

Abstract Submitted
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Theory of Collinear ordering on the Kagome Lattice of Zn-paratacamite¹ LARS FRITZ, Harvard University, MICHAEL LAWLER, YONG-BAEK KIM, University of Toronto, SUBIR SACHDEV, Harvard University — We present a theory of the collinearly ordered phase discovered in a recent neutron scattering experiment [1] on Zn-paratacamite, $\text{Zn}_x\text{Cu}_{4-x}(\text{OH})_6\text{Cl}_2$, at small x . Zn-paratacamite has been considered as an excellent model system for the kagome lattice of spin-1/2 moments with antiferromagnetic exchange interactions. We studied both the classical and quantum Heisenberg models on the distorted kagome lattice appropriate for Zn-paratacamite with small x . Our theory naturally explains the emergence of a Néel phase. A theory for the Valence-Bond Solid phase also discovered in this experiment is presented in a related contributed talk.

[1] S.-H. Lee et al., Nature Materials, 6, 853

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