Abstract Submitted
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Magnetic order in GdBiPt studied by x-ray resonant magnetic scattering A. KREYSSIG, M.G. KIM, Ames Laboratory, Dept. of Physics and Astronomy, Iowa State University, Ames, IA, J.W. KIM, Advanced Photon Source, ANL, Argonne, IL, S.M. SAUERBREI, S.D. MARCH, G.R. TESDALL, S.L. BUD'KO, P.C. CANFIELD, R.J. MCQUEENEY, A.I. GOLDMAN, Ames Laboratory, Dept. of Physics and Astronomy, Iowa State University, Ames, IA — Rare earth (R) half-Heusler compounds, RBiPt, exhibit a wide spectrum of novel ground states.[1] We have employed x-ray resonant magnetic scattering to elucidate the microscopic details of the magnetic structure in GdBiPt below $T_{\mathrm{N}} = 8.5\,\mathrm{K}$. Experiments at the Gd L_2 absorption edge show that the Gd moments order in an antiferromagnetic stacking along the cubic diagonal [1 1 1] direction satisfying the requirement for an antiferromagnetic topological insulator as proposed previously[2] where both time-reversal symmetry and lattice translational symmetry are broken, but their product is conserved.
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[1] P. C. Canfield et al., J. Appl. Phys. **70**, 5800 (1991).
[2] R. S. K. Mong et al., Phys. Rev. B **81**, 245209 (2010).

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