

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Excitations from a Bose-Einstein condensate of magnons in coupled spin ladders.¹ ANDREY ZHELUEV, OVIDUE GARLEA, Oak Ridge National Laboratory, TAKATSUGU MASUDA, Yokohama City University, Japan, HIROTAKA MANAKA, Kagoshima University, Japan, LOUIS-PIERRE REGNAULT, CEA Grenoble, France, JAE-HO CHUNG, YIMING QIU, NIST, Gaithersburg, MD, USA, KLAUS HABICHT, KLAUS KIEFER, Hahn Meitner Institut, Berlin, Germany — The weakly coupled quasi-one-dimensional spin ladder compound $(\text{CH}_3)_2\text{CHNH}_3\text{CuCl}_3$ is studied by neutron scattering in magnetic fields exceeding the critical field of Bose-Einstein condensation of magnons. Commensurate long-range order and the associated Goldstone mode are detected and found to be similar to those in a reference 3D quantum magnet. However, for the upper two massive magnon branches the observed behavior is totally different, culminating in a drastic collapse of excitation bandwidth beyond the transition point.

¹Research at ORNL was funded by the United States Department of Energy, under Contract No. DE-AC05-00OR22725 with UT-Battelle, LLC.

Andrey Zheludev
Oak Ridge National laboratory

Date submitted: 08 Nov 2006

Electronic form version 1.4