

Karl Ay Meerbergen

List of Publications by Year in descending order

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80
papers

2,528
citations

318942

23
h-index

223390

49
g-index

81
all docs

81
docs citations

81
times ranked

1812
citing authors

#	ARTICLE	IF	CITATIONS
1	Automatic rational approximation and linearization of nonlinear eigenvalue problems. IMA Journal of Numerical Analysis, 2022, 42, 1087-1115.	1.5	21
2	Tensor-Krylov method for computing eigenvalues of parameter-dependent matrices. Journal of Computational and Applied Mathematics, 2022, 408, 113869.	1.1	1
3	Linearizable Eigenvector Nonlinearities. SIAM Journal on Matrix Analysis and Applications, 2022, 43, 764-786.	0.7	1
4	A Multishift, Multipole Rational QZ Method with Aggressive Early Deflation. SIAM Journal on Matrix Analysis and Applications, 2021, 42, 753-774.	0.7	1
5	Two-level preconditioning for Ridge Regression. Numerical Linear Algebra With Applications, 2021, 28, e2371.	0.9	1
6	The use of POD-DEIM model order reduction for the simulation of nonlinear hygrothermal problems. E3S Web of Conferences, 2020, 172, 04002.	0.2	3
7	POD-DEIM model order reduction for nonlinear heat and moisture transfer in building materials. Journal of Building Performance Simulation, 2020, 13, 645-661.	1.0	9
8	A Rational QZ Method. SIAM Journal on Matrix Analysis and Applications, 2019, 40, 943-972.	0.7	6
9	Calculating the minimal/maximal eigenvalue of symmetric parameterized matrices using projection. Numerical Linear Algebra With Applications, 2019, 26, e2263.	0.9	5
10	Subspace methods for three-parameter eigenvalue problems. Numerical Linear Algebra With Applications, 2019, 26, e2240.	0.9	6
11	Fast semi-supervised discriminant analysis for binary classification of large data sets. Pattern Recognition, 2019, 91, 86-99.	5.1	9
12	An implicit filter for rational Krylov using core transformations. Linear Algebra and Its Applications, 2019, 561, 113-140.	0.4	3
13	A Subspace Method for Large-Scale Eigenvalue Optimization. SIAM Journal on Matrix Analysis and Applications, 2018, 39, 48-82.	0.7	12
14	Comparing Loewner and Krylov based model order reduction for time delay systems. , 2018, , .		1
15	Compact Two-Sided Krylov Methods for Nonlinear Eigenvalue Problems. SIAM Journal of Scientific Computing, 2018, 40, A2801-A2829.	1.3	6
16	Mixed forward-backward stability of the two-level orthogonal Arnoldi method for quadratic problems. Linear Algebra and Its Applications, 2018, 553, 1-15.	0.4	0
17	Computation of pseudospectral abscissa for large-scale nonlinear eigenvalue problems. IMA Journal of Numerical Analysis, 2017, , drw065.	1.5	1
18	An implicitly restarted rational Krylov strategy for Lyapunov inverse iteration. IMA Journal of Numerical Analysis, 2016, 36, 655-674.	1.5	0

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19	A Sylvester–Arnoldi type method for the generalized eigenvalue problem with two-by-two operator determinants. <i>Numerical Linear Algebra With Applications</i> , 2015, 22, 1131-1146.	0.9	13
20	Sparse Matrix-Vector Multiplication. , 2015, , 457-476.		2
21	A randomized algorithm for testing nonsingularity of structured matrices with an application to asserting nondefectivity of Segre varieties. <i>IMA Journal of Numerical Analysis</i> , 2015, 35, 289-324.	1.5	3
22	Tensor Krylov methods for model reduction of the stochastic mean of a parametric dynamical system. , 2015, , .		0
23	Compact Rational Krylov Methods for Nonlinear Eigenvalue Problems. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2015, 36, 820-838.	0.7	48
24	Computing the Gradient in Optimization Algorithms for the CP Decomposition in Constant Memory through Tensor Blocking. <i>SIAM Journal of Scientific Computing</i> , 2015, 37, C415-C438.	1.3	21
25	Linearization of Lagrange and Hermite interpolating matrix polynomials. <i>IMA Journal of Numerical Analysis</i> , 2015, 35, 909-930.	1.5	21
26	Computing a Partial Schur Factorization of Nonlinear Eigenvalue Problems Using the Infinite Arnoldi Method. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2014, 35, 411-436.	0.7	15
27	On Generic Nonexistence of the Schmidt–Eckart–Young Decomposition for Complex Tensors. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2014, 35, 886-903.	0.7	15
28	NLEIGS: A Class of Fully Rational Krylov Methods for Nonlinear Eigenvalue Problems. <i>SIAM Journal of Scientific Computing</i> , 2014, 36, A2842-A2864.	1.3	60
29	Fast algorithms for computing the distance to instability of nonlinear eigenvalue problems, with application to time-delay systems. <i>International Journal of Dynamics and Control</i> , 2014, 2, 133.	1.5	1
30	MulticoreBSP for C: A High-Performance Library for Shared-Memory Parallel Programming. <i>International Journal of Parallel Programming</i> , 2014, 42, 619-642.	1.1	24
31	Determining bound states in a semiconductor device with contacts using a nonlinear eigenvalue solver. <i>Journal of Computational Electronics</i> , 2014, 13, 753-762.	1.3	3
32	Parametric dominant pole algorithm for parametric model order reduction. <i>Journal of Computational and Applied Mathematics</i> , 2014, 259, 259-280.	1.1	11
33	A Jacobi–Davidson method for two-real-parameter nonlinear eigenvalue problems arising from delay-differential equations. <i>Numerical Linear Algebra With Applications</i> , 2013, 20, 852-868.	0.9	8
34	Accelerating Optimization of Parametric Linear Systems by Model Order Reduction. <i>SIAM Journal on Optimization</i> , 2013, 23, 1344-1370.	1.2	46
35	High Performance Solvers for Implicit Particle in Cell Simulation. <i>Procedia Computer Science</i> , 2013, 18, 2251-2258.	1.2	8
36	Implementation of a 2D electrostatic Particle-in-Cell algorithm in unified parallel C with dynamic load-balancing. <i>Computers and Fluids</i> , 2013, 80, 10-16.	1.3	5

