

Abstract Submitted
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Correlated electrolyte solutions and ion-induced attractions between nanoparticles JOS ZWANIKKEN, MONICA OLVERA DE LA CRUZ — Information about the degree of association can be obtained from a nonlinear Debye-Hueckel theory [1], in agreement with simulation and experimental results [2], in strong contrast with the widely applied (linear) Debye-Hueckel limiting law. The radial distribution functions calculated within this nonlinear theory are indistinguishable from molecular dynamics simulations of the restricted primitive model for divalent salts up to 0.1 molar concentrations. We apply the method to study the cohesive effects of strong couplings between ions on the effective interactions between nanoparticles, and the screening cloud around functionalized nanoparticles.

- [1] J. W. Zwanikken, and M. Olvera de la Cruz, Phys. Rev. E 82, 050401(R) (2010).
[2] C. Valeriani, P. Camp, J. Zwanikken, R. van Roij, and M. Dijkstra, J. Phys.: Condens. Matter 22, 104122 (2010); Soft Matter 6, 2793 - 2800 (2010).

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