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Renato Iturriaga* (renato@cimat.mx), Apartado Postal 402, 36,000 Guanajuato, Guanajuato, Mexico. *Physical solutions of the Hamilton-Jacobi equation.*

We consider a Lagrangian system on the d -dimensional torus, and the associated Hamilton-Jacobi equation. Assuming that the Aubry set of the system consists in a finite number of hyperbolic periodic orbits of the Euler-Lagrange flow, we study the vanishing-viscosity limit, from the viscous equation to the inviscid problem. Under suitable assumptions, we show that solutions of the viscous Hamilton-Jacobi equation converge to a unique solution of the inviscid problem. (Received February 04, 2004)