

Abstract Submitted
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Jump Conditions for the Stokes Equations with Discontinuous Viscosity and an Incompressible Interface with Singular Forces in 3D

DAVID SALAC, PRERNA GERA, University at Buffalo SUNY — Here the jump conditions for pressure and velocity are presented for two-phase Stokes and constant density Navier- Stokes flow with discontinuous viscosity across an incompressible interface with singular forces in three dimensions. This is necessary to accurately model systems such as vesicles or red blood cells. While jump conditions for incompressible interfaces and continuous viscosity have been published, this is the first demonstration of the jump conditions for the discontinuous viscosity situation. The derivation is based on the immersed interface method and appropriate local interface conditions. In addition to presentation of the jump conditions a simple analytic case has been created to verify the method and will be shown.

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