

FEM techniques for interfacial flows

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Abstract

Abstract: We present FEM techniques for incompressible two-phase flow with a new implicit treatment of surface tension in combination with Level-set methods which leads to much more robust and accurate flow simulations, particularly if adaptive grid alignment methods are applied to capture the free interfaces. Moreover, we present benchmark configurations and relevant benchmark quantities for a rising bubble which directly measure topological parameters such as interface deformation as well as velocity and force measures. Results from preliminary studies are presented and compared with results by other groups.