

THE ENTROPY METHOD FOR DIFFUSIVE EQUATIONS

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Abstract

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 presented and applied to:

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

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