

Relative entropy in diffusive relaxation

Corrado Lattanzio
University of L'Aquila
corrado@univaq.it

As it is well-known, the presence of convex dissipative entropies in hyperbolic models with relaxation gives a stabilizing effect to the system and leads to global existence results, at least near equilibria. In that cases, it is possible to produce a relative entropy identity, which among other applications, can control the hyperbolic-to-hyperbolic relaxation process and give a simple and direct convergence framework, at least in the case of smooth equilibria.

The aim of this talk is to describe this approach in the case of diffusive relaxations, again for smooth solutions to the parabolic equilibria. Thanks to the relative entropy identity, we obtain a stability estimate and convergence for the relaxation limit. The results are obtained in various different cases, and in particular for multidimensional Euler equations.

Joint work with: Athanasios, E. and Tzavaras (*University of Crete*)