

Dirk Praetorius

List of Publications by Year in descending order

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#	ARTICLE	IF	CITATIONS
1	The Mass-Lumped Midpoint Scheme for Computational Micromagnetics: Newton Linearization and Application to Magnetic Skyrmion Dynamics. <i>Computational Methods in Applied Mathematics</i> , 2023, 23, 145-175.	0.8	1
2	Convergence and rate optimality of adaptive multilevel stochastic Galerkin FEM. <i>IMA Journal of Numerical Analysis</i> , 2022, 42, 2190-2213.	2.9	4
3	Magnetostatics and micromagnetics with physics informed neural networks. <i>Journal of Magnetism and Magnetic Materials</i> , 2022, 548, 168951.	2.3	21
4	Full-spin-wave-scaled stochastic micromagnetism for mesh-independent simulations of ferromagnetic resonance and reversal. <i>Npj Computational Materials</i> , 2022, 8, .	8.7	2
5	Micromagnetics of thin films in the presence of Dzyaloshinskiiâ€Moriya interaction. <i>Mathematical Models and Methods in Applied Sciences</i> , 2022, 32, 911-939.	3.3	7
6	Adaptive BEM for elliptic PDE systems, part II: Isogeometric analysis with hierarchical B-splines for weakly-singular integral equations. <i>Computers and Mathematics With Applications</i> , 2022, 117, 74-96.	2.7	5
7	Rate-optimal goal-oriented adaptive FEM for semilinear elliptic PDEs. <i>Computers and Mathematics With Applications</i> , 2022, 118, 18-35.	2.7	6
8	Unconditional well-posedness and IMEX improvement of a family of predictor-corrector methods in micromagnetics. <i>Applied Numerical Mathematics</i> , 2022, 180, 33-54.	2.1	2
9	Benchmark computations for the polarization tensor characterization of small conducting objects. <i>Applied Mathematical Modelling</i> , 2022, 111, 94-107.	4.2	1
10	Stable Implementation of Adaptive IGABEM in 2D in MATLAB. <i>Computational Methods in Applied Mathematics</i> , 2022, 22, 563-590.	0.8	1
11	Adaptive FEM for Parameter-Errors in Elliptic Linear-Quadratic Parameter Estimation Problems. <i>SIAM Journal on Numerical Analysis</i> , 2022, 60, 1450-1471.	2.3	1
12	Two-Level a Posteriori Error Estimation for Adaptive Multilevel Stochastic Galerkin Finite Element Method. <i>SIAM-ASA Journal on Uncertainty Quantification</i> , 2021, 9, 1184-1216.	2.0	4
13	Convergence and quasi-optimal cost of adaptive algorithms for nonlinear operators including iterative linearization and algebraic solver. <i>Numerische Mathematik</i> , 2021, 147, 679-725.	1.9	10
14	Energy Contraction and Optimal Convergence of Adaptive Iterative Linearized Finite Element Methods. <i>Computational Methods in Applied Mathematics</i> , 2021, 21, 407-422.	0.8	15
15	Reliable Methods of Mathematical Modeling. <i>Computational Methods in Applied Mathematics</i> , 2021, 21, 263-266.	0.8	1
16	Functional a posteriori error estimates for boundary element methods. <i>Numerische Mathematik</i> , 2021, 147, 937-966.	1.9	3
17	Quasi-optimal convergence rate for an adaptive method for the integral fractional Laplacian. <i>Mathematics of Computation</i> , 2021, 90, 1557-1587.	2.1	9
18	Rate optimality of adaptive finite element methods with respect to overall computational costs. <i>Mathematics of Computation</i> , 2021, 90, 2011-2040.	2.1	13

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19	Instance-Optimal Goal-Oriented Adaptivity. Computational Methods in Applied Mathematics, 2021, 21, 109-126.	0.8	6
20	Optimal Convergence Rates for Goal-Oriented FEM with Quadratic Goal Functional. Computational Methods in Applied Mathematics, 2021, 21, 267-288.	0.8	6
