Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Optical evidence for a magnetically driven structural transition in the spin web Cu_3TeO_6 L. DEGIORGI, G. CAIMI, ETH Zurich, H. BERGER, L. FORRO', EPF Lausanne — Cu_3TeO_6 is a modest frustrated $S = 1/2$ spin system, which undergoes an anti-ferromagnetic transition at $T_N \sim 61\ K$. The anti-ferromagnetic spin alignment in Cu_3TeO_6 below T_N is supposed to induce a magneto-elastic strain of the lattice. The complete absorption spectrum of Cu_3TeO_6 is obtained through Kramers-Kronig transformation of the optical reflectivity, measured from the far-infrared up to the ultraviolet spectral range as a function of temperature (T). Below $T^* \sim 50\ K$, we find a new mode at 208 cm^{-1}. The spectral weight associated to this additional mode increases as $\propto (T^* - T)^{1/2}$ with decreasing T below T^*. The implication of the optical findings will be discussed in relation to the magnetic phase transition at T_N.

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Date submitted: 14 Nov 2005 Electronic form version 1.4