

1131-35-95

John Holmes* (holmes.782@osu.edu), Columbus, OH 43210. *A note on the compressible Euler equations.*

Local in time existence, uniqueness and continuous dependence on the initial data (Hadamard well-posedness) for the Cauchy problem for the compressible Euler equations is well known in Sobolev spaces, H^s , of high enough order. It is also known that global in time well-posedness fails for general initial data, and this failure is characterized by the “blow-up” of the gradient of the solution in the sup-norm. We further sharpen the well-posedness result by showing that the data-to-solution map for the compressible Euler equations is not better than continuous. In particular, we consider two families of solutions with smooth initial data which converge to each other in H^s , and we show that they remain bounded away from each other at any positive time. (Received July 06, 2017)