

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Many-body effects in the capacitance of multilayers composed of Mott insulators** SIMON HALE, JIM FREERICKS, Georgetown University — Inhomogeneous dynamical mean-field theory is employed to investigate the non-linearity of the capacitance of multilayer nanostructures. The multilayer nanostructures are constructed with semi-infinite metallic leads coupled via a strongly correlated (Mott insulating) dielectric barrier. Results on the effects of varying barrier thickness temperature, potential difference, screening length, and chemical potential will be presented. In addition, we also intend to examine phase separation effects which have been experimentally measured to enhance the many-body capacitance over the geometric capacitance.

Simon Hale  
Georgetown University

Date submitted: 19 Nov 2011

Electronic form version 1.4