List of Publications

Publications (Peer-reviewed)

Monographs

Book Publications

1. A. Kaltenbach. *Pseudo-monotone operator theory for unsteady problems with variable exponents*, **Lecture Notes in Mathematics**, 2023.
   DOI: 10.1007/978-3-031-29670-3

PhD Thesis

2. A. Kaltenbach. *Theory of pseudo-monotone operators for unsteady problems in variable exponent spaces*, **Freidok University of Freiburg**, 2021.
   DOI: 10.6094/UNIFR/222538

Journal Publications

3. H. Antil, S. Bartels, A. Kaltenbach, and R. Khandelwal. *Variational problems with gradient constraints: A priori and a posteriori error identities*, **Mathematics of Computation**, accepted, 2025.
   URL: `https://arxiv.org/abs/2410.18780`
4. S. Bartels and A. Kaltenbach. *Error analysis for a Crouzeix–Raviart approximation of the obstacle problem*, **Journal of Numerical Mathematics**, accepted, 2025.
   URL: `https://arxiv.org/abs/2302.01646`
5. L. C. Berselli and A. Kaltenbach. *Convergence analysis of a fully-discrete finite element approximation of the unsteady $p(\cdot,\cdot)$-Navier–Stokes equations*, **Numerische Mathematik**, 2025.
   DOI: 10.1007/s00211-025-01450-1
6. L. C. Berselli, A. Kaltenbach, and M. Růžička. *Energy conservation for weak solutions of incompressible Newtonian fluid equations in Hölder spaces with Dirichlet boundary conditions in the half-space*, **Mathematische Annalen**, 2024.
   DOI: 10.1007/s00208-024-03065-7
7. L. C. Berselli and A. Kaltenbach. *Error analysis for a finite element approximation of the steady $p(\cdot)$-Navier–Stokes equations*, **IMA Journal of Numerical Analysis**, 2024.
   DOI: 10.1093/imanum/drae082
8. S. Bartels and A. Kaltenbach. *Explicit a posteriori error representation for variational problems and application to TV-minimization*, **Foundations of Computational Mathematics**, 2024.
   DOI: 10.1007/s10208-024-09676-5
9. A. Kaltenbach and M. Růžička. *Note on quasi-optimal error estimates for the pressure for shear-thickening fluids*, **ESAIM: Mathematical Modelling and Numerical Analysis**, 2024.
   DOI: 10.1051/m2an/2024051
10. J. Jeßberger and A. Kaltenbach. *Finite element discretization of the steady, generalized Navier–Stokes equations with inhomogeneous Dirichlet boundary conditions*, **SIAM Journal on Numerical Analysis**, 2024.
    DOI: 10.1137/23M1607398
11. A. Kh. Balci and A. Kaltenbach. *Error analysis for a Crouzeix–Raviart approximation of the variable exponent Dirichlet problem*, **IMA Journal of Numerical Analysis**, 2024.
    DOI: 10.1093/imanum/drae025
12. P. A. Gazca–Orozco and A. Kaltenbach. *On the stability and convergence of Discontinuous Galerkin schemes for incompressible flows*, **IMA Journal of Numerical Analysis**, 2024.
    DOI: 10.1093/imanum/drae004
13. A. Kaltenbach. *Error analysis for a Crouzeix–Raviart approximation of the p-Dirichlet problem*, **Journal of Numerical Mathematics**, 2023.
    DOI: 10.1515/jnma-2022-0106

14. A. Kaltenbach and M. Růžička. *A Local Discontinuous Galerkin approximation for the p-Navier–Stokes system, Part III: Convergence rates for the pressure*, **SIAM Journal on Numerical Analysis**, 2023.
DOI: 10.1137/22M1541472

15. A. Kaltenbach and M. Růžička. *A Local Discontinuous Galerkin approximation for the p-Navier–Stokes system, Part II: Convergence rates for the velocity*, **SIAM Journal on Numerical Analysis**, 2023.
DOI: 10.1137/22M1514751

16. A. Kaltenbach and M. Růžička. *A Local Discontinuous Galerkin approximation for the p-Navier–Stokes system, Part I: Convergence analysis*, **SIAM Journal on Numerical Analysis**, 2023.
DOI: 10.1137/22M151474X

17. A. Kaltenbach and M. Růžička. *Convergence analysis of a Local Discontinuous Galerkin approximation for systems with Olicz–structure*, **ESAIM: Mathematical Modelling and Numerical Analysis**, 2023.
DOI: 10.1051/m2an/2023028

18. L. C. Berselli, A. Kaltenbach, R. Lewandowski, and M. Růžička. *On the existence of weak solutions for a family of unsteady rotational Smagorinsky models*, **Pure and Applied Functional Analysis**, 2023.
URL: `http://yokohamapublishers.jp/online2/oppafa/vol8/p83.html`

