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Three-Dimensional Immersed Interface Method Based Vesicle Simulations PRERNA GERA, DAVID SALAC, University at Buffalo SUNY — Solving the Stokes equations for a multi-phase system with an embedded in-extensible interface is crucial for understanding vesicle dynamics. In this talk the Immersed Interface Method is used to solve the Stokes equations across an in-extensible interface. The full jump conditions for a piecewise constant viscosity have been developed and will be presented. An implicit linear system is created to obtain the velocity, pressure and tension fields. Preconditioning strategies needed to ensure convergence of this linear system will be also be presented. Convergence analysis indicates that the accuracy of the method equals the underlying discritization, despite the presence of discontinuous solution fields.

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