

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

THz-Time Domain Spectroscopy Study of spin-frustrated BaCuSi₂O₆¹ TAKAHISA TOKUMOTO, National High Magnetic Field Lab. / Florida State Univ., HAIDONG ZHOU, STEPHEN MCGILL, JUDY CHERIAN, Department of Physics and NHMFL, Florida State University — A spin 1/2 dimer compound BaCuSi₂O₆ realizes a field-induced Bose-Einstein condensation above 23.2 T with a field-induced AF ordering of triplets. To directly observe the low-energy gap, we have employed the THz-Time Domain Spectroscopy down to 350 mK and up to 10 T. Preliminary results indicate two novel optical transitions around 0.36 (1.49) and 0.5 (2.07) THz (meV) below the reported spin gap of 3.21 meV¹. Temperature and magnetic field (B//c) dependences of the transitions will be discussed. Reference: 1. S Sebastian et al., Phys. Rev. B 74, 180401R (2006).

¹This work is supported by the NHMFL through an UCGP grant.

Takahisa Tokumoto
National High Magnetic Field Lab. / Florida State Univ.

Date submitted: 27 Nov 2009

Electronic form version 1.4