

Abstract Submitted
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Non-magnetic defects in the classical Kagome bilayer antiferromagnet ARNAB SEN, Boston University, KEDAR DAMLE, Tata Institute of Fundamental Research, Mumbai, India, RODERICH MOESSNER, Max-Planck-Institut für Physik komplexer Systeme, Dresden, Germany — We consider non-magnetic substitutions in the quasi two-dimensional Kagome bilayer lattice (relevant to experiments on SCGO ¹) which consists of both triangular and tetrahedral units. Correlated defects, where impurities substitute for all but one spin on a “defective” triangle or tetrahedron, are particularly interesting in this context. The lone “orphan spin” ² on the simplex acts like a paramagnetic spin as $T \rightarrow 0$ and induces a long-ranged spin texture around it ³ at zero temperature. We study such defects at low temperatures and magnetic fields by performing classical Monte-Carlo simulations. We also use a simple effective field theory to reasonably capture the features of the induced texture.

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