

Numerical Analysis and PDE

Convergent numerical schemes for the Euler and Navier-Stokes
equations

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Numerical simulations of fluid flows are ubiquitous in engineering. They all rely on the assumption that the underlying PDE system is well-posed, which still is an open question.

In the talk, I will discuss under what conditions one can expect convergence of a numerical scheme to weak solutions of the Euler and Navier-Stokes equations. In particular, the role of entropy will be highlighted both theoretically and in simulations of the well-known Kelvin-Helmholtz problem.