Dzyaloshinskii-Moriya interaction in LiCu$_2$O$_2$\(^1\) 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$_2$O$_2$ 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 \(T=25\)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 \(q=0\).

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