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Lattice Boltzmann Simulations for High Density Ratio Flows of Multiphase Fluids YIKUN WEI, YUEHONG QIAN, Institute of Applied Math and Mechanics, Shanghai University — In the present communication, we will show that the compression effect of the Redlich-Kwong equation of state(EOS) is lower than that of the van der Waals (vdW) EOS. The Redlich-Kwong equation of state has a better agreement with experimental data for the coexistence curve than the van derWaals (vdW) EOS. We implement the Redlich-Kwong EOS in the lattice Boltzmann simulations via a pseudo-potential. As a result, multi-phase flows with large density ratios may be simulated, thus many real applications in engineering problems can be applied. Acknowledgement: This research is supported in part by Ministry of Education in China via project IRT0844 and NSFC project 10625210 and Shanghai Sci and Tech. Com. Project 08ZZ43

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