

Wolfgang Hackbusch

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/4694427/publications.pdf>

Version: 2024-02-01

109
papers

7,859
citations

94269

37
h-index

51492

86
g-index

114
all docs

114
docs citations

114
times ranked

2809
citing authors

#	ARTICLE	IF	CITATIONS
1	Tree-based tensor formats. SeMA Journal, 2021, 78, 159-173.	1.0	8
2	Truncation of tensors in the hierarchical format. SeMA Journal, 2021, 78, 175-192.	1.0	2
3	Modified Iterations for Data-Sparse Solution of Linear Systems. Vietnam Journal of Mathematics, 2021, 49, 493.	0.4	2
4	A Note on Nonclosed Tensor Formats. Vietnam Journal of Mathematics, 2020, 48, 621-631.	0.4	2
5	Iterative algorithms for the post-processing of high-dimensional data. Journal of Computational Physics, 2020, 410, 109396.	1.9	9
6	Computation of best L^{∞} exponential sums for $1/\hat{A}x$ by Remez algorithm. Computing and Visualization in Science, 2019, 20, 1-11.	1.2	9
7	Numerical Tensor Techniques for Multidimensional Convolution Products. Vietnam Journal of Mathematics, 2019, 47, 69-92.	0.4	0
8	Tensor Spaces and Numerical Tensor Calculus. Springer Series in Computational Mathematics, 2019, , .	0.1	14
9	On the Dirac-Frenkel Variational Principle on Tensor Banach Spaces. Foundations of Computational Mathematics, 2019, 19, 159-204.	1.5	16
10	Perturbation of Higher-Order Singular Values. SIAM Journal on Applied Algebra and Geometry, 2017, 1, 374-387.	0.9	4
11	On the interconnection between the higher-order singular values of real tensors. Numerische Mathematik, 2017, 135, 875-894.	0.9	11
12	Iterative Solution of Large Sparse Systems of Equations. Applied Mathematical Sciences (Switzerland), 2016, , .	0.4	44
13	Survey on the Technique of Hierarchical Matrices. Vietnam Journal of Mathematics, 2016, 44, 71-101.	0.4	7
14	New estimates for the recursive low-rank truncation of block-structured matrices. Numerische Mathematik, 2016, 132, 303-328.	0.9	6
15	Mesh-free canonical tensor products for six-dimensional density matrix: computation of kinetic energy. Computing and Visualization in Science, 2015, 17, 267-275.	1.2	0
16	Solution of linear systems in high spatial dimensions. Computing and Visualization in Science, 2015, 17, 111-118.	1.2	7
17	Hierarchical Matrices: Algorithms and Analysis. Springer Series in Computational Mathematics, 2015, , .	0.1	176
18	Hierarchical Matrices. , 2015, , 645-647.		0

