

Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Droplet deformation in shear flow: a comparison between multi-component Lattice-Boltzmann method (LBM) and Phase Field method (PFM) ALFREDO SOLDATI, LUCA SCARBOLO, DAFNE MOLIN, Università degli Studi di Udine, PRASAD PERLEKAR, FEDERICO TOSCHI, Technische Universiteit Eindhoven — Prediction of droplet breakup, droplet coalescence and phase separation are crucial in many industrial and environmental processes. We present a direct comparison between two numerical approaches on the problem of deformation and breakup of a droplet under shear flow conditions. In order to quantitatively benchmark the Lattice Boltzmann and the Phase Field methods we consider the same flow conditions. Through the comparison of the two approaches we can assess respective advantages and disadvantages. For different values of the dimensionless problem parameters we investigate quantitatively both physical properties as well as numerical issues related to the two different methodology.

Alfredo Soldati
Università degli Studi di Udine

Date submitted: 05 Aug 2010

Electronic form version 1.4