

Multi-temperature gas mixtures and problems in bounded domains

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Gas mixtures represent an interesting research topic both from the mathematical and from the physical point of view. They are involved in many different contexts: from isotope separation to chemical reactions, from flame structures to superfluidity, from atmospheric studies to plasma physics. Besides, they present more complex behavior with respect to a single gas (thermal-diffusion and diffusion-thermo are only an example of this complexity).

In this talk, Extended Thermodynamics equations for gas monatomic mixtures will be analysed under multi-temperature assumption. A particular attention will be paid to the 13 moment ET system and to its possible applications in bounded domains. In this framework, heat and mass transfer will be analysed as a prototype of boundary value problems. The aim is to investigate what is already well established and the questions still open.

Comparisons between Classical and Extended Thermodynamics and single-temperature and multi-temperature systems will be also proposed.

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