PARIS LODRON UNIVERSITÄT SALZBURG | Mathematik

Gastvortrag

Dienstag, 11. März 2025
Uhrzeit: 15:00 Uhr
Workshop (Erdgeschoß)

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Numerical analysis for the very weak solution of the Stokes Problem

Abstract:

The homogeneous Stokes equation with non-smooth Dirichlet boundary data, i.e., when the data belongs only to $L^2(\Gamma)$, is studied in both convex and nonconvex domains.
The low regularity of the boundary data poses significant challenges, and a weak solution $(y, p) \in H^1(\Omega)^2 \times L^2(\Omega)$ cannot, in general, be expected. Instead, a very weak formulation is introduced, and existence and uniqueness results are established.

For the finite element discretization, the regularization method is employed, and the non-smooth boundary data is treated using an L^2-projection. Optimal discretization error estimates are derived, and numerical experiments are conducted to validate the theoretical findings.

Eingeladen von Andreas Schröder

Region ▸ Stadt ▸ Gebäudebereich ▸ Gebäude ▸ **Stockwerk**

Stockwerk: Hellbrunner Straße 34, Erdgeschoß (H34EG0.), 11 Räume / 1.461,05 m2 | Zoomfaktor: 80%

Ansicht: Punkt | Plantyp: Grundrissplan | Fläche messen