

Abstract Submitted
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Determining the equilibrium distribution of particles in nanofluidic systems DAVID BOY, TODD SQUIRES, FREDERIC GIBOU, UC Santa Barbara — We study the equilibrium distribution of particles between plates with separation of less than one micron, which is relevant to many colloidal and biomolecular systems. We compare two common simplifying approximations, the linear superposition model and the ion model, to the full nonlinear Poisson-Boltzmann equation. We identify regions in which these simplified models apply, and we describe when and why they fail. Finally, we show that fitting a single parameter in a simplified model will cause it to agree with the full model, implying that even a believable fit is not evidence for a model's validity.

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