The high pure polycrystalline $\text{LaMnO}_{3+\eta}$ perovskite manganite has been synthesized using conventional solid state reaction method. The studied sample crystallizes into orthorhombic O', phase indexed with Pbnm space group. The magnetization measurement exhibits that the studied sample shows paramagnetic (PM) to ferromagnetic (FM) phase transition at $T_C = 191.6\text{K}$ followed with a frustration due to antiferromagnetic (AFM) kind of spin ordering at low temperature, $T_f = 85.8\text{K}$. The electrical resistivity measurements carried out at 0 tesla and 8 tesla magnetic field exhibits insulating kind of behavior throughout the measured temperature range. The resistivity at 0 tesla exhibits low temperature FM insulator to high temperature PM insulator type phase transition at $T_C = 191.6\text{K}$ similarly as observed from magnetization measurement. The application of the magnetic field (8 tesla) shifts T_C to higher temperature side and the charge transport follows Shklovskii Efros variable range hopping (SE VRH) mechanism. The temperature and frequency dependent dielectric permittivity studied for the sample exhibits relaxation process explained based on Debye + Maxwell-Wagner relaxation mechanism.

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