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*Incompressible Willmore flows imbedded in viscous fluid as a model for lipid membranes deformations*

Modeling the dynamics of incompressible elastic lipid membranes imbedded into viscous fluid is discussed. A new elliptic equation for the membranes tension implying local incompressibility of the membrane is derived. The Lattice Boltzmann method is used to approximate the fluid flow. Forces acting on the fluid from the lipid membrane are implemented using the immersed boundary method. The membranes dynamics is approximated in a semi implicit way. The method is illustrated by examples of axisymmetric lipid vesicles with deformations and flows modulated by external forces.