21	Computational micromagnetics with Comms. Computer Physics Communications, 2020, 248, 106965.	7.5	7
22	Optimal convergence behavior of adaptive FEM driven by simple $\langle \mathbf{m} \rangle$ error estimators. Computers and Mathematics With Applications, 2020, 79, 623-642.	2.7	9
23	Linear second-order IMEX-type integrator for the (eddy current) Landau-Lifshitz-Gilbert equation. IMA Journal of Numerical Analysis, 2020, 40, 2802-2838.	2.9	13
24	Adaptive BEM for elliptic PDE systems, part I: abstract framework, for weakly-singular integral equations. Applicable Analysis, 2020, , 1-34.	1.3	2
25	A short note on plain convergence of adaptive least-squares finite element methods. Computers and Mathematics With Applications, 2020, 80, 1619-1632.	2.7	7
26	Weak-strong uniqueness for the Landau-Lifshitz-Gilbert equation in micromagnetics. Nonlinear Analysis: Real World Applications, 2020, 55, 103122.	1.7	12
27	Adaptive isogeometric boundary element methods with local smoothness control. Mathematical Models and Methods in Applied Sciences, 2020, 30, 261-307.	3.3	6
28	Adaptive IGAFEM with optimal convergence rates: T-splines. Computer Aided Geometric Design, 2020, 81, 101906.	1.2	6
29	The saturation assumption yields optimal convergence of two-level adaptive BEM. Applied Numerical Mathematics, 2020, 152, 105-124.	2.1	3
30	Trifler marking with minimal cardinality is a linear complexity problem. Mathematics of Computation, 2020, 89, 2735-2752.	2.1	22
31	Adaptive vertex-centered finite volume methods for general second-order linear elliptic partial differential equations. IMA Journal of Numerical Analysis, 2019, 39, 983-1008.	2.9	7
32	Adaptive boundary element methods for the computation of the electrostatic capacity on complex polyhedra. Journal of Computational Physics, 2019, 397, 108837.	3.8	3
33	Iterative solution and preconditioning for the tangent plane scheme in computational micromagnetics. Journal of Computational Physics, 2019, 398, 108866.	3.8	5
34	Convergence of Adaptive Stochastic Galerkin FEM. SIAM Journal on Numerical Analysis, 2019, 57, 2359-2382.	2.3	12
35	Optimal adaptivity for the SUPG finite element method. Computer Methods in Applied Mechanics and Engineering, 2019, 353, 308-327.	6.6	5
36	Optimal additive Schwarz preconditioning for adaptive 2D IGA boundary element methods. Computer Methods in Applied Mechanics and Engineering, 2019, 351, 571-598.	6.6	5

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37	Convergent tangent plane integrators for the simulation of chiral magnetic skyrmion dynamics. <i>Advances in Computational Mathematics</i> , 2019, 45, 1329-1368.	1.6	16
38	Adaptive BEM with inexact PCG solver yields almost optimal computational costs. <i>Numerische Mathematik</i> , 2019, 141, 967-1008.	1.9	10
39	Adaptive Uzawa algorithm for the Stokes equation. <i>ESAIM: Mathematical Modelling and Numerical Analysis</i> , 2019, 53, 1841-1870.	1.9	3
40	Adaptive BEM with optimal convergence rates for the Helmholtz equation. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2019, 346, 260-287.	6.6	11
41	Goal-oriented error estimation and adaptivity for elliptic PDEs with parametric or uncertain inputs. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2019, 345, 951-982.	6.6	10
42	A linear Uzawa-type FEM-BEM solver for nonlinear transmission problems. <i>Computers and Mathematics With Applications</i> , 2018, 75, 2678-2697.	2.7	7
43	Convergence of an implicit-explicit midpoint scheme for computational micromagnetics. <i>Computers and Mathematics With Applications</i> , 2018, 75, 1719-1738.	2.7	18
