

# 第190回 広島数理解析セミナー (2015年度)

## Hiroshima Mathematical Analysis Seminar No.190

日時 : 7月31日(金) 16:30~17:30

場所 : 広島大学理学部 B707

講師 : 隠居 良行 氏 (九州大学)

題目 : Traveling waves bifurcating from Poiseuille flow in viscous compressible fluid

要旨 : In this talk I consider the stability of a stationary solution, called “parallel flow”, of the compressible Navier-Stokes equation in infinite layer. Parallel flow in infinite layer is a simple stationary solution with uniform velocity profile in one spatial direction, and has been widely studied as a good subject in the study of pattern formation and transition to turbulent. I will give an asymptotic description of large time behavior of solutions around parallel flow when the Reynolds and Mach numbers are sufficiently small. Instability of parallel flow will then be considered in the case of plane Poiseuille flow. A condition for the Reynolds and Mach numbers will be given in order for plane Poiseuille flow to be unstable. It will be shown that plane Poiseuille flow is unstable for Reynolds numbers much less than the critical Reynolds number for the incompressible flow when the Mach number is suitably large. We will finally discuss bifurcation of traveling waves from Poiseuille flow. This talk is based on a joint work with Takaaki Nishida (Kyoto University).

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