1046-35-257 **James Glimm***, Dept. of Applied Mathematics & Statistics, SUNY at Stony Brook, Stony Brook, NY 11794. *Compensated Compactness and the Multi-Dimensional Euler Equations.*

Numerical mass diffusion is common in most CFD codes. A numerical code, FronTier, based on front tracking, avoids numerical mass diffusion. It thereby provides a unique insight into turbulent mixing flows.

Numerical evidence is presented to show that some such flows may require measure valued solutions, in the spirit of compensated compactness, for their solution.

Implications for physics as well as for mathematics are discussed. (Received August 24, 2008)