Helmut Harbrecht

List of Publications by Year
in descending order

76	1,442	361413	345221
papers	citations	20 h-index	36 g-index

76	76	76	718
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Compression Techniques for Boundary Integral Equations---Asymptotically Optimal Complexity Estimates. SIAM Journal on Numerical Analysis, 2006, 43, 2251-2271.	2.3	137
2	On the low-rank approximation by the pivoted Cholesky decomposition. Applied Numerical Mathematics, 2012, 62, 428-440.	2.1	135
3	Wavelet Galerkin Schemes for Boundary Integral Equations---Implementation and Quadrature. SIAM Journal of Scientific Computing, 2006, 27, 1347-1370.	2.8	96
4	Sparse second moment analysis for elliptic problems in stochastic domains. Numerische Mathematik, 2008, 109, 385-414.	1.9	93
5	Boosting Quantum Machine Learning Models with a Multilevel Combination Technique: Pople Diagrams Revisited. Journal of Chemical Theory and Computation, 2019, 15, 1546-1559.	5.3	70
6	BPX-preconditioning for isogeometric analysis. Computer Methods in Applied Mechanics and Engineering, 2013, 265, 63-70.	6.6	50
7	A fast isogeometric BEM for the three dimensional Laplace- and Helmholtz problems. Computer Methods in Applied Mechanics and Engineering, 2018, 330, 83-101.	6.6	45
8	Biorthogonal wavelet bases for the boundary element method. Mathematische Nachrichten, 2004, 269-270, 167-188.	0.8	43
9	Multilevel frames for sparse tensor product spaces. Numerische Mathematik, 2008, 110, 199-220.	1.9	41
10	Mathematical analysis of the transmission dynamics of the liver fluke, Opisthorchis viverrini. Journal of Theoretical Biology, 2018, 439, 181-194.	1.7	39
11	Efficient approximation of random fields for numerical applications. Numerical Linear Algebra With Applications, 2015, 22, 596-617.	1.6	38
12	Efficient treatment of stationary free boundary problems. Applied Numerical Mathematics, 2006, 56, 1326-1339.	2.1	34
13	A finite element method for elliptic problems with stochastic input data. Applied Numerical Mathematics, 2010, 60, 227-244.	2.1	33
14	On the Numerical Solution of a Shape Optimization Problem for the Heat Equation. SIAM Journal of Scientific Computing, 2013, 35, A104-A121.	2.8	32
15	First order second moment analysis for stochastic interface problems based on low-rank approximation. ESAIM: Mathematical Modelling and Numerical Analysis, 2013, 47, 1533-1552.	1.9	31
16	On the construction of sparse tensor product spaces. Mathematics of Computation, 2012, 82, 975-994.	2.1	30
17	Combination technique based k-th moment analysis of elliptic problems with random diffusion. Journal of Computational Physics, 2013, 252, 128-141.	3.8	27
18	Wavelets with patchwise cancellation properties. Mathematics of Computation, 2006, 75, 1871-1889.	2.1	26

