XVIII INTERNATIONAL CONFERENCE ON HYPERBOLIC PROBLEMS
THEORY, NUMERICS, APPLICATIONS
Málaga, June 20-24, 2022

Weak and measure-valued solutions of the Euler equations

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Several notions of weak or "very weak" solutions have been suggested for the incompressible and compressible Euler systems, motivated by the lack of a satisfactory well-posedness theory for these equations in turbulent regimes. Surprisingly, the speaker and L. Székelyhidi showed in 2012 that distributional and measure-valued solutions are in a sense the same, although the latter had been expected to be a much weaker notion. In this talk, we turn to the isentropic compressible Euler system, where the situation is fundamentally different. We will also discuss possible consequences for the problem of selection and the identification of physically relevant solutions. Joint work with D. Gallenmüller.

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