

1106-35-589

Jiao Chen* (jiaojiaochen@sjtu.edu.cn), Department of Mathematics, Shanghai Jiao Tong University, 800 Dong Chuan Road, Shanghai, 200240, Peoples Rep of China, and **Yanni Zeng** (ynzeng@uab.edu), Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL 35294-1170. *Large Time Behavior of Solutions to Hyperbolic Balance Laws*. Preliminary report.

This talk is concerned with the large time behavior of solutions to the Cauchy problem of general hyperbolic systems of balance laws in one-dimensional space, under the entropy condition and the Shizuta-Kawashima condition. When the initial data is a small perturbation of a constant equilibrium state, we show that the solution approaches to diffusion waves which are predetermined by initial perturbation. Through the pointwise structure of Green's function for the linearized system and analysis on nonlinear coupling of diffusion waves, pointwise time-asymptotic convergence is obtained. Our approach can be applied to dealing with most of the physical models of systems with relaxation, such as the isentropic Euler system with damping, the BGK models with finite discrete velocities, etc. This paper is a joint work with Dr. Yanni Zeng at the University of Alabama at Birmingham. (Received September 02, 2014)