Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Probing spin correlations in the frustrated magnets $CdCr_2O_4$ and $ZnCr_2O_4$ JOACHIM DEISENHOFER, CHRISTIAN KANT, FRANZ MAYR, FLORIAN SCHRETTLE, TORSTEN RUDOLF, VALDIMIR TSURKAN, ALOIS LOIDL, Experimentalphysik V, Center for Electronic Correlations and Magnetism, Institute for Physics, Augsburg University, D-86135 Augsburg, Germany — We performed optical, magnetic susceptibility, and specific heat measurements on $CdCr_2O_4$ and $ZnCr_2O_4$ single crystals. We estimate the nearest-neighbor and next-nearest neighbor exchange constants from the magnetic susceptibility and extract the spin-spin correlation functions obtained from the magnetic susceptibility and the magnetic contribution to the specific heat. In comparison with the frequency shift of the infrared optical phonons above T_N, we can obtain estimates for the spin-phonon coupling in both systems. Moreover, we will discuss optical signatures of the magnetic excitation spectrum which are found to persist up to room temperature in $ZnCr_2O_4$.

Joachim Deisenhofer

Date submitted: 20 Nov 2009 Electronic form version 1.4