

Abstract Submitted  
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**Ballistic low-temperature magnon heat conduction in the helimagnetic insulator  $\text{Cu}_2\text{OSeO}_3$** <sup>1</sup> NARAYAN PRASAI, ARTEM AKOPYAN, SUNXIANG HUANG, JOSHUA L. COHN, University of Miami, BENJAMIN TRUMP, GUY G. MARCUS, TYREL M. MCQUEEN, Johns Hopkins University — We report on the observation of magnon thermal conductivities  $\kappa_m \sim 80$  W/mK near  $T = 5$  K in single crystals of the helimagnetic insulator  $\text{Cu}_2\text{OSeO}_3$ , exceeding those observed previously in any other ferro- or ferrimagnet by almost two orders of magnitude. Distinguished in applied magnetic field, both magnon and phonon thermal conductivities exhibit ballistic behavior below 1K, with mean free paths limited by specimen boundaries. Changes in  $\kappa_m$  through the helical-conical and conical-collinear spin-phase transitions with increasing applied field will also be discussed.

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