Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Quantum Order by Disorder in Frustrated Diamond Spinel Antiferromagnets JEAN-SEBASTIEN BERNIER, MICHAEL J. LAWLER, YONG BAEK KIM, University of Toronto — We study the effect of quantum fluctuations on the frustrated diamond lattice antiferromagnet where frustration arises from the presence of second neighbor interactions. Such an antiferromagnet describes the magnetic properties of spinel AB_2X_4 where magnetic ions are located on A-sites. We compare the resulting phase diagram of the quantum model and that of its classical counterpart, and discuss the difference/similarity between the quantum and thermal order by disorder phenomena. Implications for experiments on $CoRh_2O_4$, Co_3O_4 and $MnSc_2S_4$ will be discussed.

Jean-Sebastien Bernier
University of Toronto

Date submitted: 18 Dec 2007 Electronic form version 1.4