

List of publications of Thomas P. Wihler

Last updated: September 8, 2025

Monographs

- [1] Thomas P. Wihler
Mathematik für Naturwissenschaften: Analysis (2. Ed.)
Haupt Verlag (in German), **2025** (330 pages)
- [2] Thomas P. Wihler
*Mathematik für Naturwissenschaften:
Lineare Algebra und mehrdimensionale Differentialrechnung (2. Ed.)*
Haupt Verlag (in German), **2025** (350 pages)

ArXiv reports (submitted for peer-review)

- [3] Florian Spicher and Thomas P. Wihler
Optimal finite element approximations of monotone semilinear elliptic PDE with subcritical nonlinearities
[arXiv report 2504.11292](#), **2025** (18 pages)
- [4] Pascal Heid, Paul Houston, Benjamin Stamm, and Thomas P. Wihler
Gradient Flow Finite Element Discretisations with Energy-Based hp -Adaptivity for the Cross-Pitaevskii Equation with Angular Momentum Rotation
[arXiv report 2412.17680](#), **2024** (24 pages)

Peer-reviewed research articles

- [5] Yanchen He, Paul Houston, Christoph Schwab, and Thomas P. Wihler
Exponential Convergence of hp -ILGFEM for semilinear elliptic boundary value problems with monomial reaction
IMA Journal of Numerical Analysis (2025)
[Article link](#) (24 pages)
- [6] Patrick Bammer, Andreas Schröder, and Thomas P. Wihler
An hp -adaptive strategy based on locally predicted error reductions
Computational Methods in Applied Mathematics (2025)
[Article link](#) (29 pages)
- [7] Thomas P. Wihler
A generalized Sassenfeld criterion and its relation to H -matrices
Electronic Transactions on Numerical Analysis (2023)
Vol. 58, 621–628 (8 pages)
- [8] Mario Amrein, Pascal Heid, and Thomas P. Wihler
A numerical energy reduction approach for semilinear diffusion-reaction boundary value problems based on steady-state iterations
SIAM Journal on Numerical Analysis (2023)
Vol. 61, No. 2, 755–783 (19 pages)
- [9] Stephen Metcalfe and Thomas P. Wihler
Conditional a posteriori error bounds for high order discontinuous Galerkin time stepping approximations of semilinear heat models with blow-up
SIAM Journal on Scientific Computing (2022)
Vol. 44, no. 3, A1337–A1357 (21 pages)

- [10] Pascal Heid and Thomas P. Wihler
A modified Kacanov iteration scheme with application to quasilinear diffusion models
ESAIM: Mathematical Modelling and Numerical Analysis (2022)
 Vol. 56, 433–450 (18 pages)
- [11] Pascal Heid, Dirk Praetorius, and Thomas P. Wihler
Energy contraction and optimal convergence of adaptive iterative linearized finite element methods
Computational Methods in Applied Mathematics (2021)
 Vol. 21, no. 2, 407–422 (16 pages)
- [12] Emmanuil H. Georgoulis, Omar Lakkis, and Thomas P. Wihler
A posteriori error bounds for fully-discrete hp -discontinuous Galerkin timestepping methods for parabolic problems
Numerische Mathematik (2021)
 Vol. 148, no. 2, 363–386 (24 pages)
- [13] Pascal Heid, Benjamin Stamm, and Thomas P. Wihler
Gradient Flow Finite Element Discretizations with Energy-Based Adaptivity for the Gross-Pitaevskii Equation
Journal of Computational Physics (2021)
 Vol. 436, paper no. 110165 (15 pages)
- [14] Pascal Heid and Thomas P. Wihler
Adaptive local minimax Galerkin methods for variational problems
SIAM Journal on Scientific Computing (2021)
 Vol. 43, no. 2, A1108–A1133 (26 pages)
- [15] Pascal Heid and Thomas P. Wihler
Adaptive Iterative Linearization Galerkin Methods for Nonlinear Problems
Mathematics of Computation (2020)
 Vol. 82, no. 2, paper no. 49 (24 pages)
- [16] Pascal Heid and Thomas P. Wihler
On the Convergence of Adaptive Iterative Linearized Galerkin Methods
Calcolo (2020)
 Vol. 57, no. 24, (23 pages)
- [17] Thomas P. Wihler and Marcel Wirz
Stability and Convergence of Spectral Mixed Discontinuous Galerkin Methods for 3D Linear Elasticity on Anisotropic Geometric Meshes
Journal of Scientific Computing (2020)
 Vol. 82, no. 2 (24 pages)
- [18] Paul Houston and Thomas P. Wihler
An hp -Adaptive Iterative Linearization Discontinuous-Galerkin FEM for Quasilinear Elliptic Boundary Value Problems
 Proceedings of ICOSAHOM 2018
Lecture Notes in Computational Science and Engineering (2020)
 Vol. 134, Springer, 407–417 (11 pages)
- [19] Lars Schmutz and Thomas P. Wihler
The variable-order discontinuous Galerkin time stepping scheme for parabolic evolution problems is uniformly L^∞ -stable
SIAM Journal on Numerical Analysis (2019)
 Vol. 57, no. 1, pp. 293–319 (27 pages)

