

Per Aquam ad Astra: on Stars (and) Boiling Water

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Abstract

We will derive the so-called (magneto-)Oberbeck-Boussinesq approximation from the compressible (MHD-)Navier-Stokes-Fourier system by means of singular limits. This approximation tells that, in a certain regime, the density deviations can be approximated linearly by temperature deviations. Instead of taking Neumann boundary values for the temperature, Dirichlet boundary conditions are imposed, giving rise to an additional non-local forcing term in the limiting heat equation. This is joint work with Peter Bella (TU Dortmund), Eduard Feireisl (CAS), Piotr Gwiazda (PAN) and Aneta Wróblewska-Kamińska (PAN).

References

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