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Michael Westdickenberg* (mwest@math.gatech.edu), School of Mathematics, 686 Cherry Street, Atlanta, GA 30332-0160. *Optimal Transport for the System of Isentropic Euler Equations.*

We introduce a new variational time discretization for the system of isentropic Euler equations. In each timestep the internal energy is reduced as much as possible, subject to a constraint imposed by a new cost functional that measures the deviation of particles from their characteristic paths. We investigate the convergence towards a measure-valued solution and report on numerical experiments for the one-dimensional case.

This is joint work with Wilfrid Gangbo and Jon Wilkening. (Received September 09, 2008)