

On wild solutions to the compressible Euler system

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Abstract

In this talk, we survey recent results concerning the existence and properties of so-called wild solutions to the compressible Euler system in two spatial dimensions. These solutions are constructed using the convex integration method developed in this context by De Lellis and Székelyhidi. We introduce the Riemann problem for the compressible Euler system, classify its one-dimensional self-similar solutions, and summarize results related to the uniqueness and non-uniqueness of these solutions within the class of admissible weak solutions. We also discuss existence of wild solutions for regular initial data and the failure of criteria based on maximal dissipation of energy to select physically relevant solutions.

Keywords: compressible Euler system, wild solutions, convex integration, Riemann problem, admissibility