Talk-21

Asymptotic stability of stationary wave for damped wave equation with non-convex convection term

Yoshihiro Ueda   (Tohoku University)

We consider the initial-boundary value problem for damped wave equations with a nonlinear convection term in the half line. In the case where the flux is convex, it is shown by Ueda [3] that the solution tends to the corresponding stationary wave. In this talk, we show that even for a quite wide class of flux functions which are not necessarily convex, such the stationary wave is asymptotically stable. The proof is given by a technical L^2-weighted energy method which derived by Hashimoto-Matsumura [2].

References :

[1] T.-P. Liu, A. Matsumura and K. Nishihara, *Behavior of solutions for the Burgers equations with boundary corresponding to rarefaction waves*, SIAM J. Math. Mech. 29 (1998), 293-308.

[2] I. Hashimoto and A. Matsumura, *Large-time behavior of solutions to an initial boundary value problem on the half line for scalar viscous conservation law*, Methods Appl. Anal. **14** (2007), 45–60.

[3] Y. Ueda, *Asymptotic stability of stationary waves for damped wave equations with a nonlinear convection term*, Adv. Math. Sci. Appl. **18** (2008), 329–343.