MR866843 (88b:35156) 35Q10 (76N10)

Hoff, David (1-IN)

Construction of solutions for compressible, isentropic Navier-Stokes equations in one space dimension with nonsmooth initial data.

Proc. Roy. Soc. Edinburgh Sect. A **103** (1986), *no. 3-4,* 301–315.

Summary: “We prove the global existence of weak solutions for the Cauchy problem for the Navier-Stokes equations for a one-dimensional, isentropic flow when the initial velocity is in L^2 and the initial density is in $L^2 \cap \mathrm{BV}$. Solutions are obtained as limits of approximations obtained by building heuristic jump conditions into a semidiscrete difference scheme. This allows for a rather simple analysis in which pointwise control is achieved through piecewise H^1 and total variation estimates.”

Reviewed by *Jean Leray*