Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Electronic properties of a harmonically confined 1D Hubbard model[1] STEFAN SOEFFING, SEBASTIAN EGGERT, Univ. of Kaiserslautern, Germany — Ultra-cold gases in optical lattices provide an excellent experimental playground to study the Hubbard model in one dimension. While lots of theoretical results are available for periodic or open boundary conditions the effect of a harmonic trapping potential is not always clear. In this talk we investigate the low-temperature properties of the Hubbard model in a harmonic potential using Luttinger liquid theory combined with numerical Density Matrix Renormalization Group (DMRG) calculations at low fillings. Interaction effects are analyzed in the context of oscillations in the charge density and local density of states.

[1]With special thanks to OPTIMAS and the DFG funded "Transregio 49" and the "graduate school of excellence MATCOR"

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Date submitted: 17 Dec 2009 Electronic form version 1.4