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A finite element modeling of two-phase variable density surface fluids

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This talk reviews a continuum-based model for the process of phase separation in multicomponent lipid membranes exhibiting lateral fluidity. We further introduce a finite element method for solving surface fluid and surface phase-field equations. The models and methods are combined to deliver a finite element method for a thermodynamically consistent phase-field model for surface two-phase fluid with variable density and viscosity. A stable linear splitting approach is introduced and available numerical analysis results are presented. We finally discuss successes and failures of the model to reproduce in vitro experiments with multicomponent vesicles of different lipid compositions. The reported results builds on studies from [1, 2].

REFERENCES

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