- [20] Ramona Baumann and Thomas P. Wihler
A Nitsche Finite Element Approach for Elliptic Problems with Discontinuous Dirichlet Boundary Conditions
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 Vol. 18 (2018), no. 3, p. 373 (9 pages)
- [21] Paul Houston and Thomas P. Wihler
An hp -Adaptive Newton-Discontinuous-Galerkin Finite Element Approach for Semilinear Elliptic Boundary Value Problems
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 Vol. 87, 2641–2674 (34 pages)
- [22] Bärbel Holm-Janssen and Thomas P. Wihler
Continuous and discontinuous Galerkin time stepping methods for nonlinear initial value problems with application to finite time blow-up
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 Vol. 138, no. 3, 767–799 (33 pages)
- [23] Irene Kyza, Stephen A. Metcalfe, and Thomas P. Wihler
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 Vol. 33, no. 6, 2005–2022 (18 pages)
- [25] Mario Amrein and Thomas P. Wihler
An adaptive space-time Newton-Galerkin approach for semilinear singularly perturbed parabolic evolution equations
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- [26] Thomas P. Wihler
A Note On A Norm-Preserving Continuous Galerkin Time Stepping Scheme
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- [27] Thomas P. Wihler
Animal population social structure models
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- [28] Ramona Baumann and Thomas P. Wihler
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- [29] Mario Amrein, Jens M. Melenk, Thomas P. Wihler
An hp -Adaptive Newton-Galerkin Finite Element Procedure for Semilinear Boundary Value Problems
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 Vol. 40, no. 6, 1973–1985 (13 pages)

- [30] Scott Congreve and Thomas P. Wihler
Iterative Galerkin Discretizations for Strongly Monotone Problems
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 Vol. 311, 457–472 (16 pages)
- [31] Paul Houston and Thomas P. Wihler
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 Proceedings of ICOSAHOM 2016
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 Vol. 119, Springer, 533–545 (13 pages)
- [32] Paul Houston and Thomas P. Wihler
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- [33] Dominik Schötzau, Christoph Schwab, and Thomas P. Wihler
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 Vol. 12, no. 1, 81–93 (13 pages)
- [36] Bärbel Holm-Janssen and Thomas P. Wihler
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 Vol. 106, Springer, 103–114 (12 pages)
- [37] Mario Amrein and Thomas P. Wihler
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Communications in Nonlinear Science and Numerical Simulation (2014)
 Vol. 19, no. 9, 2958–2973 (16 pages)
- [38] Thomas P. Wihler, Bänz Bessire, and André Stefanov
Computing the entropy of a large matrix
Journal of Physics A (2014)
 Vol. 47, no. 24 (17 pages)
- [39] Thomas Fankhauser, Thomas P. Wihler, and Marcel Wirz
The hp -adaptive FEM based on continuous Sobolev embeddings: isotropic refinements
Computers & Mathematics with Applications (2014)
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- [40] Dominik Schötzau, Christoph Schwab, Thomas P. Wihler, and Marcel Wirz
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 Spectral and High Order Methods for Partial Differential Equations
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- [61] Thomas P. Wihler
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- [72] Thomas P. Wihler
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- [78] Thomas P. Wihler, *The Discontinuous Galerkin FEM for Elliptic Problems in Polygons*
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