A level set based method for modeling large density ratio, interfacial flows MEHDI RAESSI, HEINZ PITSCH, Center for Turbulence Research, Stanford University — We present a numerical methodology in the context of the level set method for modeling interfacial flows characterized by large density ratio. In this method, to advect momentum the conservative form of the momentum equation is solved. Using the level set function, the density of momentum fluxes is calculated based on the interface evolution. The same flux density is used for advecting mass, and thereby a tight coupling between mass and momentum transport is established. We present a set of results in which the density ratio ranges from 650 to 10,000 and demonstrate the capability of the method in handling flows with large interface deformations.

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