

# Renormalized jellium model for colloidal mixtures

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In an attempt to quantify the role of polydispersity in colloidal suspensions, we present an efficient implementation of the renormalized jellium model for a mixture of spherical charged colloids [1]. The different species may have different size, charge, and density. Advantage is taken from the fact that the electric potential pertaining to a given species obeys a Poisson's equation that is species independent; only boundary conditions do change from one species to the next. All species are coupled through the renormalized background (jellium) density, that is determined self-consistently.

The corresponding predictions are compared to the results of Monte Carlo simulations of binary mixtures, where Coulombic interactions are accounted for exactly, at the primitive model level (structureless solvent with fixed dielectric permittivity). An excellent agreement is found.

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[1] M. I. García de Soria, C. E. Álvarez, and E. Trizac, Phys. Rev. E **94**, 042609 (2016).