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Global solutions for the 1-D compressible Euler equations with time-dependent damping

In this talk we investigate the Cauchy problem for the 1-D compressible Euler equations with time-dependent damping. We prove the existence of global solutions under the assumptions that the derivatives of initial data are suitable small and the initial volume is large without the condition of small perturbations to the constant initial data. Our approach is based on estimates of the derivatives of Riemann invariants along two characteristic curves.