Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Spin Waves in the Ferromagnetic Ground State of the Kagome Staircase System $Co_3V_2O_8$ MEHMET RAMAZANOGLU, J. PAT CLANCY, A. JOHN BERLINSKY, BRUCE D. GAULIN, Dept. of Physics and Astronomy, McMaster Univ., Hamilton, ON, Canada , CARL ADAMS, Dept. of Physics, St. Francis Xavier Univ., Antigonish, NS, Canada , ZAHRA YAMANI, NRC,CNBC,Chalk River, ON, Canada , RITTA SZYMCZAK, HENRYK SZYMCZAK, JAN FINK-FINOWICKI, Inst. of Physics, Polish Academy of Sciences, Poland — We have performed inelastic neutron scattering measurements on a single crystal sample of cobalt vanadate, $Co_3V_2O_8$ (CVO). The magnetic Co ions in CVO decorate a stacked, Kagome staircase crystal structure, and the system displays a complex sequence of ordered magnetic phases, culminating in a ferromagnetic phase at low T [1,2]. We studied the spin wave dispersion relations and intensities within the Kagome planes and in the low temperature ferromagnetic phase which the system enters below $T_c \sim 6$ K. Linear spin wave theory can model the qualitative features and much quantitative detail of these inelastic neutron measurements. These results show strongly anisotropic exchange interactions within this plane, and interesting finite lifetimes to the spin waves well below T_c.
[1] R. Szymczak et. al. PRB 73, 094425, (2006)
[2] Y. Chen et. al. PRB 74,014430, (2006)

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Date submitted: 29 Nov 2007 Electronic form version 1.4