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19	Approximation of bi-variate functions: singular value decomposition versus sparse grids. IMA Journal of Numerical Analysis, 2014, 34, 28-54.	2.9	25
20	A Newton method for Bernoulliâ€™s free boundary problem in three dimensions. Computing (Vienna/New) Tj ETQq0 0 0 rgBT /Overlock	4.8	21
21	An interpolationâ€based fast multipole method for higherâ€order boundary elements on parametric surfaces. International Journal for Numerical Methods in Engineering, 2016, 108, 1705-1728.	2.8	20
22	An efficient numerical method for a shape-identification problem arising from the heat equation. Inverse Problems, 2011, 27, 065013.	2.0	19
23	On the computation of solution spaces in high dimensions. Structural and Multidisciplinary Optimization, 2016, 54, 811-829.	3.5	19
24	Tracking Neumann Data for Stationary Free Boundary Problems. SIAM Journal on Control and Optimization, 2010, 48, 2901-2916.	2.1	18
25	Multilevel Accelerated Quadrature for PDEs with Log-Normally Distributed Diffusion Coefficient. SIAM-ASA Journal on Uncertainty Quantification, 2016, 4, 520-551.	2.0	18
26	A Note on the Construction of L-Fold Sparse Tensor Product Spaces. Constructive Approximation, 2013, 38, 235-251.	3.0	17
27	Wavelet BEM on molecular surfaces: parametrization and implementation. Computing (Vienna/New) Tj ETQq1 1 0.784314 rgBT /Over	4.8	16
28	Multiscale preconditioning for the coupling of FEM-BEM. Numerical Linear Algebra With Applications, 2003, 10, 197-222.	1.6	15
29	Coupling of FEM and BEM in Shape Optimization. Numerische Mathematik, 2006, 104, 47-68.	1.9	15
30	Analytical and numerical methods in shape optimization. Mathematical Methods in the Applied Sciences, 2008, 31, 2095-2114.	2.3	15
31	Shape Optimization for Quadratic Functionals and States with Random Right-Hand Sides. SIAM Journal on Control and Optimization, 2015, 53, 3081-3103.	2.1	15
32	Riesz minimal energy problems on Ckâˆ’1,1-manifolds. Mathematische Nachrichten, 2014, 287, 48-69.	0.8	13
33	On the quasi-Monte Carlo method with Halton points for elliptic PDEs with log-normal diffusion. Mathematics of Computation, 2016, 86, 771-797.	2.1	12
34	On Multilevel Quadrature for Elliptic Stochastic Partial Differential Equations. Lecture Notes in Computational Science and Engineering, 2012, , 161-179.	0.3	12
35	Computing quantities of interest for random domains with second order shape sensitivity analysis. ESAIM: Mathematical Modelling and Numerical Analysis, 2015, 49, 1285-1302.	1.9	12
36	Improved trial methods for a class of generalized Bernoulli problems. Journal of Mathematical Analysis and Applications, 2014, 420, 177-194.	1.0	10

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37	Wavelet formulation of the polarizable continuum model. II. Use of piecewise bilinear boundary elements. Physical Chemistry Chemical Physics, 2015, 17, 31566-31581.	2.8	10
38	Analysis of interventions against the liver fluke, opisthorchis viverrini. Mathematical Biosciences, 2018, 303, 115-125.	1.9	10
39	On the Convergence of the Combination Technique. Lecture Notes in Computational Science and Engineering, 2014, , 55-74.	0.3	9
40	Sparse tensor finite elements for elliptic multiple scale problems. Computer Methods in Applied Mechanics and Engineering, 2011, 200, 3100-3110.	6.6	8
41	Optimization of current carrying multicables. Computational Optimization and Applications, 2016, 63, 237-271.	1.6	7
42	The second order perturbation approach for elliptic partial differential equations on random domains. Applied Numerical Mathematics, 2018, 125, 159-171.	2.1	7
43	A fast sparse grid based spaceâ€“time boundary element method for the nonstationary heat equation. Numerische Mathematik, 2018, 140, 239-264.	1.9	7
44	Singular value decomposition versus sparse grids: refined complexity estimates. IMA Journal of Numerical Analysis, 2019, 39, 1652-1671.	2.9	7
45	Analysis of Tensor Approximation Schemes for Continuous Functions. Foundations of Computational Mathematics, 2023, 23, 219-240.	2.5	7
46	Multilevel Quadrature for Elliptic Parametric Partial Differential Equations in Case of Polygonal Approximations of Curved Domains. SIAM Journal on Numerical Analysis, 2020, 58, 684-705.	2.3	6
47	ON BERNOULLI'S FREE BOUNDARY PROBLEM WITH A RANDOM BOUNDARY. , 2017, 7, 335-353.		6
48	Compact gradient tracking in shape optimization. Computational Optimization and Applications, 2008, 39, 297-318.	1.6	5
49	Frames for the Solution of Operator Equations in Hilbert Spaces with Fixed Dual Pairing. Numerical Functional Analysis and Optimization, 2019, 40, 65-84.	1.4	5
50	A Newton method for reconstructing non star-shaped domains in electrical impedance tomography. Inverse Problems and Imaging, 2009, 3, 353-371.	1.1	5
51	On the Numerical Solution of a Time-Dependent Shape Optimization Problem for the Heat Equation. SIAM Journal on Control and Optimization, 2021, 59, 931-953.	2.1	4
52	A fast direct solver for nonlocal operators in wavelet coordinates. Journal of Computational Physics, 2021, 428, 110056.	3.8	4
53	On output functionals of boundary value problems on stochastic domains. Mathematical Methods in the Applied Sciences, 2009, 33, n/a-n/a.	2.3	3
54	Stabilization of the trial method for the Bernoulli problem in case of prescribed Dirichlet data. Mathematical Methods in the Applied Sciences, 2015, 38, 2850-2863.	2.3	3

