

## Nanoparticle adsorption at charged wall

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### Abstract

Electrostatic interactions between charged nanoparticles and charged macroions in aqueous solutions play an important role in biology, chemistry and technology. Usually nanoparticles possess spatially distributed charge that has impact on the electric double layer properties. These systems can be described within the modified Poisson-Boltzmann theory if the charge distribution within nanoparticles is taken into account. We study an electrolyte solution composed of multivalent spherical nanoparticles with discrete and continuous charge distribution. Minimization of the free energy results an integral-differential equation for the electrostatic potential. The results show the importance of the charge distribution within the nanoparticles on the adsorption properties.