

Asymptotic analysis in thermodynamics of viscous fluids

Présenté par le professeur **Eduard FEIREISL**, le jeudi 19 novembre 2009 de 14h à 17h et le vendredi 20 novembre 2009 de 15h à 18h.

Abstract: We discuss some recent results in the mathematical theory of thermodynamically complete fluid systems, in particular, the concept of weak solution and its relevance to proper formulation of balance laws in fluid mechanics. A rigorous asymptotic analysis of these systems is developed and several model problems discussed. In particular, the following topics will be addressed in detail:

- 1- Functional analytic framework and the basic ideas of the mathematical theory of continuum fluid mechanics with emphasis put on global-in-time solutions to the underlying systems of balance laws;
- 2- Thermodynamic stability and equilibrium states, behavior of energetically insulated systems for large time;
- 3- Low Mach number limits and propagation of acoustic waves in thermally conducting viscous fluids, in particular in unbounded or “large” domains.

Le Directeur de l'Ecole Doctorale

Fethi NASR BEN EL HAJ AMOR