

Abstract Submitted  
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**Ferromagnetic ordering in two-component Fermi gas: four particle problem** SHENGQUAN ZHOU, DAVID CEPERLEY, University of Illinois at Urbana-Champaign, SHIWEI ZHANG, College of William and Mary — To interpret the experiment of Jo et al. on implementing the Stoner model of itinerant ferromagnetism, we investigate the energy spectrum of a system of four interacting spin-half fermions using exact diagonalization on a finite grid. The formation of molecular bound states and the ferromagnetic transition of the excited scattering states are examined systematically as a function of the interaction coupling constant. If the interaction is modeled by an effective positive scattering length, the transition density to ferromagnetism changes significantly.

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