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Alexis Vasseur (shchengyu@gmail.com), Pittsburgh, PA 15217, and **Cheng Yu***
(yucheng@math.utexas.edu), Mathematics Department, University of Texas, Austin, TX 78712.

On the solutions of compressible Navier-Stokes equations with degenerate viscosities.

In this talk, we will discuss the construction of global weak solutions to compressible Navier-Stokes equations with degenerate viscosity $\mu = \rho, \lambda = 0$. The main contribution is to derive the Mellet-Vasseur type inequality for the weak solutions, even if it is not verified by the first level of approximation. This provides existence of global solutions in time, for the compressible Navier-Stokes equations, in three dimensional space, with large initial data possibly vanishing on the vacuum. This solves an open problem proposed by Lions. We will also cover our very recent related work on the more physical viscosity. This is a joint work with Alexis Vasseur. (Received January 17, 2016)