

Dirk Praetorius (state: December 02, 2022)

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Publications

- 132 journal publications (in total), 49 journal publications (plus 4 preprints) since 2018
- 32 proceedings contributions (in total), 1 proceedings contributions since 2018
- 117 publications (with 1325 citations) are listed in [MathSciNet](#) (December 02, 2022)
- 137 publications (with 1712 citations, h-index 23) are listed in [Scopus](#) (December 02, 2022)
- 116 publications (with 3541 citations, h-index 33) are listed on [Google Scholar](#) (December 02, 2022)

List of publications

Recent preprints

1. M. Brunner, P. Heid, M. Innerberger, A. Miraci, D. Praetorius, J. Streitberger: Adaptive FEM with quasi-optimal overall cost for nonsymmetric linear elliptic PDEs, submitted.
[arXiv:2212.00353](#)
2. R. Becker, M. Brunner, M. Innerberger, J.M. Melenk, D.Praetorius: Cost-optimal adaptive iterative linearized FEM for semilinear elliptic PDEs, submitted.
[arXiv:2211.04123](#)
3. M. Innerberger, A. Miraci, D. Praetorius, J. Streitberger: Optimal computational costs of AFEM with optimal local hp-robust multigrid solver, submitted.
[arXiv:2210.10415](#)
4. V. Helml, M. Innerberger, D. Praetorius: Plain convergence of goal-oriented adaptive FEM, submitted.
[arXiv:2208.10143](#)
5. A. Bepalov, D. Praetorius, M. Ruggeri: Goal-oriented adaptive multilevel stochastic Galerkin FEM, submitted.
[arXiv:2208.09388](#)

Scientific journals

1. M. Innerberger, D. Praetorius: MooAFEM: An object oriented Matlab code for higher-order (nonlinear) adaptive FEM, *Applied Mathematics and Computation*, accepted for publication (2022).
[arXiv:2203.01845](#)
2. R. Becker, G. Gantner, M. Innerberger, D. Praetorius: Goal-oriented adaptive finite element methods with optimal computational complexity, *Numerische Mathematik*, published online first (2022).
[DOI: 10.1007/s00211-022-01334-8](#) [Preprint arXiv:2101.11407](#)
3. G. Di Fratta, C.-M. Pfeiler, D. Praetorius, M. Ruggeri: The mass-lumped midpoint scheme for computational micromagnetics: Newton linearization and application to magnetic skyrmion dynamics, *Computational Methods in Applied Mathematics*, published online first (2022).
[DOI: 10.1515/cmam-2022-0060](#) [Preprint arXiv:2203.06445](#)
4. G. Gantner, D. Praetorius, S. Schimanko: Stable implementation of adaptive IGABEM in 2D in Matlab, *Computational Methods in Applied Mathematics*, published online first (2022).
[DOI: 10.1515/cmam-2022-0050](#) [Preprint arXiv:2203.01845](#)
5. G. Di Fratta, A. Jüngel, D. Praetorius, V. Slustikov: Spin-diffusion model for micromagnetics in the limit of long times, *Journal of Differential Equations*, 343 (2023), 467–494.
[DOI: 10.1016/j.jde.2022.10.012](#) [Preprint arXiv:2009.14534](#)
6. A.A.S. Amad, P.D. Ledger, T. Betcke, D. Praetorius: Accurate benchmark computations of the polarizability tensor for characterising small conducting inclusions, *Applied Mathematical Modelling*, 111 (2022), 94–107.
[DOI: 10.1016/j.apm.2022.06.024](#) [Preprint arXiv:2106.15157](#)
7. R. Becker, M. Brunner, M. Innerberger, J.M. Melenk, D. Praetorius: Goal-oriented adaptive finite element method for semilinear elliptic PDEs, *Computers & Mathematics with Applications*, 118 (2022), 18–35.
[DOI: 10.1016/j.camwa.2022.05.008](#) [Preprint arXiv:2112.06687](#)
8. R. Becker, M. Innerberger, D. Praetorius: Adaptive FEM for parameter-errors in elliptic linear-quadratic parameter estimation problems, *SIAM Journal on Numerical Analysis*, 60 (2022), 1450–1471.
[DOI: 10.1137/21M1458077](#) [Preprint arXiv:2111.03627](#)
9. A. Beshpalov, D. Praetorius, M. Ruggeri: Convergence and rate optimality of adaptive multilevel stochastic Galerkin FEM, *IMA Journal on Numerical Analysis*, 42 (2022), 2190–2213.
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10. A. Buffa, G. Gantner, C. Gianelli, D. Praetorius, R. Vazquez: Mathematical foundations of adaptive isogeometric analysis, *Archive of Computational Mechanics*, 29 (2022), 4479–4555.
[DOI: 10.1007/s11831-022-09752-5](#) [Preprint arXiv:2107.02023](#)

