Abstract Submitted
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Spin Seebeck Effect Signals from Antiferromagnets[1] ARATI PRAKASH, JACK BRANGHAM, FENGYUAN YANG, JOSEPH HEREMANS, The Ohio State University — The Longitudinal Spin Seebeck Effect (LSSE), in which a heat current stimulates spin propagation across an interface between a magnetic material and a normal metal, is well established and observed in ferromagnetic systems [1]. Data have been presented indicating that antiferromagnetic systems could also give rise to LSSE signals [2]. We report here on LSSE signal measured on the Pt/NiO/YIG structure, where NiO is an antiferromagnet. This system is reported to exhibit antiferromagnonic transport [3]. We explore the dependence of the signal on the thickness of the NiO and YIG layers. We also report its temperature dependence, which was not explored before [3]. The results are interpreted in terms of the temperature dependence of the magnon density of states. It appears that magnon modes with energies below about 40 K are most involved in the process, as was the case to the LSSE on YIG itself [4]. Preliminary results using other antiferromagnets and other inverse spin-Hall layers look promising and will also be reported. [1] S. R. Boona et al., Energy Environ. Sci. 7 885-910 (2014) [2] Y. Ohnuma et al. Phys. Rev. B 87 014423 (2012) [3] H. Wang, Phys. Rev. Lett. 113, 097202 (2014) [4] Y. Jin et al., Phys. Rev. B Phys. Rev. B 92, 054436 (2015)

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