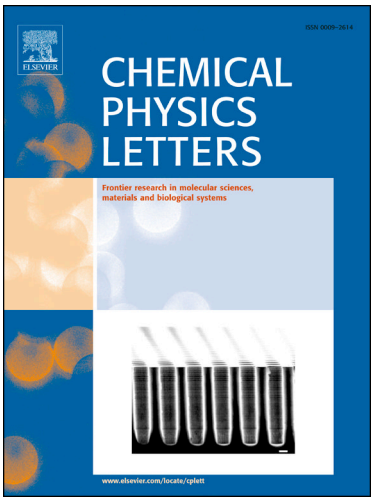

Research paper

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Magnetocaloric properties of $La_{0.67}Sr_{0.33}MnO_3$ tunable by particle size and dimensionality

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Abstract

With a view to investigate the influence of nanosize on the magnetocaloric properties of the $La_{0.67}Sr_{0.33}MnO_3$ nanoparticles, a systematic investigation of their temperature-dependant magnetic entropy change has been undertaken. The maximum of magnetic entropy change $-\Delta S_M^{\max}$ and the relative cooling power (*RCP*) decrease with decreasing particle size. As a result the magnetocaloric effect was greatly changed by the particle size. Indeed, the relative cooling power can be tuned dramatically by particle size. Moreover, the nature of phase transition has been determined using Banerjee's criterion plots and confirmed by the construction of the universal curve of the magnetic entropy change.

Keywords: Nanoparticles, Phase Transition, Magnetocaloric effect, universal curve

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