

## Lattice Boltzmann Method in Electrokinetic Phenomena

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The application of lattice-Boltzmann method(LBM) to the electrokinetic systems discussed using the moment propagation method pioneered by Frenkel, Ernst( Phys. Rev. Lett, 61, 1989 ) and Low ( Physica A, 220, 1995 ).

In this work we describe the electrostatics on the level of a poisson equation and hydrodynamics of the fluid by the linearized Navier-Stokes equation in the presence of external force.

As a simple application, electro-osmotic flow and charge density in a parallel sided slit is analysed and the results compared favourably with the analytic and numerical solutions for this geometry.