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Ferromagnetism in the one-band Hubbard Model on a triangular lattice[1] SHI-QUAN SU, Department of Physics, The Chinese University of Hong Kong, ZHONG-BING HUANG, Department of Physics, Hubei University, Hubei, China, RUI FAN, HAI-QING LIN, Department of Physics, The Chinese University of Hong Kong — We investigated numerically the existence of ferromagnetic phase in the one-band Hubbard model on a triangular lattice. By studying the spin susceptibilty, we found the model exhibits ferromagnetic properties when the density of electrons is low. Auxillary Field Quantum Monte Carlo (AFQMC) and Constrained Path Monte Carlo (CPMC) data are used to present the system behaviors including spin susceptibility, pair correlation, when the parameters of the model change. We found that these behaviors are related to the ferromagnetism of the model. These results can be viewed as evidences to support a route to metallic ferromagnetism in the one-band Hubbard models.

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