

1106-35-2020

Katarina Jegdic* (jegdic@uhd.edu). *Riemann problems for two-dimensional systems of conservation laws.*

We give an overview of techniques used in analysis of existence of solutions to Riemann problems for two-dimensional systems of conservation laws that model regular shock reflection. We consider three such systems: unsteady transonic small disturbance equation, nonlinear wave system and the isentropic gas dynamics equations. We rewrite the problem for each system using self-similar coordinates and we obtain free boundary problems that change type. We discuss the main approach (introduced by Keyfitz, Canic and Lieberman) of showing existence of a local solution to each problem using the theory of second order elliptic equations and various fixed-point theorems. (Received September 15, 2014)