

Prodi lecture - Introduction to the mathematical theory of compressible flow

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- Monday 14-16 in room SE 30
- Thursday 12-14 in room S1.101

The serie of lectures will focus on the mathematical theory of compressible fluids and related problems.

It will contain:

- Introduction
- Mathematical models
- Bogovski operator
- Renormalized solution
- Definition of weak solution
- A priori estimates
- Weak sequential stability
- Exterior domain
- Time dependent domain

REFERENCES

- [1] Feireisl, Eduard; Karper, Trygve G.; Pokorný, Milan Mathematical theory of compressible viscous fluids. Analysis and numerics. Advances in Mathematical Fluid Mechanics. Lecture Notes in Mathematical Fluid Mechanics. Birkhuser/Springer, Cham, 2016
- [2] E. Feireisl, O. Kreml, Š. Nečasová, J. Neustupa, J. Stebel: Weak solutions to the barotropic Navier-Stokes system with slip boundary conditions in time dependent domains. *J. Differential Equations* **254** (2013), no. 1, 125–140.
- [3] GALDI, G.,P., *An introduction to the mathematical theory of the Navier-Stokes equations: Linearised steady problems*. Springer Tracts in Natural Philosophy, **38**, 2nd edition, (1998), Springer.
- [4] Novotný, A.; Straškraba, I. *Introduction to the mathematical theory of compressible flow*. Oxford Lecture Series in Mathematics and its Applications, 27. Oxford University Press, Oxford, 2004.