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An invariant in shock clustering and Burgers turbulence

Ravi Srinivasan

(Submitted on 15 Jun 2011 (v1), last revised 6 Jan 2012 (this version, v2))

1-D scalar conservation laws with convex flux and Markov initial data are now known to yield a completely integrable Hamiltonian system. In this article, we rederive the analogue of Loitsiansky's invariant in hydrodynamic turbulence from the perspective of integrable systems. Other relevant physical notions such as energy dissipation and spectrum are also discussed.

Comments:	11 pages, no figures; v2: corrections made
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MSC classes:	60J35, 35R60, 37K10, 35L67, 82C99
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