1097-35-100 **Ronghua Pan** and **Kun Zhao*** (kzhao@tulane.edu). *Non-isentropic compressible gas flows through porous media.*

The motion of compressible gas flows through porous media can be modeled by the Euler equations with frictional damping, which is a 2 by 2 system of hyperbolic balance laws. The damped Euler equations are also known due to its close connection with the Darcy's Law and porous medium equation(PME). Indeed, the Darcy's Law and PME can be derived from the damped Euler equations by either applying the so-called "quasi static approximation" (singular convergence of solutions), or taking the limit of solutions as time goes to infinity. Because of its strong physical background and significant mathematical challenge, the damped Euler equations have attracted considerable attention in recent years. Mathematical theory of the "isentropic" system (the case of constant entropy) has been fully developed during the past two decades. However, the "non-isentropic" case (a 3 by 3 system) is under-developed. Rigorous analysis of the non-isentropic model in the Eulerian coordinates is very limited. In this talk, I will report some recent progress in this direction. (Received January 13, 2014)