

Microdroplet instability for a least-action principle for incompressible droplets

Jian-Guo Liu, Duke University

The least-action problem for geodesic distance on the 'manifold' of fluid-blob shapes exhibits instability due to microdroplet formation. This reflects a striking connection between Arnold's least-action principle for incompressible Euler flows and geodesic paths for Wasserstein distance. A connection with fluid mixture models via a variant of Brenier's relaxed least-action principle for generalized Euler flows will be outlined also.

This is joint work with Bob Pego and Dejan Slepcev.