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Long-time behavior of solutions for the compressible quantum magnetohydrodynamic model in \( \mathbb{R}^3 \). (English) Zbl 1408.35160


Summary: In this paper, long-time behavior of solutions for the compressible viscous quantum magnetohydrodynamic model in three-dimensional whole space is studied. We establish the optimal time decay rates for higher-order spatial derivatives of density, velocity and magnetic field, which improve the work of the second author and X. Xu [ibid. 68, No. 1, Paper No. 18, 17 p. (2017; Zbl 1369.35068)].

MSC:
35Q35 PDEs in connection with fluid mechanics
35M11 Initial value problems for PDEs of mixed type
35B40 Asymptotic behavior of solutions to PDEs
76W05 Magnetohydrodynamics and electrohydrodynamics
76K05 Hypersonic flows

Keywords:
long-time behavior; quantum magnetohydrodynamic model; optimal time decay rates

Full Text: DOI

References:
[8] Gao, JC; Tao, Q.; Yao, ZA, Long-time behavior of solution for the compressible nematic liquid crystal flows in \( \mathbb{R}^3 \), J. Differ. Eqs., 261, 2334-2383, (2016) • Zbl 1347.35200