

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Properties of a Single Hole in a Kagome Antiferromagnet** SUMIRAN PUJARI, Cornell University, MICHAEL J. LAWLER, SUNY at Binghamton, Cornell University — Various Spin Liquid states have been considered as candidate ground states for the frustrated Kagome Antiferromagnet. Ran *et al* showed that the Dirac Spin Liquid(DSL) state has the lowest ground state energy amongst several proposals<sup>1 2</sup>. Assuming the DSL as the ground state, we consider the question of a single hole doped into the antiferromagnet. Our aim is to calculate the hole spectral function 1) at mean field level - where the DSL mean field decomposition of the Heisenberg exchange term forms a background field in presence of which the hole propagates, and 2) beyond mean field - where the question is whether the fluctuations of the DSL mean field renormalizes the hole in a nontrivial way or not.

<sup>1</sup>Y. Ran et al, Phys. Rev. Lett. 98, 117205 (2007)

<sup>2</sup>M. Hermele et al, Phys. Rev. B 77, 224413 (2008)

Sumiran Pujari  
Cornell University

Date submitted: 18 Nov 2009

Electronic form version 1.4