

Controlling nonconvexity and nonlinearity in gradient flows: two methods and two model problems

Monday, July 4, 2022 4:30 PM (1 hour)

Together with Felix Otto, Richard Schubert, and other collaborators, we have developed two different energy-based methods to capture convergence rates and metastability of gradient flows. We will present the methods and their application to the two model problems that drove their development: the 1-d Cahn–Hilliard equation and the Mullins–Sekerka evolution. Both methods can be viewed as quantifying “how nonconvex” or “how nonlinear” a problem can be while still retaining the optimal convergence rates, i.e., the rates for the convex or linear problem. Our focus is on fairly large (ill-prepared) initial data.

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