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Global discontinuous solution for 1D isentropic gas dynamics system. (English) Zbl 07441034
Commun. Math. Sci. 19, No. 5, 1451-1459 (2021)

Summary: In this work, we study the global existence of one-dimensional isentropic gas dynamics system. We prove a global-in-time existence result of this system in the framework of discontinuous non-decreasing solutions considering bounded initial data. We remark that this result allows us to give a global meaning to the gas dynamics system in distributional sense, considering discontinuous solutions with vacuum.

MSC:

- 35Q31 Euler equations
- 35A01 Existence problems for PDEs: global existence, local existence, non-existence
- 35D40 Viscosity solutions to PDEs
- 35F20 Nonlinear first-order PDEs
- 35L40 First-order hyperbolic systems
- 35Q31 Euler equations
- 74G25 Global existence of solutions for equilibrium problems in solid mechanics (MSC2010)

Keywords:

isentropic gas dynamics system; Euler equations; non-decreasing solutions; discontinuous solutions; viscosity solutions

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