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Simulation on doping dependent phase transition in MnSi by Monte Carlo method JHIH-AN YANG, DMITRY REZNIK, University of Colorado at Boulder — Recently, the skyrmion lattice has been found in the A phase of the itinerant helimagnet MnSi by small angle neutron scattering and the magnetic analogue of blue phases has been reported to explain a number of puzzling features of MnSi. Here we use a different approach based on Monte Carlo methods, showing the thermal behavior around transition temperatures in doped systems under the simplest Dzyaloshinsky-Moriya nearest-neighbor interactions. Interestingly, the transition temperature decreases with increasing doping concentrations, which is consistent with the experimental observations. We also show how the topological order parameter changes with temperature and its relation with the specific heat and thermal fluctuations.

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