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48824. *Regularized curve lengthening within the FCH gradient flow.*

Gradient flows of the Functionalized Cahn Hilliard equation have sharp interface limits corresponding to motion by curvature or motion against curvature, regularized by a higher order surface diffusion. We rigorously derive the regularized curve lengthening regime as a Galerkin approximation of the regularized motion against curvature for nearly circular fronts. Difficulties arise from the lack of a maximum principle and the large size of the stable manifold associated to the curvature driven flow. (Received January 06, 2019)