

**MAGNETIC AND TRANSPORT PROPERTIES OF
NANOPOWDER $(La_{0.7}Sr_{0.3})_{0.9}Mn_{1.1}O_3$ MANGANITES.**

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9.7 cm

We report on the X-ray diffraction, magnetic, transport and NMR measurements of nanosize $(La_{0.7}Sr_{0.3})_{0.9}Mn_{1.1}O_3$ manganites. The nanoparticles were synthesized with use of co-precipitation method at different temperatures. The average size of nanoparticles (40 - 100 nm) was estimated by both BET's method and X-ray diffraction measurements. All the nanosize samples show ferromagnetic-like ordering and have close phase transition temperatures. The magnetization decrease with decreasing particle is due to increasing ratio of the surface to volume of the grains. Comparison of experimental and calculated temperature dependences of the magnetic moment shows that the spontaneous magnetization is well described in the frame of the double exchange model. The resistivity becomes higher with reducing the particles size at any temperatures. The magnetocaloric effect calculated from initial magnetization curves is larger for the larger particles.

13.4 cm

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