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**Dissipative-Particle-Dynamics Simulation of Charged Colloid under Alternating Electric Fields** JIAJIA ZHOU, FRIEDERIKE SCHMID, University Mainz — We study the response of spherical charged colloids under alternating electric fields (AC-fields) by mesoscopic simulation methods, accounting in full for hydrodynamic and electrostatic interactions. A coarse-grained molecular dynamics approach is taken to model the fluids, in which the solvent particles are simulated using Dissipative Particle Dynamics, while the electrostatic interaction between all charges are computed using Particle-Particle-Particle Mesh method. Due to the interplay of the electrostatic and hydrodynamic interactions, the mobility and the polarizability exhibit a dependency on the frequency of the external fields. The effect of the ionic strength of the solution and the bare charge of the colloids are also investigated systematically.

Jiajia Zhou  
University Mainz

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