Navier–Stokes–Fourier system with Dirichlet boundary conditions for temperature

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Abstract

In this talk, we consider the Navier–Stokes–Fourier system, describing the motion of a compressible, viscous, and heat conducting fluid in a bounded domain $\Omega \subset R^d$, $d = 2, 3$, with general non-homogeneous Dirichlet boundary conditions for the absolute temperature. We introduce a new concept of weak solution based on the satisfaction of the entropy inequality together with a balance law for the ballistic energy. We show the existence of global-in-time weak solutions as well as the weak–strong uniqueness principle.