

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Entropy of the Hubbard model near the Néel transition

MATTHIAS TROYER, ETH Zurich, EVGENI BUROVSKI, Université Paris-Sud, EVGENY KOZIK, ETH Zurich, JAAN OITMAA, University of New South Wales, LODÉ POLLET, Harvard University, VITO SCAROLA, Virginia Tech — Recent dramatic advances in experiments with ultracold lattice fermions, substantiated in particular by observations of Mott physics, promise a forthcoming realization of long-range antiferromagnetism. The key question is how much more progress in cooling will be necessary for these systems to enter the Néel phase. To provide the basis for accurate thermometry and detection of the Néel state, we calculate the entropy of the Hubbard model near the Néel transition. The results are obtained using determinant diagrammatic Monte Carlo and high-temperature series expansion methods.

Matthias Troyer
ETH Zurich

Date submitted: 21 Dec 2009

Electronic form version 1.4