

## AN APPROACH TO THE ALGEBRAIC SLIP MIXTURE MODEL USING OPENFOAM<sup>®</sup>

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**Abstract.** Algebraic Slip Mixture Model (ASMM) is a stablished method for multiphase flows used in the last forty years. Even when it relies on strong hypothesis it is capable to solve a wide range of problems including multiphase flows with high density ratios between phases. So that, this model is widely used today as a part of individual solvers or as a complement of other models such as Euler-Euler or Volume of Fluid.

In this work OpenFOAM libraries are used in order to generate a parallel two-fluid ASMM turbulent solver. Theoretical basis is revisited and implementation details are shown, giving emphasis in libraries' strengths and weaknesses. Mixture and turbulence implementation have an special note, since its implementation is treated using a general framework.

In order to validate the solver, theoretical test cases are proposed and solved. In addition, available cases in literature, based on experimental data, are solved too.