Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

**Investigation of the anomalous Hall effect in non-collinear and non-coplanar magnets** NAKHEON SUNG, F RONNING, J. D. THOMPSON, E. D. BAUER, Los Alamos National Laboratory — Magnetic frustration causes non-collinear and non-coplanar spin structures including complicated helical and conical magnetic states. Interestingly, these magnets had been found to have a drastic effect on the conductivity of a material and may also lead to exotic states of matter, such as skyrmions in FeGe [1], and superconductivity in CrAs [2]. Because conduction electrons are affected by a fictitious magnetic field of astronomical strength in the topological spin structure of these magnets, which gives rise to a large anomalous Hall effect (AHE). The AHE in zero applied magnetic field was realized experimentally in spin liquid system Pr2Ir2O7 [3] and the antiferromagnet Mn3Sn [4]. However, the relationship between crystal structure and the magnetic states, or how structure influences the strength of the coupling of the magnetic moments to the conduction electrons, is not well understood yet. Here, we report measurements of the AHE in various non-collinear and non-coplanar magnets. [1] Nature Materials 10, 106–109 (2011) X. Z. Yu et al. [2] Nature Communications 5, 5508 (2014) Wei Wu et al. [3] Nature 463, 210 (2010) Y. Machida et al. [4] Nature 527, 212 (2015) S. Nakatsuji et al.

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Date submitted: 09 Nov 2016 Electronic form version 1.4