

Entropy viscosity for nonlinear conservation equations

Jean-Luc GUERMOND, Texas A&M University

A new class of high-order numerical methods for approximating nonlinear conservation laws is described (entropy viscosity method). The novelty is that a nonlinear viscosity based on the local size of an entropy production is added to the numerical discretization at hand. This new approach does not use any flux or slope limiters, applies to equations or systems supplemented with one or more entropy inequalities. Some preliminary convergence results will be presented together with numerical illustration of the method on compressible flow problems.