

Abstract Submitted
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Exchange Striction and Heat Conduction in $\text{Ca}_{1-y}\text{Sr}_y\text{MnO}_3$ ($0 \leq y \leq 0.5$)¹ JOSHUA COHN, University of Miami, CORNELIU CHIORESCU, University of Miami, JOHN NEUMEIER, Montana State University — CaMnO_3 , a G-type antiferromagnet with orthorhombic structure, exhibits a substantial enhancement of its thermal conductivity^{a,b} (κ) for $T < T_N = 125$ K associated with exchange striction, the spin-phonon interactions for which are not well understood. One possibility^a is that this enhancement results from a suppression, in the ordered state, of phonon scattering from bond disorder induced by magnetic fluctuations in the paramagnetic state. The homovalent substitution of Sr for Ca in the $\text{Ca}_{1-y}\text{Sr}_y\text{MnO}_3$ compounds increases the Mn-O-Mn bond angle without changing the crystal structure, and T_N rises^c to ~ 165 K for $y = 0.5$. We present measurements demonstrating that the enhancement of κ is gradually suppressed as y increases, disappearing for $y \simeq 0.5$. The implication of these results for the origin of the enhancement will be discussed.

^a J.-S. Zhou and J. B. Goodenough, Phys. Rev. B **66**, 052401 (2002).

^b J. L. Cohn and J. J. Neumeier, Phys. Rev. B **66**, 100404(R) (2002).

^c O. Chmaissem *et al.*, Phys. Rev. B **64**, 134412 (2001).

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