



PolyU-Analysis Seminar

Dr. Song LIU

The Hong Kong Polytechnic University

Topic

Four-shock Interactions for the Two-dimensional Euler Equations of Potential Flow

Date | Time

26 June 2024 (Wednesday) | 16:00 – 17:00 (HK Time)

Venue:

Y302, Main Campus

Abstract:

In this talk, I will present the global existence of admissible solutions for the 2-D Riemann problem with four-shock interactions for the potential flow. The Riemann problem with four piecewise constant initial data is reformulated to a shock reflection-diffraction problem with respect to a symmetric line, and three critical angles are introduced to clarify all configurations of the Riemann solutions for the interactions of two-forward and two-backward shocks. Then the problem is further reformulated to the free boundary value problem of a mixed elliptic-hyperbolic typed equation in a pseudosubsonic domain.

We shall address some of the main difficulties including the degenerate ellipticity near the sonic boundaries, the nonlinearity of the free boundary condition, and the singularity of solutions near the corners of the domain. This talk is based on a joint work with Gui-Qiang G. Chen, Feimin Huang, Qin Wang and Alexander J. Cliffe.

ALL ARE WELCOME