

Abstract Submitted
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Magnetic properties of the Hubbard model on the fcc lattice¹

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— As a possible model for ferromagnetism, we study the magnetic properties of the Hubbard model on an fcc lattice. Near-neighbor and next-near-neighbor hopping parameters are included to examine the effect of band structure. We use exact diagonalization and the Constraint Path Monte Carlo (CPMC)² methods. Several methodological improvements in CPMC, for example the release of the constraint, will be discussed. We present benchmark quality results on the paramagnetic ground state and partially polarized states, as a function of interaction strength. A magnetic phase diagram is obtained from our many-body calculations, and comparison will be made with results from Dynamical Mean Field theory³.

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²S. Zhang, J. Carlson, and J. Gubernatis, Phys. Rev. B **55**, 7464 (1997); C.-C. Chang and S. Zhang, Phys. Rev. B **78**, 165101 (2008).

³M. Ulmke, The Eur. Phys. J. B. **1**, 301 (1998)

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