On Rayleigh-Benard problem in the framework of compressible fluid flows

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Abstract

We consider the Rayleigh-Benard problem problem in the natural framework of compressible viscous flows described by the standard Navier-Stokes-Fourier system. We show that the system is dissipative in the sense of Levinson - there is a bounded absorbing set in the energy space – and asymptotically compact in suitable topologies. As a corollary, we obtain the existence of stationary statistical solutions supported by the global attractor. Finally, applications of Birkhoff-Khinchin theorem are discussed.