







Lothar-Collatz-Seminar

Wed, 27. November $\,\cdot\,$ 16:15 $\,\cdot\,$ Sedanstr. 19, Room 203

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A Lattice Boltzmann Method for Multiphase Flows

Abstract:

Multiphase flows are pivotal in natural sciences and engineering. A promising modeling approach combines the Lattice Boltzmann Method (LBM), a mesoscopic solver for the Navier-Stokes equations, with the Shan-Chen (SC) pseudopotential technique, which introduces an interparticle interaction force that induces spontaneous phase separation within a diffuse interface. Its ease of implementation comes with downsides: the conventional SC-LBM is inaccurate and unstable at high density and dynamic viscosity ratios among fluids. To address this issue, we employ a twofold strategy: first, we enhance the LBM collision process; second, we introduce refinements specific to multiphase modeling. Numerical results demonstrate satisfactory performances of the model in both static and dynamic tests.

For further information please contact

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