

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Dzyaloshinskii-Moriya interaction in LiCu_2O_2 ¹ LASZLO MIHALY, Stony Brook University, HELMUTH BERGER, EPFL, Lausanne, LASZLO FORRO, EPFL, Lausanne — The far-infrared optical spectrum of the spin 1/2 helimagnet LiCu_2O_2 was investigated in magnetic fields up to 14Tesla. In the paramagnetic state a spin resonance line was observed corresponding to a g -factor of about 2. The resonance broadens and practically disappears around the phase transition temperature of $T=25\text{K}$, but it is recovered at lower temperatures at a new position. The 2.5K field dependence of the spin susceptibility and resonance frequency is characteristic of a magnetically ordered system, where the Dzyaloshinskii-Moriya interaction causes a finite gap of 1.5meV in the spin wave spectrum at $q=0$.

¹Use of the National Synchrotron Light Source, Brookhaven National Laboratory, was supported by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences, under Contract No. DE-AC02-98CH10886.

Laszlo Mihaly
Stony Brook University

Date submitted: 30 Nov 2005

Electronic form version 1.4