Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Quantum Selection of Order in an XXZ Antiferromagnet on a Kagomé Lattice[1] ALEXANDER CHERNYSHEV, Univ of California - Irvine, MICHAEL ZHITOMIRSKY, CEA Grenoble — By advancing the non-linear $1/S$ expansion and the real-space perturbation theory we investigated quantum order-by-disorder selection of the ground state of the nearest-neighbor XXZ antiferromagnet on the kagomé lattice. The two methods unanimously favor $\mathbf{q} = 0$ over $\sqrt{3} \times \sqrt{3}$ magnetic order in a wide range of the anisotropy parameter $0 \leq \Delta \lesssim 0.72$. We demonstrated that the order selection is generated by topologically non-trivial spin-flip processes, presented a strong evidence of the rare case of quantum and thermal fluctuations favoring different ground states, proposed a tentative $S-\Delta$ phase diagram of the model, and suggested further studies.

[1]Supported by the DoE

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Date submitted: 07 Nov 2014 Electronic form version 1.4