ID de Contribution: **13** Type: **Non spécifié**

Alice Marveggio: Uniqueness and stability of planar multiphase mean curvature flow beyond a circular topology change

mardi 20 juin 2023 15:50 (30 minutes)

The evolution of a network of interfaces by mean curvature flow features the occurrence of topology changes and geometric singularities. As a consequence, classical solution concepts for mean curvature flow are in general limited to short-time existence theorems, which include singular times only for some stable shrinkers such as the circle. At the same time, the transition from strong to weak solution concepts (e.g. Brakke solutions) may lead to non-uniqueness of solutions.

Following the relative energy approach à la Fischer-Hensel-Laux-Simon and introducing a suitable notion of gradient-flow calibration for a shrinking circle, we prove a quantitative stability estimate holding up to the singular time. This implies a weak-strong uniqueness principle for weak BV solutions to planar multiphase mean curvature flow beyond circular topology changes.

Furthermore, we expect our method to have further applications to other types of shrinkers, as well as to prove quantitative convergence of diffuse-interface (Allen-Cahn) approximations for mean curvature flow.

This is work in progress with Julian Fischer, Sebastian Hensel and Maximilian Moser.