

1086-VL-2197 **Joseph Roberts*** (joeprob@umich.edu) and **Volker Elling**. *Small Steady Self-Similar Inviscid Flows*.

We consider solutions of the two dimensional compressible Euler equations that are steady (no time dependence) and self-similar (constant along rays emanating from a distinguished point). Examples arise naturally at interaction points in genuinely multi-dimensional flow (for example, regular reflection or Mach reflection). We are able to classify all possible solutions that are L^∞ -close to a constant supersonic background, and show that they are in fact of bounded variation. As a special case we obtain that self-similar (in this case, depending only on $\frac{x}{t}$) solutions of 1-d Riemann problems are of bounded variation, and the forward in time solutions are unique in the class of small L^∞ perturbations of a constant solution. We obtain a similar classification for any strictly hyperbolic system (that is, a system with simple eigenvalues) of conservation laws endowed with a convex entropy. (Received September 25, 2012)