Simulate binary mixtures with a two-fluid lattice Boltzmann model

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Abstract

Lattice Boltzmann(LB) simulations of complex fluids have been attracting extensive interest. Most of previous LB studies on binary mixtures are based on the one-fluid theory where the two comoponents are assumed to have nearly symmetric mechanical properties. Two-fuild LB models [Europhys. Lett. 69, 214 (2005); Phys. Rev. E (in press, cond-mat/0406012)] were developed recently to simulate binary systems where the two components may have greatly different mechanical properties . We further the study by incorporating interparticle interactions so that the LB schemes can be used to investigate systems with interfacial tension. Details of the schemes and simulation results will be shown.

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