#	ARTICLE	IF	CITATIONS
19	Numerical tensor calculus. Acta Numerica, 2014, 23, 651-742.	6.3	41
20	Efficient low-rank approximation of the stochastic Galerkin matrix in tensor formats. Computers and Mathematics With Applications, 2014, 67, 818-829.	1.4	38
21	Tensor Spaces and Hierarchical Tensor Representations. Lecture Notes in Computational Science and Engineering, 2014, , 237-261.	0.1	11
22	∞ estimation of tensor truncations. Numerische Mathematik, 2013, 125, 419-440.	0.9	7
23	Tensor representation techniques in post-Hartree-Fock methods: matrix product state tensor format. Molecular Physics, 2013, 111, 2398-2413.	0.8	15
24	On Minimal Subspaces in Tensor Representations. Foundations of Computational Mathematics, 2012, 12, 765-803.	1.5	35
25	Partial evaluation of the discrete solution of elliptic boundary value problems. Computing and Visualization in Science, 2012, 15, 227-245.	1.2	2
26	Bridging the gap between quantum Monte Carlo and F12-methods. Chemical Physics, 2012, 401, 36-44.	0.9	6
27	A regularized Newton method for the efficient approximation of tensors represented in the canonical tensor format. Numerische Mathematik, 2012, 122, 489-525.	0.9	30
28	Tensor Spaces and Numerical Tensor Calculus. Springer Series in Computational Mathematics, 2012, , .	0.1	354
29	Variational calculus with sums of elementary tensors of fixed rank. Numerische Mathematik, 2012, 122, 469-488.	0.9	27
30	A numerical method for the simulation of an aggregation-driven population balance system. International Journal for Numerical Methods in Fluids, 2012, 69, 1646-1660.	0.9	17
31	Use of tensor formats in elliptic eigenvalue problems. Numerical Linear Algebra With Applications, 2012, 19, 133-151.	0.9	30
32	Tensor decomposition in post-Hartree-Fock methods. I. Two-electron integrals and MP2. Journal of Chemical Physics, 2011, 134, 054118.	1.2	65
33	Optimization problems in contracted tensor networks. Computing and Visualization in Science, 2011, 14, 271-285.	1.2	29
34	An Introduction to Hierarchical (H-) Rank and TT-Rank of Tensors with Examples. Computational Methods in Applied Mathematics, 2011, 11, 291-304.	0.4	44
35	Tensorisation of vectors and their efficient convolution. Numerische Mathematik, 2011, 119, 465-488.	0.9	14
36	Canonical Tensor Products as a Generalization of Gaussian-type Orbitals. Zeitschrift Fur Physikalische Chemie, 2010, 224, 681-694.	1.4	8

#	ARTICLE	IF	CITATIONS
37	On the efficient convolution with the Newton potential. <i>Journal of Numerical Mathematics</i> , 2010, 18, .	1.8	2
38	Efficient multi-scale computation of products of orbitals in electronic structure calculations. <i>Computing and Visualization in Science</i> , 2010, 13, 397-408.	1.2	3
39	Canonical Tensor Products as a Generalization of Gaussian-type Orbitals. , 2010, , 391-404.		0
40	Convolution of hp-functions on locally refined grids. <i>IMA Journal of Numerical Analysis</i> , 2009, 29, 960-985.	1.5	9
41	A New Scheme for the Tensor Representation. <i>Journal of Fourier Analysis and Applications</i> , 2009, 15, 706-722.	0.5	321
42	Black Box Low Tensor-Rank Approximation Using Fiber-Crosses. <i>Constructive Approximation</i> , 2009, 30, 557-597.	1.8	39
43	Hierarchische Matrizen. , 2009, , .		59
44	On the efficient computation of high-dimensional integrals and the approximation by exponential sums. , 2009, , 39-74.		26
45	Approximate iterations for structured matrices. <i>Numerische Mathematik</i> , 2008, 109, 365-383.	0.9	72
46	Efficient convolution with the Newton potential in d dimensions. <i>Numerische Mathematik</i> , 2008, 110, 449-489.	0.9	11
47	-matrix methods for quadratic integral operators appearing in population balances. <i>Computers and Chemical Engineering</i> , 2008, 32, 1789-1809.	2.0	3
48	On the robustness of elliptic resolvents computed by means of the technique of hierarchical matrices. <i>Applied Numerical Mathematics</i> , 2008, 58, 1844-1851.	1.2	0
49	Preconditioning by inverting the Laplacian: an analysis of the eigenvalues. <i>IMA Journal of Numerical Analysis</i> , 2008, 29, 24-42.	1.5	12
50	Optimal Panel-Clustering in the Presence of Anisotropic Mesh Refinement. <i>SIAM Journal on Numerical Analysis</i> , 2008, 46, 517-543.	1.1	2
51	Tensor-Product Approximation to Multidimensional Integral Operators and Green's Functions. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2008, 30, 1233-1253.	0.7	14
52	Numerical method for elliptic multiscale problems. <i>Journal of Numerical Mathematics</i> , 2008, 16, .	1.8	1
53	Minimax approximation for the decomposition of energy denominators in Laplace-transformed MÅllerâ€™Plesset perturbation theories. <i>Journal of Chemical Physics</i> , 2008, 129, 044112.	1.2	71
54	Performance Of H-Lu Preconditioning For Sparse Matrices. <i>Computational Methods in Applied Mathematics</i> , 2008, 8, 336-349.	0.4	21

