Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

A dual approach to quantum fluctuations in frustrated lattice spin models[1] ANIRBAN GANGOPADHYAY, VICTOR GALITSKI, University of Maryland, College Park — We develop a dual approach to describe quantum dynamics in lattice spin models, which allows us to describe nonperturbative *quantum* trajectories in the spin path integral. The spin path integral takes the form of a combination of traces of "dynamic density matrices", which belong to either special linear group $SL(2,C)$ for a quantum ferromagnet or $SU(2)$ for an antiferromagnet. We analyze the latter model of a highly frustrated quantum antiferromagnet and find a class of non-perturbative trajectories that contribute to thermodynamics of the model at low temperatures.

[1]Research supported by DOE

Anirban Gangopadhyay
University of Maryland, College Park

Date submitted: 18 Nov 2010 Electronic form version 1.4