

Abstract Submitted
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Phase Diagram of Classical Heisenberg Antiferromagnets with Four-Spin Interactions on Stacked Triangular Lattice under Magnetic field¹ SHINTARO TAKAYOSHI, Institute for Solid State Physics, University of Tokyo, MASAHIRO SATO, Department of Physics, Aoyama-Gakuin University — Classical Heisenberg antiferromagnet (HAF) on stacked triangular lattice is a simple and important model of frustrated systems. Although there are some candidate materials for triangular HAF, they are not ideal ones and various kinds of perturbations should be present. While it is well known that the ground state of triangular HAF is 120-degree structure, how perturbations destabilize the structure has not been well studied. In this study, we consider effects of four-spin interactions on magnetic phase diagram of triangular HAF. In fact, some real mechanisms of generating four-spin interactions have been known: higher-order electron hopping processes in Mott insulators, spin-phonon couplings, etc. We complete the magnetic phase diagrams by using Monte Carlo simulation. We will report new phases induced by four-spin interactions.

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