Modified Model of Heat and Mass Transfer Phase Change with High Density Ratio

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Abstract

In two phase fluid problem which involve phase change, the location of interface is changing and exceptional difficult to be captured accurately when the two immiscible fluid have high density ratio. By using general phase field model, the issue emerged with inaccurate location of moving surface with time. This is due to the fact that the properties across the diffusive interface is varied with large gradient. In this work, phase field model is modified to limit the free energy to compensate the properties variation due to phase change. COMSOL Multiphysics is used to solve the modified phase field model. Heat & mass transfer is then investigated through coupling with the modified model. Results is verified by comparison with analytical solution.