



復旦大學
FUDAN UNIVERSITY

Applied Math
Ph.D. Seminar

Stability of Transonic Shocks in Two-Dimensional Steady Exothermically Reacting Euler Flow

Speaker: Piye Sun (Shanghai Jiao Tong University)

Time: 2021-05-13, 16:10 to 17:00

Location: Rm 1801, Guanghua East Tower

Advisor: Beixiang Fang (Shanghai Jiao Tong University)

Abstract: When a constant supersonic Euler flow goes past a wedge or through a nozzle, a transonic shock may occur and we can easily calculate the state of the subsonic flow behind the shock. In this talk, I will discuss the stability of the background solution under a small perturbation of the boundary and an additional small exothermic reaction. This will be a nonlinear free boundary value problem with nonlinear boundary conditions for mixed type equations. To deal with these problems, some coordinate transformations and the fixed point theory will be introduced and we will face a linear elliptic equation with oblique derivative boundary conditions in a domain with angular points.