

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

High Field Calorimetry Study on Magnetic Phase Diagram of Quasi-2D QHAF compound $\text{Cu}(\text{pz})_2(\text{ClO}_4)_2$ ¹ NATHANAEL FORTUNE, Smith College, SCOTT HANNAHS, National High Magnetic Field Lab, FAX XIAO, CHRISTOPHER LANDEE, MARK TURNBULL, Clark University — The ordering temperature of the quasi-2D quantum Heisenberg antiferromagnetic compound $\text{Cu}(\text{pz})_2(\text{ClO}_4)_2$ has been found to be strongly influenced by the external field [1]. The ordering temperature of a single crystal of $\text{Cu}(\text{pz})_2(\text{ClO}_4)_2$ (less than 1 mg) was determined by calorimetry measurement in applied DC field up to 33T at NHMFL. The magnetic phase diagram shows a round maximum at 18 T (about 1/3 of its saturation field) at which the ordering temperature was raised by 30%. The experimental result is consistent with a recent prediction for the ideal 2D QHAF system [2], indicating a field induced Heisenberg to XY crossover behavior. Similar crossover behavior has recently been observed between uniaxial and isotropic ordering in a related compound [3]. [1] N. Tsyrlin, F. Xiao et al, submitted to *Phys. Rev. B*, 2009. [2] A. Cuccoli, T. Roscilde, R. Vaia, and P. Verrucchi, *Phys. Rev. B*, **68**, 060402 (2003). [3] P. Sengupta et al, *Phys. Rev. B*, **79**, 060409(R) (2009).

¹Research Supported by awards from the Research Corporation and the NHMFL, funded by Florida and the State of Florida

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Date submitted: 19 Nov 2009

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