

Nonlinear Diffusion Equations, Asymptotics of Kinetic Equations and Generalized Sobolev Inequalities

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Recently, significant progress has been made in the analysis of large time asymptotics of nonlinear (convection) diffusion equations by means of the entropy method. As spin-off, this method generates so called generalized Sobolev inequalities. In this talk the method is applied to:

1. (non)linear Fokker-Planck type models (from collective physics and
2. semiconductor modelling, with mean field coupling,
degenerate parabolic systems of porous media, fast diffusion and p-Laplace type,

Finally, visions for the application of generalized Sobolev inequalities to the large time asymptotics of kinetic equations are given.