44	Rate optimal adaptive FEM with inexact solver for nonlinear operators. <i>IMA Journal of Numerical Analysis</i> , 2018, 38, 1797-1831.	2.9	21
45	Optimal preconditioning for the symmetric and nonsymmetric coupling of adaptive finite elements and boundary elements. <i>Numerical Methods for Partial Differential Equations</i> , 2017, 33, 603-632.	3.6	5
46	Optimal additive Schwarz preconditioning for hypersingular integral equations on locally refined triangulations. <i>Calcolo</i> , 2017, 54, 367-399.	1.1	9
47	Simultaneous quasi-optimal convergence rates in FEM-BEM coupling. <i>Mathematical Methods in the Applied Sciences</i> , 2017, 40, 463-485.	2.3	6
48	Adaptive FEM with coarse initial mesh guarantees optimal convergence rates for compactly perturbed elliptic problems. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2017, 317, 318-340.	6.6	34
49	Optimal convergence for adaptive IGA boundary element methods for weakly-singular integral equations. <i>Numerische Mathematik</i> , 2017, 136, 147-182.	1.9	22
50	Adaptive IGAFEM with optimal convergence rates: Hierarchical B-splines. <i>Mathematical Models and Methods in Applied Sciences</i> , 2017, 27, 2631-2674.	3.3	26
51	Local inverse estimates for non-local boundary integral operators. <i>Mathematics of Computation</i> , 2017, 86, 2651-2686.	2.1	16
52	C α -Type Quasi-Optimality and Convergence Rates for (Adaptive) Vertex-Centered FVM. <i>Springer Proceedings in Mathematics and Statistics</i> , 2017, , 215-223.	0.2	1
53	Areal density optimizations for heat-assisted magnetic recording of high-density media. <i>Journal of Applied Physics</i> , 2016, 119, .	2.5	20
54	Basic noise mechanisms of heat-assisted-magnetic recording. <i>Journal of Applied Physics</i> , 2016, 120, .	2.5	13

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55	Heat-assisted magnetic recording of bit-patterned media beyond 10 ⁶ Tb/in ² . Applied Physics Letters, 2016, 108, .	3.3	53
56	Influence of grain size and exchange interaction on the LLB modeling procedure. Journal of Applied Physics, 2016, 120, 223903.	2.5	5
57	Adaptive boundary element methods for optimal convergence of point errors. Numerische Mathematik, 2016, 132, 541-567.	1.9	13
58	An Abstract Analysis of Optimal Goal-Oriented Adaptivity. SIAM Journal on Numerical Analysis, 2016, 54, 1423-1448.	2.3	35
59	Adaptive Vertex-Centered Finite Volume Methods with Convergence Rates. SIAM Journal on Numerical Analysis, 2016, 54, 2228-2255.	2.3	11
60	Existence of \mathscr{H} -matrix approximants to the inverse of BEM matrices: the hyper-singular integral operator. IMA Journal of Numerical Analysis, 2016, , drw024.	2.9	2
61	A self-consistent spin-diffusion model for micromagnetics. Scientific Reports, 2016, 6, 16.	3.3	40
62	Efficient numerical computation of direct exchange areas in thermal radiation analysis. Numerical Heat Transfer, Part B: Fundamentals, 2016, 69, 511-533.	0.9	4
63	Adaptive 2D IGA boundary element methods. Engineering Analysis With Boundary Elements, 2016, 62, 141-153.	3.7	23
64	Coupling of dynamical micromagnetism and a stationary spin drift-diffusion equation: A step towards a fully self-consistent spintronics framework. Physica B: Condensed Matter, 2016, 486, 88-91.	2.7	9
65	A three-dimensional spin-diffusion model for micromagnetics. Scientific Reports, 2015, 5, 14855.	3.3	51
66	Existence of \mathcal{H} -matrix approximants to the inverses of BEM matrices: The simple-layer operator. Mathematics of Computation, 2015, 85, 119-152.	2.1	10
