Partial Differential Equations Seminar

Date Nov. 3rd , 17:00 ~ 18:00

Location 과학관 225

Convergence Analysis for Pseudomonotone Parabolic Problems

Michael Růžička

Department of Applied Mathematics, University of Freiburg
Ernst-Zermelo-Straße 1, D-79104 Freiburg, Germany

e-mail: rose@mathematik.uni-freiburg.de

In the talk we discuss several existence proofs for nonlinear elliptic and parabolic problems which contain a pseudomonotone operator. A new notion of non-conforming pseudomonotonicity is introduced and applied. Based on that technique it is shown that numerical approximations based on a spatial non-conforming approximation converge to a weak solution of the original problem.

References

[1] A. Kaltenbach, M. Růžička (2021). *Note on the existence theory for pseudo-monotone evolution problems*, J. Evol. Equ., **21**:, 247–276.

[2] A. Kaltenbach and M. Růžička (2023). *A Local Discontinuous Galerkin approximation for the p-Navier-Stokes system, Part I: Convergence analysis*, SIAM J. Num. Anal., **61**:1613–1640.

[3] A. Kaltenbach and M. Růžička (2023). *Analysis of a fully-discrete, non-conforming approximation of evolution equations and applications*, Math. Models Methods Appl. Sci., **33**:1147–1192.