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The Electric Double Layer Structure Around Charged Spherical Interfaces[1] ZHENWEI YAO, MARK BOWICK, XU MA, Syracuse University — We derive a formally simple approximate analytical solution to the Poisson-Boltzmann equation for the spherical system via a geometric mapping. Its regime of applicability in the parameter space of the spherical radius and the surface potential is determined, and its superiority over the linearized solution is demonstrated. In addition, the influence of nonuniform surface potential on the electric double layer structure is studied for large spheres in the weak potential limit.

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Zhenwei Yao
Syracuse University

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