67	Optimal additive Schwarz methods for the hp-BEM: The hypersingular integral operator in 3D on locally refined meshes. Computers and Mathematics With Applications, 2015, 70, 1583-1605.	2.7	4
68	Stability of symmetric and nonsymmetric FEM-BEM couplings for nonlinear elasticity problems. Numerische Mathematik, 2015, 130, 199-223.	1.9	5
69	Adaptive Boundary Element Methods. Archives of Computational Methods in Engineering, 2015, 22, 309-389.	10.2	23
70	\mathcal{H} -matrix approximability of the inverses of FEM matrices. Numerische Mathematik, 2015, 131, 615-642.	1.9	17
71	On a decoupled linear FEM integrator for eddy-current-LLG. Applicable Analysis, 2015, 94, 1051-1067.	1.3	11
72	FEM-BEM coupling for the large-body limit in micromagnetics. Journal of Computational and Applied Mathematics, 2015, 281, 10-31.	2.0	4

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73	Reliable and efficient a posteriori error estimation for adaptive IGA boundary element methods for weakly-singular integral equations. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2015, 290, 362-386.	6.6	32
74	Energy norm based error estimators for adaptive BEM for hypersingular integral equations. <i>Applied Numerical Mathematics</i> , 2015, 95, 15-35.	2.1	24
75	Multiscale modeling in micromagnetics: Existence of solutions and numerical integration. <i>Mathematical Models and Methods in Applied Sciences</i> , 2014, 24, 2627-2662.	3.3	30
76	A decoupled and unconditionally convergent linear FEM integrator for the Landau-Lifshitz-Gilbert equation with magnetostriction. <i>IMA Journal of Numerical Analysis</i> , 2014, 34, 1361-1385.	2.9	11
77	ZZ-Type a posteriori error estimators for adaptive boundary element methods on a curve. <i>Engineering Analysis With Boundary Elements</i> , 2014, 38, 49-60.	3.7	7
78	MIXED CONFORMING ELEMENTS FOR THE LARGE-BODY LIMIT IN MICROMAGNETICS. <i>Mathematical Models and Methods in Applied Sciences</i> , 2014, 24, 113-144.	3.3	1
79	HILBERT " a MATLAB implementation of adaptive 2D-BEM. <i>Numerical Algorithms</i> , 2014, 67, 1-32.	1.9	19
80	Quasi-optimal convergence rates for adaptive boundary element methods with data approximation, part I: weakly-singular integral equation. <i>Calcolo</i> , 2014, 51, 531-562.	1.1	26
81	Adaptive FEM with Optimal Convergence Rates for a Certain Class of Nonsymmetric and Possibly Nonlinear Problems. <i>SIAM Journal on Numerical Analysis</i> , 2014, 52, 601-625.	2.3	54
82	Spin-polarized transport in ferromagnetic multilayers: An unconditionally convergent FEM integrator. <i>Computers and Mathematics With Applications</i> , 2014, 68, 639-654.	2.7	26
83	Axioms of adaptivity. <i>Computers and Mathematics With Applications</i> , 2014, 67, 1195-1253.	2.7	166
84	Convergence and quasi-optimality of adaptive FEM with inhomogeneous Dirichlet data. <i>Journal of Computational and Applied Mathematics</i> , 2014, 255, 481-501.	2.0	15
85	Convergence of Adaptive BEM and Adaptive FEM-BEM Coupling for Estimators Without h-Weighting Factor. <i>Computational Methods in Applied Mathematics</i> , 2014, 14, 485-508.	0.8	11
86	A New Proof for Existence of H-Matrix Approximants to the Inverse of FEM Matrices: The Dirichlet Problem for the Laplacian. <i>Lecture Notes in Computational Science and Engineering</i> , 2014, , 249-259.	0.3	2
87	Classical FEM-BEM coupling methods: nonlinearities, well-posedness, and adaptivity. <i>Computational Mechanics</i> , 2013, 51, 399-419.	4.0	35
