Effect of Ion Size on the Properties of Spherical Electric Double Layers.

Bohinc, K., Iglič, A., Slivnik, T., Fošnarič, M., Gimsa, J., Kralj-Iglič, V., 2002. *In* B. Zajc (Ed.): Proceedings of the Eleventh International Electrotechnical and Computer Science Conference ERK 2002, Vol. A, Slovenia Section IEEE:319–322. ERK XI 2002, 23.-25. September. Portorož, Slovenia.

Abstract: *The effect of counterion size on the electric properties of the electrolyte solution in contact with charged surfaces of spherical symmetry is considered. Electrostatic interaction is considered by means of the mean electrostatic field while the finite size of ions and solvent molecules have been described by the excluded volume effect within the lattice statistics. Different sizes of the ions are described by different values of the lattice constant. In the model an increasing ion size is reducing the number of counterions near the charged surface, subsequently leading to an increased electrostatic potential. The Number density of counterions close to the charged surface is saturating at large surface charge densities. Our results coincide with published experimental data emphasizing the importance of the excluded volume effect.*