19. A. Kaltenbach and M. Růžička. *Existence of steady solutions for a model for micropolar electrorheological fluid flows with not globally* $\log$*–Hölder continuous shear exponent*, **Journal of Mathematical Fluid Mechanics**, 2023.
DOI: 10.1007/s00021-023-00782-y

20. A. Kaltenbach and M. Růžička. *Analysis of a fully-discrete, non-conforming approximation of evolution equations and applications*, **Mathematical Models and Methods in Applied Sciences**, 2023.
DOI: 10.1142/S0218202523500197

21. S. Bartels and A. Kaltenbach. *Explicit and efficient error estimation for convex minimization problems*, **Mathematics of Computation**, 2023.
DOI: 10.1090/mcom/3821

22. A. Kaltenbach and M. Růžička. *Existence of steady solutions for a general model for micropolar electrorheological fluid flows*, **SIAM Journal on Mathematical Analysis**, 2023.
DOI: 10.1137/22M1500599

23. S. Bartels and A. Kaltenbach. *Error estimates for total-variation regularized minimization problems with singular solutions*, **Numerische Mathematik**, 2022.
DOI: 10.1007/s00211-022-01324-w

24. A. Kaltenbach. *Note on the existence theory for non-induced evolution problems*, **Mathematische Nachrichten**, 2022.
DOI: 10.1002/mana.201900555

25. L. C. Berselli, A. Kaltenbach, and M. Růžička. *Analysis of fully discrete, quasi non-conforming approximation of evolution equations and applications*, **Mathematical Models and Methods in Applied Sciences**, 2021.
DOI: 10.1142/S0218202521500494

26. A. Kaltenbach and M. Růžička. *Variable exponent Bochner–Lebesgue spaces with symmetric gradient structure*, **Journal of Mathematical Analysis and Applications**, 2021.
DOI: 10.1016/j.jmaa.2021.125355

27. A. Kaltenbach and M. Růžička. *Note on the existence theory for pseudo-monotone evolution problems*, **Journal of Evolution Equations**, 2020.
DOI: 10.1007/s00028-020-00577-y

Review articles

28. S. Bartels and A. Kaltenbach. *Exact a posteriori error control for variational problems via convex duality and explicit flux reconstruction*, **Advances in Applied Mechanics**, 2024.
DOI: 10.1016/bs.aams.2024.04.001

Proceedings

29. A. Kaltenbach and M. Růžička. *Conditional quasi-optimal error estimate for a finite element discretization of the p-Navier–Stokes equations: the case $p > 2$*, **Proceedings of the conference 'Critical Phenomena in Nonlinear Partial Differential Equations, Harmonic Analysis, and Functional Inequalities.'**, accepted, 2025.
URL: https://arxiv.org/abs/2411.00043

Preprints

30. L. C. Berselli and A. Kaltenbach. *Pulsatile Flows for Simplified Smart Fluids with Variable Power-Law: Analysis and Numerics*, submitted, 2025.
URL: https://arxiv.org/abs/2507.22449

31. A. Kaltenbach and J. Wichmann. *A Priori Error Analysis for the p-Stokes Equations with Slip Boundary Conditions: A Discrete Leray Projection Framework*, submitted, 2025.
URL: https://arxiv.org/abs/2507.15016

32. H. Antil, A. Kaltenbach, and K. Kirk. *Duality-based algorithm and numerical analysis for optimal insulation problems on non-smooth domains*, submitted, 2025.
URL: https://arxiv.org/abs/2505.04571

33. H. Antil, A. Kaltenbach, and K. Kirk. *Mathematical modelling for an optimal insulation problem on Lipschitz domains*, submitted, 2025.
URL: https://arxiv.org/abs/2503.11903

34. L. C. Berselli, A. Kaltenbach, and S. Ko. *Error analysis for a fully-discrete finite element approximation of the unsteady $p(\cdot,\cdot)$-Stokes equations*, submitted, 2025.
URL: https://arxiv.org/abs/2501.00849

35. J. Jeßberger and A. Kaltenbach. *Finite element discretization of the steady, generalized Navier–Stokes equations with small shear exponent*, submitted, 2024.
URL: https://arxiv.org/abs/2408.15731

36. S. Bartels, T. Gudi, and A. Kaltenbach. *A priori and a posteriori error identities for the scalar Signorini problem*, submitted, 2024.
URL: https://arxiv.org/abs/2407.10912

37. J. Blechta, P. A. Gazca–Orozco, A. Kaltenbach, and M. Růžička. *Quasi-optimal discontinuous Galerkin discretizaions of the p-Dirichlet problem*, submitted, 2023.
URL: https://arxiv.org/abs/2311.15737

38. A. Kaltenbach and M. Zeinhofer. *The Deep Ritz Method for parametric p-Dirichlet problems*, submitted, 2022.
URL: https://arxiv.org/abs/2207.01894