

第 177 回 広島数理解析セミナー (2014 年度)

Hiroshima Mathematical Analysis Seminar No.177

日時 : 4月11日(金) 16:30 ~ 17:30

場所 : 広島大学理学部 B707

講師 : 西畑 伸也 氏 (東京工業大学)

題目 : Stationary waves to symmetric hyperbolic-parabolic systems in half space

要旨 : In this talk, we consider the large-time behavior of solutions to hyperbolic-parabolic coupled systems in the half line. Assuming that the systems admit the entropy function, we may rewrite them to symmetric forms. For these symmetrizable hyperbolic-parabolic systems, we first prove the existence of the stationary solution. In the case where one eigenvalue of Jacobian matrix appeared in a stationary problem is zero, we assume that the characteristics field corresponding to the zero eigenvalue is genuine non-linear in order to show the existence of a degenerate stationary solution. We also prove that the stationary solution is time asymptotically stable under a smallness assumption on the initial perturbation. The key to the proof is to derive the uniform a priori estimates by using the energy method in half space developed by Matsuura and Nishida as well as the stability condition of Shizuta-Kawashima type. These theorems for the general hyperbolic-parabolic system cover the compressible Navier-Stokes equation for heat conductive gas.

These results are obtained through the joint work with Dr. Tohru Nakamura at Kyushu University.

広島数理解析セミナー幹事

池畠 良 (広大教育)	ikehatar@hiroshima-u.ac.jp
川下 美潮 (広大理)	kawasita@math.sci.hiroshima-u.ac.jp
倉 猛 (広大理)	kura@math.sci.hiroshima-u.ac.jp
佐々木良勝 (広大理)	sasakiyo@hiroshima-u.ac.jp
★滝本 和広 (広大理)	takimoto@math.sci.hiroshima-u.ac.jp
眞崎 聡 (広大工)	masaki@amath.hiroshima-u.ac.jp
松本 敏隆 (広大理)	mats@math.sci.hiroshima-u.ac.jp
三竹 大寿 (広大 ISSD)	hiroyoshi-mitake@hiroshima-u.ac.jp

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