Thermodynamics and phase transitions of the pinwheel-distorted Kagome lattice Heisenberg model[1]
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— We study the Heisenberg model on the pinwheel-distorted Kagome lattice as observed in the material $Rb_2Cu_3SnF_{12}$. Experimentally relevant thermodynamic properties at finite temperatures are computed utilizing numerical linked-cluster expansions [1]. We introduce a Lanczos-based zero-temperature numerical linked-cluster expansion and study the approach of the pinwheel distorted lattice to the uniform Kagome lattice Heisenberg model. We find strong evidence for a phase transition before the uniform limit is reached, implying that the ground state of the Kagome lattice Heisenberg model is likely not pinwheel dimerized and is stable to finite pinwheel dimerizing perturbations [2].

[1] M. Rigol and R. R. P. Singh, Phys. Rev. Lett. 98, 207204 (2007); Phys. Rev. B 76, 184403 (2007).
[2] E. Khatami, R. R. P. Singh, M. Rigol, preprint: arXiv:1105.4147

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