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Tuning Magnetocaloric Properties for $La_{1-x}Sr_xCoO_3$

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Low magnetic field magnetocaloric (MC) properties of $La_{1-x}Sr_xCoO_3$ (x = 0.3 and 0.5) near phase transition from a ferromagnetic to a paramagnetic state were investigated. It is shown that the change of Sr content allows MC effect in $La_{1-x}Sr_xCoO_3$ to be tunable, which is more practical for construction of MC refrigeration. MC properties of the x = 0.5 sample are significantly greater than that of the x = 0.3 one. Furthermore, the results show that MC properties of $La_{1-x}Sr_xCoO_3$ samples are significantly larger, and comparable with some MC properties of many materials like $Gd_{1-x}Ca_xBaCo_2O_{5.5}$ and $Ge_{0.95}Mn_{0.05}$.

Keywords: magnetocaloric effect, $La_{1-x}Sr_xCoO_3$, magnetic entropy change.