



Antrittsvorlesung / Inaugural lecture

Donnerstag, den 23. Januar 2025, um 17:15 Uhr, im Hörsaal 5

Prof. Dr. Philip Lederer*

(Universität Hamburg, Fachbereich Mathematik, Angewandte Mathematik)

"Scissors, Super Glue and Rubber Bands: A Lecture on Crafting with Finite Element Methods (...or, on Structure Preserving Methods in CFD)"

Zusammenfassung/Abstract:

In this colloquium talk, we will explore the interplay between expectations and reality in computational fluid dynamics, with a particular focus on structure-preserving properties and the development of suitable finite element methods for incompressible and compressible flows. Specifically, we will discuss the continuity requirements that arise in approximating key physical quantities such as pressure and velocity. We will examine how these requirements can be effectively realized — whether by "cutting, gluing, or weakly connecting via rubber bands" — and support our approach with computational examples to motivate and illustrate the findings.

Additionally, I will take this opportunity to share insights into my current research and outline potential future research directions.

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