Institute for Analysis and Scientific Computing, and Doctoral Program "Dissipation and Dispersion in Nonlinear PDEs"

Course Announcement:

Compressible Navier-Stokes equations

by

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Terms:

Daily March 13 – 16, 15:00h – 16:30h
Daily April 24 – 27, 15:00h – 16:30h

Place:

Mon & Thu: Room DA grün 04
Tue & Wed: Room DA grün 06B

Aim: existence theory for the (evolutionary) compressible Navier-Stokes equations

Content:

1/ Introduction: model, classical and weak solution, a priori estimates

2/ Main ideas of the proof: commutators, effective viscous flux identity, renormalized solution to the continuity equation, weak compactness

3/ Construction of the solution: three levels of approximations

4/ Existence of a solution for the approximation, limit passages

5/ Compactness of the sequence of densities: via Friedrichs lemma (Lions' approach) and via oscillation defect measure (Feireisl's approach)

Credit: 1 ECTS point