

Rising Bubble with Mass Transfer using interFoam

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Abstract

The main focus of this case study is to extend interFoam, a two-phase simulation solver in OpenFOAM, such that it accepts a user-defined mass transfer rate between the said phases and allows mass transfer to occur between the two phases. Validation of the solver is done using the sucking interface problem to validate phase change and is then executed to simulate a bubble rising in a column of a miscible fluid, where a vapor bubble undergoes condensation. Later this study can be extended to the temperature or pressure-based mass transfer variable term. For now, at the initial stage, a constant term is explicitly added in the continuity equation and validated with two different case studies.