

Asymptotic Behavior of systems of PDE arising in physics and biology: theoretical and numerical points of view (ABPDE III)

Contribution ID: 6

Type: **not specified**

A second-order numerical method for aggregation equations

Wednesday, August 29, 2018 9:30 AM (45 minutes)

Inspired by so-called TVD limiter-based second-order schemes for hyperbolic conservation laws, we develop a second-order accurate numerical method for multi-dimensional aggregation equations. The method allows for simulations to be continued after the first blow-up time of the solution. In the case of symmetric, lambda-convex potentials with a possible Lipschitz singularity at the origin we prove that the method converges in the Monge–Kantorovich distance towards the unique gradient flow solution. This is joint work with José A. Carrillo and Susanne Solem.

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