Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

**Compressibility and Entropy of One Dimensional Fermions in a combined Harmonic and Periodic Potential** ANDREW SNYDER, THEJA DE SILVA, Binghamton University — We solve the homogeneous Hubbard model for repulsively interacting fermions using thermodynamic Bethe anzatz method. Treating the harmonic potential in local density approximation, we calculate particle density, various compressibilities, double occupancy, and entropy as a function of temperature and interaction. These quantities show characteristic features that can be used to detect temperature, metal-insulator transition, and coexistence of metallic and insulating phases.

Theja De Silva
Binghamton University

Date submitted: 11 Nov 2011 Electronic form version 1.4