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The Influence of Ti Doping at the Mn Site on Magnetoresistance and Thermopower Properties of $\text{Nd}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$

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Nd-Ca-based manganite $\text{Nd}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ and 10% Ti-doped manganite $\text{Nd}_{0.5}\text{Ca}_{0.5}\text{Ti}_{0.1}\text{Mn}_{0.9}\text{O}_3$ denoted by N and $\text{N}_{0.1}$, respectively, were prepared using solid-state reaction method. Resistivity gets increased for the Ti-doped sample. The parent compound N has remarkably high magnetoresistance. The highest value of Seebeck coefficient for N is $-97 \mu\text{VK}^{-1}$ at 143 K and for $\text{N}_{0.1}$ is $-207 \mu\text{VK}^{-1}$ at 203 K. Variable range hopping mechanism successfully explains the high temperature resistivity and thermopower data.

Keywords: magnetoresistance, thermoelectric power, rare-earth based manganites, manganites.