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Dongchuan Road, Minhang District, Shanghai. *Shock formation in compressible Euler equations.*

It is well-known that shock will form in finite time for hyperbolic conservation laws from initial compression no matter how small and smooth the data are. Classical results, including P. D. Lax, T. Liu, Li-Zhou-Kong, confirms that when initial data are small near constant states, nonlinear compression does lead to finite time shock formation. A natural puzzle is how this phenomena could be proved for large data. Joint with G. Chen and S. Zhu, we justify this expectation under some reasonable conditions for compressible Euler equations, in both isentropic and adiabatic cases. (Received February 22, 2015)