

Introduction to fluid dynamics

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26. November 2024

I will cover the following topics:

- physical meaning of the equations
- classification of compressible/incompressible, Newtonian/non-Newtonian flows
- dimensionless equations and scale invariance for incompressible Navier-Stokes equations (NSE)
- Weak solutions, energy identity/inequality, well-posedness for NSE and Euler
- Some open problems (Viscosity limit, drag problem, collision paradox)

Everything will be on a very basic level assuming no previous knowledge on fluid dynamics at all. In particular, for people familiar with fluid dynamics (or even working on those problems) I do not recommend to attend the talk.