

ON THE WELL-POSEDNESS PROBLEMS FOR COMPLETE FLUID SYSTEMS

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Abstract

We discuss various concepts of weak solutions to systems of equations describing the motion of a compressible, heat conducting and/or viscous fluid. We introduce the concept of relative entropy based on a systematic use of the First and Second laws of thermodynamics in the admissibility criteria for the weak solutions. Some examples of non-uniqueness of weak solutions for the inviscid fluids are also discussed. Finally, a principle of maximal dissipation is suggested as a suitable criterion of well-posedness in the class of weak solutions.