#	ARTICLE	IF	CITATIONS
55	Fast Projected Convolution of Piecewise Linear Functions on Non-equidistant Grids. , 2008, , 145-160.		0
56	Hierarchical matrix techniques for low- and high-frequency Helmholtz problems. IMA Journal of Numerical Analysis, 2007, 28, 46-79.	1.5	47
57	Tensor product approximation with optimal rank in quantum chemistry. Journal of Chemical Physics, 2007, 127, 084110.	1.2	48
58	Stabilized rounded addition of hierarchical matrices. Numerical Linear Algebra With Applications, 2007, 14, 407-423.	0.9	11
59	-matrix methods for linear and quasi-linear integral operators appearing in population balances. Computers and Chemical Engineering, 2007, 31, 745-759.	2.0	11
60	Tensor-product approximation to operators and functions in high dimensions. Journal of Complexity, 2007, 23, 697-714.	0.7	67
61	Adaptive Galerkin boundary element methods with panel clustering. Numerische Mathematik, 2007, 105, 603-631.	0.9	3
62	Approximation of coalescence integrals in population balance models with local mass conservation. Numerische Mathematik, 2007, 106, 627-657.	0.9	19
63	Fast and exact projected convolution for non-equidistant grids. Computing (Vienna/New York), 2007, 80, 137-168.	3.2	12
64	A projection method for the computation of inner eigenvalues using high degree rational operators. Computing (Vienna/New York), 2007, 81, 259-268.	3.2	0
65	Schnelle Lösungsverfahren für partielle Differentialgleichungen. Oberwolfach Reports, 2006, 2, 1299-1370.	0.0	0
66	Approximation of $1/ x\hat{a}^y $ by Exponentials for Wavelet Applications (Short Communication). Computing (Vienna/New York), 2006, 76, 359-366.	3.2	5
67	Low-rank Kronecker-product Approximation to Multi-dimensional Nonlocal Operators. Part I. Separable Approximation of Multi-variate Functions. Computing (Vienna/New York), 2006, 76, 177-202.	3.2	93
68	Low-rank Kronecker-product Approximation to Multi-dimensional Nonlocal Operators. Part II. HKT Representation of Certain Operators. Computing (Vienna/New York), 2006, 76, 203-225.	3.2	34
69	Coarsening of Boundary-element Spaces. Computing (Vienna/New York), 2006, 77, 253-273.	3.2	2
70	On the Efficient Evaluation of Coalescence Integrals in Population Balance Models. Computing (Vienna/New York), 2006, 78, 145-159.	3.2	27
71	Fast Numerical Methods for Non-local Operators. Oberwolfach Reports, 2005, 1, 1747-1788.	0.0	0
72	Direct Schur complement method by domain decomposition based on H-matrix approximation. Computing and Visualization in Science, 2005, 8, 179-188.	1.2	23

