Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Thermodynamics of the unitary Fermi gas KRIS VAN HOUCKE, Ghent University, FELIX WERNER, University of Massachusetts, Amherst, EVGENY KOZIK, ETH Zürich, NIKOLAY PROKOF'EV, BORIS SVISTUNOV, University of Massachusetts, Amherst — Current experiments with ultra-cold fermions open the possibility of exploring the phase-diagram of models that are hard to tackle with present quantum many-body theory, such as the Hubbard model or the problem of BEC-BCS crossover. With such quantum emulators within reach, (numerical) tools for determining the unbiased equation of state are evermore important. Diagrammatic Monte Carlo (DiagMC) is a generic technique, capable of solving macroscopic quantum many-body systems. We will discuss DiagMC, and present results for the unitary Fermi gas. We obtain universal thermodynamic functions and compare with experimental results.

Kris Van Houcke
Ghent University

Date submitted: 22 Dec 2009 Electronic form version 1.4