Charis Tsikkou* (tsikkou@math.wvu.edu), West Virginia University, Department of Mathematics. Conservation Laws with no Classical Riemann Solutions: Existence of Singular Shocks.

The basic tool in the construction of solutions to the Cauchy problem for conservation laws with smooth initial data is the Riemann problem. We review the results obtained for the solutions to the Riemann problem and present systems of two equations with no classical solutions. We then use the blowing-up approach to geometric singular perturbation problems to show that the systems exhibit unbounded solutions (singular shocks) with Dafermos profiles. (Received January 27, 2014)