

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Specific-heat and magnetocaloric-effect study of the S=1/2 frustrated-chain antiferromagnet  $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$** <sup>1</sup> Y. YOSHIDA, B. ANDRAKA, Y. TAKANO, University of Florida, H. TSUJII, Kanazawa University, Y. INAGAKI, Kyushu University, H. KIKUCHI, Fukui University — Azurite,  $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$ , is a natural mineral in which the S=1/2 spins of  $\text{Cu}^{2+}$  form frustrated chains. The magnetization of this material exhibits a plateau at 1/3 of the saturation value, at magnetic fields between 16 T and 26 T applied in the chain direction, and the specific heat at zero field shows a broad peak at 4 K followed by a sharp peak at 1.8 K [1]. We have measured specific heat up to 18 T and found that the broad peak gets smaller with increasing field and disappears above 10 T. The sharp peak begins to separate into a peak and a shoulder at 5 T, and the temperature difference between these anomalies becomes larger up to 13 T. These observations are well supported by magnetocaloric-effect data taken at the same time. In the plateau region, an exponential temperature dependence is observed in the specific heat at low temperatures, indicating an energy gap for low-lying excited states. Detailed specific-heat and magnetocaloric-effect data and the magnetic phase diagram up to 18 T will be presented. [1] H. Kikuchi *et al*, Phys. Rev. Lett. **94**, 227201 (2005)

<sup>1</sup>Supported in part by the NHMFL In-House Research Program and the DOE through DE-FG02-99ER45748.

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Date submitted: 21 Nov 2006

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