Abstract Submitted
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Phase Behavior of Charged Colloids: Closed versus Donnan Equilibrium[1] ALAN R. DENTON, North Dakota State University — The influence of chemical boundary conditions on thermodynamic properties of deionized charge-stabilized colloidal supensions is analyzed. Effective electrostatic interactions and phase behavior are shown to depend fundamentally on whether a suspension is confined to a closed (electroneutral) cell or is in Donnan equilibrium with a microion reservoir, *e.g.*, electrolyte solution. Linear-response theory[2] predicts that at low ionic strength closed suspensions of highly charged macroions and monovalent microions can phase separate, while microion exchange with a reservoir stabilizes the fluid phase.

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[2] A.R. Denton, *Phys. Rev.* E **73**, 41407 (2006).

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