#	ARTICLE	IF	CITATIONS
73	Hierarchical Quadrature for Singular Integrals. Computing (Vienna/New York), 2005, 74, 75-100.	3.2	13
74	Hierarchical Tensor-Product Approximation to the Inverse and Related Operators for High-Dimensional Elliptic Problems. Computing (Vienna/New York), 2005, 74, 131-157.	3.2	85
75	Direct Schur Complement Method by Hierarchical Matrix Techniques. , 2005, , 581-588.		0
76	Hierarchical Kronecker tensor-product approximations. Journal of Numerical Mathematics, 2005, 13, .	1.8	90
77		1.5	96
78	Efficient computation of lead field bases and influence matrix for the FEM-based EEG and MEG inverse problem. Inverse Problems, 2004, 20, 1099-1116.	1.0	130
79	Data-sparse approximation to a class of operator-valued functions. Mathematics of Computation, 2004, 74, 681-709.	1.1	44
80	Adaptive Geometrically Balanced Clustering of H-Matrices. Computing (Vienna/New York), 2004, 73, 1.	3.2	14
81	Hierarchical Matrices Based on a Weak Admissibility Criterion. Computing (Vienna/New York), 2004, 73, 207-243.	3.2	61
82	Existence of ϵ -matrix approximants to the inverse FE-matrix of elliptic operators with L^2 -coefficients. Numerische Mathematik, 2003, 95, 1-28.	0.9	178
83	Solution of Large Scale Algebraic Matrix Riccati Equations by Use of Hierarchical Matrices. Computing (Vienna/New York), 2003, 70, 121-165.	3.2	89
84	Construction and Arithmetics of H -Matrices. Computing (Vienna/New York), 2003, 70, 295-334.	3.2	326
85	Introduction to hierarchical matrices with applications. Engineering Analysis With Boundary Elements, 2003, 27, 405-422.	2.0	265
86	Data-sparse approximation to the operator-valued functions of elliptic operator. Mathematics of Computation, 2003, 73, 1297-1325.	1.1	41
87	Wavelet approximation of correlated wave functions. II. Hyperbolic wavelets and adaptive approximation schemes. Journal of Chemical Physics, 2002, 117, 3625-3638.	1.2	21
88	Wavelet approximation of correlated wave functions. I. Basics. Journal of Chemical Physics, 2002, 116, 9641-9657.	1.2	40
89	Blended kernel approximation in the ϵ -matrix techniques. Numerical Linear Algebra With Applications, 2002, 9, 281-304.	0.9	5
90	\mathcal{H} -Matrix approximation for the operator exponential with applications. Numerische Mathematik, 2002, 92, 83-111.	0.9	57

#	ARTICLE	IF	CITATIONS
91	Direct Integration of the Newton Potential over Cubes. Computing (Vienna/New York), 2002, 68, 193-216.	3.2	12
92	H-matrix approximation of integral operators by interpolation. Applied Numerical Mathematics, 2002, 43, 129-143.	1.2	102
93	The Efficient Computation of Certain Determinants Arising in the Treatment of Schrödinger's Equations. Computing (Vienna/New York), 2001, 67, 35-56.	3.2	18
94	Towards H ² -Matrix Approximation of Linear Complexity. , 2001, , 194-220.		11
95	A sparse H-matrix arithmetic: general complexity estimates. Journal of Computational and Applied Mathematics, 2000, 125, 479-501.	1.1	60
96	Discrete boundary element methods on general meshes in 3D. Numerische Mathematik, 2000, 86, 103-137.	0.9	8
97	Hybrid Galerkin boundary elements: theory and implementation. Numerische Mathematik, 2000, 86, 139-172.	0.9	10
98	On H ² -Matrices. , 2000, , 9-29.		121
99	A Sparse H ² -Matrix Arithmetic.. Computing (Vienna/New York), 2000, 64, 21-47.	3.2	319
100	A Sparse Matrix Arithmetic Based on Cal H ² -Matrices. Part I: Introduction to Cal H ² -Matrices. Computing (Vienna/New York), 1999, 62, 89-108.	3.2	934
101	Composite finite elements for problems containing small geometric details. Computing and Visualization in Science, 1997, 1, 15-25.	1.2	45
102	Composite finite elements for the approximation of PDEs on domains with complicated micro-structures. Numerische Mathematik, 1997, 75, 447-472.	0.9	112
103	On numerical cubatures of nearly singular surface integrals arising in BEM collocation. Computing (Vienna/New York), 1994, 52, 139-159.	3.2	48
104	Elliptic Differential Equations. Springer Series in Computational Mathematics, 1992, , .	0.1	217
105	On the fast matrix multiplication in the boundary element method by panel clustering. Numerische Mathematik, 1989, 54, 463-491.	0.9	487
106	Multi-Grid Methods and Applications. Springer Series in Computational Mathematics, 1985, , .	0.1	1,614
107	Minimal divergence for border rank-2 tensor approximation. Linear and Multilinear Algebra, 0, , 1-17.	0.5	0
108	Numerical Approximation of Poisson Problems in Long Domains. Vietnam Journal of Mathematics, 0, , 1.	0.4	1

#	ARTICLE	IF	CITATIONS
109	Hierarchical Kronecker tensor-product approximations. , 0, .		5