

Abstract Submitted  
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**Exchange Striction and Heat Conduction in  $\text{Ca}_{1-y}\text{Sr}_y\text{MnO}_3$  ( $0 \leq y \leq 0.5$ )**<sup>1</sup> JOSHUA COHN, University of Miami, CORNELIU CHIORESCU, University of Miami, JOHN NEUMEIER, Montana State University —  $\text{CaMnO}_3$ , a G-type antiferromagnet with orthorhombic structure, exhibits a substantial enhancement of its thermal conductivity<sup>a,b</sup> ( $\kappa$ ) for  $T < T_N = 125$  K associated with exchange striction, the spin-phonon interactions for which are not well understood. One possibility<sup>a</sup> 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<sup>c</sup> to  $\sim 165$  K for  $y = 0.5$ . We present measurements demonstrating that the enhancement of  $\kappa$  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.

<sup>a</sup> J.-S. Zhou and J. B. Goodenough, Phys. Rev. B **66**, 052401 (2002).

<sup>b</sup> J. L. Cohn and J. J. Neumeier, Phys. Rev. B **66**, 100404(R) (2002).

<sup>c</sup> O. Chmaissem *et al.*, Phys. Rev. B **64**, 134412 (2001).

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