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Neutron Diffraction Studies on $Ba_{0.95}K_{0.05}Mn_2As_2$ J. LAMSAL, Ames Lab and Dept. Phys. Astron., Iowa State Univ, Ames, IA 50011, T.W. HEITMANN, The Missouri Research Reactor, Univ. of Missouri, Columbia, MO 65211, A. PANDEY, V.K. ANAND, Y. LEE, R.S. DHAKA, A. KAMINSKI, B.N. HARMON, D.C. JOHNSTON, R.J. MCQUEENEY, A. KREYSSIG, A.I. GOLDMAN, Ames Lab and Dept. Phys. Astron., Iowa State Univ, Ames, IA 50011 — There has been a great deal of interest in compounds, such as $BaMn_2As_2$, which are closely related to the iron pnictide superconductors. Although undoped $BaMn_2As_2$ is an antiferromagnetic (AF) insulator[1, 2], recent studies of lightly doped $Ba_{1-x}K_xMn_2As_2$ have shown a striking change to metallic behavior for $x > 0.01$ and, therefore, may offer a bridge between the high T_c cuprates and the iron-pnictide superconductors. We will present neutron diffraction measurements on polycrystalline $Ba_{0.95}K_{0.05}Mn_2As_2$ performed on the powder diffractometer at the Missouri Research Reactor. Our measurements reveal that the antiferromagnetism in the doped compound remains nearly the same as that found for undoped $BaMn_2As_2$, characterized by a G-type collinear AF spin structure below $T_N \sim 607(2)$ K with an ordered moment of 4.21(6) μ_B/Mn ion at 14 K. Research at Ames Lab was supported by the USDOE, Basic Energy Sciences under Contract No. DE-AC02-07CH11358.

[1] Y. Singh et al., Phys. Rev. B **80**, 100403 (2009).
[2] D. C. Johnston et al., Phys. Rev. B **84**, 094445 (2011).

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