

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Mott and Wigner-Mott transition away from half-filling CHUNHUA LI, ZIQIANG WANG, Boston College — We study the Mott transition in strongly correlated electron systems away from half-filling in the presence of finite-range Coulomb interaction and/or a superstructure associated with an inhomogeneous electronic state. Using a cluster Gutzwiller approach, we map a minimal single band t - U - V - Δ model with nearest neighbor Coulomb repulsion V and superlattice potential Δ_i to a two-orbital Hubbard model with intra and interorbital Coulomb repulsion U and U' and a crystal field splitting Δ . We obtain the Mott transition at quarter-filling from both uniform and $\sqrt{2} \times \sqrt{2}$ charge density wave metals and discuss the physics of the Mott and Wigner-Mott metal-insulator transition.

Chunhua Li
Boston College

Date submitted: 21 Nov 2008

Electronic form version 1.4