Contribution ID: **22** Type: **not specified**

Marianne Bessemoulin-Chatard (talk 18): Discrete hypocoercivity for a nonlinear kinetic reaction model

Friday, June 13, 2025 11:15 AM (45 minutes)

In this talk, I construct and analyze the decay to equilibrium of a finite volume scheme for a 1D nonlinear kinetic relaxation model describing a recombination-generation reaction of two species, proposed in [Neumann, Schmeiser, KRM 2016]. The study is based on the adaptation of the L^2 hypocoercivity method of [Dolbeault, Mouhot, Schmeiser, Trans. Amer. Math. Soc. 2015] for the discretization of the linearized problem. Then, we establish a local result for the discrete nonlinear system. As in the continuous framework, this requires maximum principle estimates, which necessitates the use of monotone numerical fluxes.
This is a joint work with Tino Laidin (Univ. Lille) and Thomas Rey (Univ. Nice).