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55	Hierarchical matrix approximation for the uncertainty quantification of potentials on random domains. Journal of Computational Physics, 2018, 371, 506-527.	3.8	3
56	A sampling-based optimization algorithm for solution spaces with pair-wise-coupled design variables. Structural and Multidisciplinary Optimization, 2019, 60, 501-512.	3.5	3
57	Parametric representation of molecular surfaces. International Journal of Quantum Chemistry, 2019, 119, e25695.	2.0	3
58	Shape Optimization for Composite Materials and Scaffold Structures. Multiscale Modeling and Simulation, 2020, 18, 1136-1152.	1.6	3
59	Isogeometric multilevel quadrature for forward and inverse random acoustic scattering. Computer Methods in Applied Mechanics and Engineering, 2022, 388, 114242.	6.6	3
60	On analytical derivatives for geometry optimization in the polarizable continuum model. Journal of Mathematical Chemistry, 2011, 49, 1928-1936.	1.5	2
61	Preconditioning of wavelet BEM by the incomplete Cholesky factorization. Computing and Visualization in Science, 2012, 15, 319-329.	1.2	2
62	A Note on Multilevel Based Error Estimation. Computational Methods in Applied Mathematics, 2016, 16, 447-458.	0.8	2
63	Rapid computation of far-field statistics for random obstacle scattering. Engineering Analysis With Boundary Elements, 2019, 101, 243-251.	3.7	2
64	Error-Controlled Model Approximation for Gaussian Process Morphable Models. Journal of Mathematical Imaging and Vision, 2019, 61, 443-457.	1.3	2
65	Second Moment Analysis for Robin Boundary Value Problems on Random Domains. , 2014, , 361-381.		2
66	Multilevel quadrature for elliptic problems on random domains by the coupling of FEM and BEM. Stochastics and Partial Differential Equations: Analysis and Computations, 2022, 10, 1619-1650.	0.9	2
67	Isogeometric shape optimization of periodic structures in three dimensions. Computer Methods in Applied Mechanics and Engineering, 2022, 391, 114552.	6.6	2
68	Rapid Solution of Minimal Riesz Energy Problems. Numerical Methods for Partial Differential Equations, 2016, 32, 1535-1552.	3.6	1
69	Solving a free boundary problem with nonconstant coefficients. Mathematical Methods in the Applied Sciences, 2018, 41, 3653-3671.	2.3	1
70	On the Algebraic Construction of Sparse Multilevel Approximations of Elliptic Tensor Product Problems. Journal of Scientific Computing, 2019, 78, 1272-1290.	2.3	1
71	Multilevel methods for uncertainty quantification of elliptic PDEs with random anisotropic diffusion. Stochastics and Partial Differential Equations: Analysis and Computations, 2020, 8, 54-81.	0.9	1
72	Sparse Grid Approximation of the Riccati Operator for Closed Loop Parabolic Control Problems with Dirichlet Boundary Control. SIAM Journal on Control and Optimization, 2021, 59, 4538-4562.	2.1	1

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73	Boundary Integral Operators for the Heat Equation in Time-Dependent Domains. Integral Equations and Operator Theory, 2022, 94, 1.	0.8	1
74	Minimal energy problems for strongly singular Riesz kernels. Mathematische Nachrichten, 2018, 291, 55-85.	0.8	0
75	Approximating solution spaces as a product of polygons. Structural and Multidisciplinary Optimization, 2021, 64, 2225.	3.5	0
76	Solving a Bernoulli type free boundary problem with random diffusion. ESAIM - Control, Optimisation and Calculus of Variations, 2020, 26, 56.	1.3	0