88	On 2D Newest Vertex Bisection: Optimality of Mesh-Closure and H ¹ -Stability of L ² -Projection. <i>Constructive Approximation</i> , 2013, 38, 213-234.	3.0	64
89	Combining micromagnetism and magnetostatic Maxwell equations for multiscale magnetic simulations. <i>Journal of Magnetism and Magnetic Materials</i> , 2013, 343, 163-168.	2.3	15
90	Simple error estimators for the Galerkin BEM for some hypersingular integral equation in 2D. <i>Applicable Analysis</i> , 2013, 92, 1194-1216.	1.3	19

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91	Convergence of adaptive 3D BEM for weakly singular integral equations based on isotropic mesh-refinement. Numerical Methods for Partial Differential Equations, 2013, 29, 2081-2106.	3.6	10
92	Quasi-optimal Convergence Rate for an Adaptive Boundary Element Method. SIAM Journal on Numerical Analysis, 2013, 51, 1327-1348.	2.3	46
93	Convergence of adaptive FEM for some elliptic obstacle problem. Applicable Analysis, 2013, 92, 595-615.	1.3	8
94	Efficiency and Optimality of Some Weighted-Residual Error Estimator for Adaptive 2D Boundary Element Methods. Computational Methods in Applied Mathematics, 2013, 13, 305-332.	0.8	28
95	Each $H^{1/2}$ -stable projection yields convergence and quasi-optimality of adaptive FEM with inhomogeneous Dirichlet data in \mathbb{R}^d . ESAIM: Mathematical Modelling and Numerical Analysis, 2013, 47, 1207-1235.	1.9	20
96	Mechanical Oscillations of Magnetic Strips under the Influence of External Field. EPJ Web of Conferences, 2013, 40, 13004.	0.3	0
97	Stabilisation yields strong convergence of macroscopic magnetisation vectors for micromagnetics without exchange energy. Journal of Numerical Mathematics, 2012, 20, .	3.5	0
98	Convergence of some adaptive FEM-BEM coupling for elliptic but possibly nonlinear interface problems. ESAIM: Mathematical Modelling and Numerical Analysis, 2012, 46, 1147-1173.	1.9	14
99	Convergence of adaptive boundary element methods. Journal of Integral Equations and Applications, 2012, 24, .	0.6	8
100	Numerical quadratic energy minimization bound to convex constraints in thin-film micromagnetics. Numerische Mathematik, 2012, 122, 101-131.	1.9	4
101	Convergence of adaptive BEM for some mixed boundary value problem. Applied Numerical Mathematics, 2012, 62, 226-245.	2.1	59
102	Estimator reduction and convergence of adaptive BEM. Applied Numerical Mathematics, 2012, 62, 787-801.	2.1	29
103	A posteriori error estimates for the Johnson-Nédélec FEM-BEM coupling. Engineering Analysis With Boundary Elements, 2012, 36, 255-266.	3.7	10
104	3D FEM-BEM-coupling method to solve magnetostatic Maxwell equations. Journal of Magnetism and Magnetic Materials, 2012, 324, 1862-1866.	2.3	30
105	Efficient implementation of adaptive P1-FEM in Matlab. Computational Methods in Applied Mathematics, 2011, 11, 460-490.	0.8	72
106	On the Convergence of Adaptive Nonconforming Finite Element Methods for a Class of Convex Variational Problems. SIAM Journal on Numerical Analysis, 2011, 49, 346-367.	2.3	9
107	Adaptive coupling of FEM and BEM: Simple error estimators and convergence. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 755-756.	0.2	0
108	Convergence of adaptive FEM for elliptic obstacle problems. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 767-768.	0.2	1

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109	Convergence and quasi-optimality of adaptive FEM with inhomogeneous Dirichlet data. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 769-772.	0.2	0