11. E. Davoli, G. Di Fratta, D. Praetorius, M. Ruggeri: Micromagnetics of thin films in the presence of Dzyaloshinskii–Moriya interaction, *Mathematical Models and Methods in Applied Sciences (M3AS)*, 32 (2022), 911–939
[DOI: 10.1142/S0218202522500208](https://doi.org/10.1142/S0218202522500208) [Preprint arXiv:2010.15541](https://arxiv.org/abs/2010.15541)
12. G. Gantner, D. Praetorius: Plain convergence of adaptive algorithms without exploiting reliability and efficiency, *IMA Journal on Numerical Analysis*, 42 (2022), 1434–1453.
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13. G. Gantner, D. Praetorius: Adaptive BEM for elliptic PDE systems, Part I: Abstract framework for weakly-singular integral equations, *Applicable Analysis*, 101 (2022), 2085–2118.
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14. G. Gantner, D. Praetorius: Adaptive BEM for elliptic PDE systems, Part II: Isogeometric analysis with hierarchical B-splines for weakly-singular integral equations, *Computers & Mathematics with Applications*, 117 (2022), 74–76.
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15. A. Kovacs, L. Exl, A. Kornell, J. Fischbacher, M. Hovorka, M. Gusenbauer, L. Breth, H. Oezelt, D. Praetorius, D. Suess, T. Schrefl: Magnetostatics and micromagnetics with physics informed neural networks, *Journal of Magnetism and Magnetic Materials*, 548 (2022), #168591.
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16. N.J. Mauser, C.-M. Pfeiler, D. Praetorius, M. Ruggeri: Unconditional well-posedness and IMEX improvement of a family of predictor-corrector methods in micromagnetics, *Applied Numerical Mathematics*, 180 (2022), 33–54.
[DOI: 10.1016/j.apnum.2022.05.008](https://doi.org/10.1016/j.apnum.2022.05.008) [Preprint arXiv:2112.00451](https://arxiv.org/abs/2112.00451)
17. H. Oezelt, L. Qu, A. Kovacs, J. Fischbacher, M. Gusenbauer, R. Beigelbeck, D. Praetorius, Y. Masao, T. Shoji, A. Kato, R. Chantrell, M. Winklhofer, G. Zimanyi, T. Schrefl: Full-spin-wave-scaled stochastic micromagnetism for mesh-independent simulations of ferromagnetic resonance and reversal, *npj Computational Materials*, 8 (2022), #35.
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20. M. Faustmann, J. Melenk, D. Praetorius: Quasi-optimal convergence rate for an adaptive method for the integral fractional Laplacian, *Mathematics of Computation*, 90 (2021), 1557–1587.
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21. G. Gantner, A. Haberl, D. Praetorius, S. Schimanko: Rate optimality of adaptive finite element methods with respect to overall computational costs, *Mathematics of Computation*, 90 (2021), 2011–2040.
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27. G. Di Fratta, M. Innerberger, D. Praetorius: Weak-strong uniqueness for the Landau-Lifshitz-Gilbert equation in micromagnetics, *Nonlinear Analysis: Real-World Applications*, 55 (2020), #103122.
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33. C.-M. Pfeiler, M. Ruggeri, B. Stiffner, L. Exl, M. Hochsteger, G. Hrkac, J. Schöberl, N. Mauser, D. Praetorius: Computational micromagnetics with Compics, *Computer Physics Communications*, 248 (2020), #106965.
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