SCMS Seminar

Numerical Methods for Nonlinear Nonlocal Degenerate Parabolic Equations by An Energetic Variational Approach

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Time: 13:30-14:00, Monday, Dec. 24th, 2018
Venue: Room 2213, East Guanghua Tower (Main), Fudan University

Abstract:
Based on an energetic variational approach (EnVarA), a balance between the maximal dissipation principle (MDP) and least action principle (LAP), the trajectory equation can be obtained. In turn, we can construct numerical methods to naturally keep the physical laws, such as the conservation of mass, energy dissipation and force balance. In this talk, I will show our results in numerical methods for porous medium equation and random genetic drift problem. Meanwhile, our ongoing projects are numerical methods for more complex degenerated equations, such as nonlinear nonlocal equations with a gradient-flow structure. Moreover, we try to extend the algorithm to two or higher dimension.

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