110	Convergent geometric integrator for the Landau-Lifshitz-Gilbert equation in micromagnetics. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 775-776.	0.2	5
111	Collocation methods for index 1 DAEs with a singularity of the first kind. Mathematics of Computation, 2010, 79, 281-281.	2.1	12
112	Convergence of simple adaptive Galerkin schemes based on $h \hat{\sim} h/2$ error estimators. Numerische Mathematik, 2010, 116, 291-316.	1.9	32
113	Energy norm based a posteriori error estimation for boundary element methods in two dimensions. Applied Numerical Mathematics, 2009, 59, 2713-2734.	2.1	29
114	A Posteriori Error Estimate and Adaptive Mesh Refinement for the Cell-Centered Finite Volume Method for Elliptic Boundary Value Problems. SIAM Journal on Numerical Analysis, 2009, 47, 109-135.	2.3	11
115	Simple a posteriori error estimators for the h-version of the boundary element method. Computing (Vienna/New York), 2008, 83, 135-162.	4.8	33
116	Averaging Techniques for the A Posteriori BEM Error Control for a Hypersingular Integral Equation in Two Dimensions. SIAM Journal of Scientific Computing, 2007, 29, 782-810.	2.8	19
117	Strong convergence for large bodies in micromagnetics. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1151203-1151204.	0.2	0
118	Analysis and numerical simulation of magnetic forces between rigid polygonal bodies. Part I: Analysis. Continuum Mechanics and Thermodynamics, 2007, 19, 67-80.	2.2	0
119	Analysis and numerical simulation of magnetic forces between rigid polygonal bodies. Part II: Numerical simulation. Continuum Mechanics and Thermodynamics, 2007, 19, 81-109.	2.2	1
120	On stabilized models in micromagnetics. Computational Mechanics, 2007, 39, 663-672.	4.0	0
121	Averaging Techniques for a Posteriori Error Control in Finite Element and Boundary Element Analysis. , 2007, , 29-59.		7
122	Averaging Techniques for the Effective Numerical Solution of Symm's Integral Equation of the First Kind. SIAM Journal of Scientific Computing, 2006, 27, 1226-1260.	2.8	32
123	H -Matrix Techniques for Stray-Field Computations in Computational Micromagnetics. Lecture Notes in Computer Science, 2006, , 102-110.	1.3	0
124	Effective simulation of a macroscopic model for stationary micromagnetics. Computer Methods in Applied Mechanics and Engineering, 2005, 194, 531-548.	6.6	7
125	Applications of H -Matrix Techniques in Micromagnetics. Computing (Vienna/New York), 2005, 74, 177-204.	4.8	21
126	New a posteriori error estimates for singular boundary value problems. Numerical Algorithms, 2005, 40, 79-100.	1.9	7

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127	Numerical Analysis for a Macroscopic Model in Micromagnetics. SIAM Journal on Numerical Analysis, 2005, 42, 2633-2651.	2.3	13
128	Residual-based a posteriori error estimate for hypersingular equation on surfaces. Numerische Mathematik, 2004, 97, 397-425.	1.9	40
129	Analysis of the Operator $\hat{\Gamma}^{-1} \text{div}$ Arising in Magnetic Models. Zeitschrift Fur Analysis Und Ihre Anwendung, 2004, 23, 589-605.	0.6	18
130	A Posteriori Error Control in Adaptive Quasilinear Boundary Element Analysis for a Logarithmic-Kernel Integral Equation of the First Kind. SIAM Journal of Scientific Computing, 2003, 25, 259-283.	2.8	9
131	Remarks and examples concerning distance ellipsoids. Colloquium Mathematicum, 2002, 93, 41-53.	0.3	2
132	Plain convergence of adaptive algorithms without exploiting reliability and efficiency. IMA Journal of Numerical Analysis, 0, , .	2.9	1