Particle dynamics inside shocks in Hamilton-Jacobi equations. (English summary)


After an interesting description of the variational approach for solutions of Hamilton-Jacobi equations, the authors present an alternative viewpoint through a fluid dynamics model. This consideration enables them to describe and propose canonical construction of the dynamics of trajectories inside shocks. Note that in the variational approach, this construction is by no means trivial. The results can be viewed as a generalization to general convex Hamiltonians of earlier works by I. A. Bogaevskii [“Matter evolution in Burgulence”, preprint, arXiv:math-ph/0407073; Mat. Sb. 197 (2006), no. 12, 11–42; MR2437079].

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