

Meeting: 1001, Evanston, Illinois, SS 6A, Special Session on Nonlinear Partial Differential Equations and Applications

1001-35-234 **Yuxi Zheng*** (yzheng@math.psu.edu), Professor Yuxi Zheng, Department of Mathematics, 218 McAllister, Penn State University, University Park, PA 16802. *Two-dimensional regular shock reflection for the pressure gradient system of conservation laws*. Preliminary report.

We establish the existence of a *global* solution to a regular reflection of a weak shock hitting a ramp for the pressure gradient system of equations. The set-up of the reflection is the same as that of the compressible Euler system, i.e., a straight shock hitting a ramp. We assume that the angle of the ramp is close to 90 degrees. The solution has a bow shock wave that is usually regarded as a free boundary in the self-similar variable plane. (Received August 27, 2004)