On the compressible viscous barotropic flows subject to large external potential forces in a half space with Navier's boundary conditions

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May 29, 2020

Abstract

This paper is concerned with an initial and boundary value problem of the Navier-Stokes equations for compressible viscous barotropic flow subject to large external potential forces in a half space R^3_+ with Navier's boundary conditions. The global well-posedness of strongsolutions with large oscillations and vacuum is established, provided that the initial energy is suitably small and that the unique steady state is strictly away from vacuum. As a by-product,the stability of stationary solution is obtained.

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