Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Interaction of ions with rough solid-liquid interfaces with dielectric contrast. FRANCISCO J. SOLIS, Arizona State University — Ions dissolved in liquids have electrostatic interactions with the solid boundaries of the medium. Typically, these solid boundaries have dielectric properties different from those of the liquid. For a flat boundary, the electrostatic energy of interaction between a single ion and the solid-liquid interface is obtained using the classical method of images. It is of interest to extend this result to cases where roughness is present at the interface. This roughness can be modeled as a sinusoidal wave. This presentation will address the calculation of the ion-interface interaction energy using perturbation theory on the roughness amplitude. The main result is that the energy can be written in closed analytical form as a function of the distance between ion and surface, the roughness wavelength and the dielectric properties of the medium.

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Date submitted: 11 Nov 2016 Electronic form version 1.4