Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Theoretical model of a soft particle with charged core DUSTIN TRACY, University of Florida - Gainesville, ANH PHAN, University of Illinois - Urbana Champaign — The numerical and analytical solutions of the electrostatic potentials of soft particles with an ion-permeable charged outer layer and a non-permeable charged core with constant charge densities are found using the Poisson-Boltzmann equations. The charged core is found to significantly alter the local potential within the soft particle, yet it has little effect on the potential outside its particle's boundaries. Previous experimental research into the electrical properties of the MS2 virus agree with these findings. Our results also suggest that there is only a slight change in the potential as the temperature is increased from 290 K to 310 K. The potential profile is found to be significantly affected by the ionic strength in the 1-600 mM range.

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Date submitted: 15 Nov 2013 Electronic form version 1.4