

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Quantum phase transitions in kagome lattice quantum Heisenberg antiferromagnets with Dzyaloshinskii-Moriya interactions YEJIN HUH, Harvard University, LARS FRITZ, University of Cologne, SUBIR SACHDEV, Harvard University — Extending Sachdev's work (PRB 45 12377 (1992)) on kagome lattice quantum Heisenberg antiferromagnets, the system is studied including Dzyaloshinski-Moriya interaction (DMI) using Schwinger boson methods with $Sp(N)$ symmetry. Above critical size of spin(S), we argue that two distinct types of ordered ground states are found. For small values of spin, the ordering disappears and we observe a quantum disordered ground state. The DMI favors ordering and when this is increased the system undergoes a quantum phase transition to an ordered state. We discuss the phase diagram of the system as a function of DMI strength and S/N .

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Date submitted: 22 Dec 2009

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