Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

Moment-of-Fluid Method in Action[1] HYUNG TAEK AHN, MIKHAIL SHASHKOV, Los Alamos National Laboratory — Moment-of-fluid (MoF) method, a new volume-tracking multi-material/multi-phase flow simulation method, is presented. Contrast to the Volume-of-Fluid (VoF) method that uses only volume fraction data for advection and interface reconstruction, the MoF method utilizes moment data, namely the volume fraction as well as the centroid of each material in the mixed cells (i.e. cells containing multiple materials). Based on the the moment data of each material, the material interfaces are reconstructed with second order accuracy in a strictly conservative manner. The MoF method is coupled with Stabilized Finite Element based incompressible Navier-Stokes solver for two materials. The effectiveness of MoF method is demonstrated with several test cases including Rayleigh-Taylor instability, rising bubble, and broken dam problems.

[1]This work was supported by the Advanced Simulation and Computing (ASC) program at the Los Alamos National Laboratory.

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Date submitted: 31 Jul 2007 Electronic form version 1.4