Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Transverse susceptibility of Ising spins D. M. SILEVITCH, C. ANCONA-TORRES, T. F. ROSENBAUM, James Frank Institute/University of Chicago, G. AEPPLI, University College, London — The ac vector magnetic susceptibility of the Ising magnet $LiHo_xY_{1-x}F_4$ is studied as a function of frequency, excitation amplitude, transverse field and temperature. In the spin liquid ($x = 4.5\%$), application of a dc magnetic field projects the linear susceptibility transverse to the Ising axis. In addition, pumping the system along the Ising axis produces non-linear excitations in the transverse plane; these excitations can encode information and are potentially useful for quantum computation. In the ferromagnet ($x = 65\%$), measurements of the transverse susceptibility are used to probe the dynamics of domain wall tunneling and to estimate the mass of the domain walls.

D. M. Silevitch
James Frank Institute/University of Chicago

Date submitted: 29 Nov 2005 Electronic form version 1.4