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Turbulence Modeling via Entropy Functionals.

The entropy-viscosity technique is a new class of high-order numerical methods for approximating scalar conservation laws which have recently been adapted as a numerical regularization for the Navier-Stokes equations. A nonlinear, LES-type viscosity is based on the numerical entropy residual, causing the numerical dissipation to become large in the regions of (numerical) shock, and small in the regions where the solution remains smooth. I will discuss this method as a numerical regularization for the Navier-Stokes equations, along with related regularizations and applications to other equations if time permits. (Received September 17, 2013)