

1096-35-1108

Alexey Miroschnikov and **Konstantina Trivisa*** (trivisa@math.umd.edu), Department of Mathematics, University of Maryland, College Park, MD 20742. *Relaxation approximations to hyperbolic balance laws.*

A general framework is presented for the approximation of systems of hyperbolic balance laws. The novelty of the analysis lies on the construction of suitable relaxation systems and the derivation of a delicate estimate on the relative entropy. A direct proof of convergence before the formation of shocks is provided for a wide class of physical systems arising in materials science. Our analysis is in the spirit of the framework introduced by Tzavaras (2005) for systems of hyperbolic conservation laws. (Received September 13, 2013)