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37	Hiding Global Communication Latency in the GMRES Algorithm on Massively Parallel Machines. SIAM Journal of Scientific Computing, 2013, 35, C48-C71.	1.3	80
38	A Rational Krylov Method Based on Hermite Interpolation for Nonlinear Eigenvalue Problems. SIAM Journal of Scientific Computing, 2013, 35, A327-A350.	1.3	40
39	Parametric model order reduction of damped mechanical systems via the block Arnoldi process. Applied Mathematics Letters, 2013, 26, 643-648.	1.5	12
40	IMF: An Incomplete Multifrontal LU -Factorization for Element-Structured Sparse Linear Systems. SIAM Journal of Scientific Computing, 2013, 35, A270-A293.	1.3	10
41	Multi-threaded Nested Filtering Factorization Preconditioner. Lecture Notes in Computer Science, 2013, , 220-234.	1.0	6
42	A New Truncation Strategy for the Higher-Order Singular Value Decomposition. SIAM Journal of Scientific Computing, 2012, 34, A1027-A1052.	1.3	153
43	Lyapunov Inverse Iteration for Identifying Hopf Bifurcations in Models of Incompressible Flow. SIAM Journal of Scientific Computing, 2012, 34, A1584-A1606.	1.3	19
44	A linear eigenvalue algorithm for the nonlinear eigenvalue problem. Numerische Mathematik, 2012, 122, 169-195.	0.9	54
45	Using Krylov model order reduction for accelerating design optimization of structures and vibrations in the frequency domain. International Journal for Numerical Methods in Engineering, 2012, 90, 1207-1232.	1.5	15
46	Model reduction for dynamical systems with quadratic output. International Journal for Numerical Methods in Engineering, 2012, 91, 229-248.	1.5	10
47	On dominant poles and model reduction of second order time-delay systems. Applied Numerical Mathematics, 2012, 62, 21-34.	1.2	27
48	A reflection on the implicitly restarted Arnoldi method for computing eigenvalues near a vertical line. Linear Algebra and Its Applications, 2012, 436, 2828-2844.	0.4	11
49	The Infinite Arnoldi Method and an Application to Time-Delay Systems with Distributed Delays. Lecture Notes in Control and Information Sciences, 2012, , 229-239.	0.6	3
50	Krylov-Based Model Order Reduction of Time-delay Systems. SIAM Journal on Matrix Analysis and Applications, 2011, 32, 1399-1421.	0.7	59
51	A Jacobi-Davidson method for two real parameter nonlinear eigenvalue problems arising from delay differential equations. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 915-918.	0.2	2
52	A projection approach for model reduction of large-scale time-delay systems, with application to a boundary controlled PDE. , 2011, , .		1
53	An Arnoldi method with structured starting vectors for the delay eigenvalue problem. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 57-62.	0.4	4
54	An Element-by-Element Multilevel Block ILU Preconditioner Using GLAS. , 2010, , .		0

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55	Model Reduction by Balanced Truncation of Linear Systems with a Quadratic Output. AIP Conference Proceedings, 2010, , .	0.3	5
56	A Krylov Method for the Delay Eigenvalue Problem. SIAM Journal of Scientific Computing, 2010, 32, 3278-3300.	1.3	63
57	The Lanczos Method for Parameterized Symmetric Linear Systems with Multiple Right-Hand Sides. SIAM Journal on Matrix Analysis and Applications, 2010, 31, 1642-1662.	0.7	24
58	Inverse Iteration for Purely Imaginary Eigenvalues with Application to the Detection of Hopf Bifurcations in Large-Scale Problems. SIAM Journal on Matrix Analysis and Applications, 2010, 31, 1982-1999.	0.7	23
59	Using Model Order Reduction for the Parameter Optimization of Large Scale Dynamical Systems. , 2010, , 113-122.		0
60	Analysis and Computation of Eigenvalues of Symmetric Fuzzy Matrices. , 2009, , .		0
61	Connection and comparison between frequency shift time integration and a spectral transformation preconditioner. Numerical Linear Algebra With Applications, 2009, 16, 1-17.	0.9	2
62	C++ Bindings to External Software Libraries with Examples from BLAS, LAPACK, UMFPACK, and MUMPS. ACM Transactions on Mathematical Software, 2009, 36, 1-23.	1.6	2
63	The Quadratic Arnoldi Method for the Solution of the Quadratic Eigenvalue Problem. SIAM Journal on Matrix Analysis and Applications, 2009, 30, 1463-1482.	0.7	35
64	Fast frequency response computation for Rayleigh damping. International Journal for Numerical Methods in Engineering, 2008, 73, 96-106.	1.5	26
65	An efficient computational procedure for random vibro-acoustic simulations. Journal of Sound and Vibration, 2008, 310, 448-458.	2.1	7
66	Time integration for spherical acoustic finite-infinite element models. International Journal for Numerical Methods in Engineering, 2005, 64, 1752-1768.	1.5	5
67	Arnoldi Methods for Structure-Preserving Dimension Reduction of Second-Order Dynamical Systems. , 2005, , 173-189.		19
68	The Solution of Parametrized Symmetric Linear Systems. SIAM Journal on Matrix Analysis and Applications, 2003, 24, 1038-1059.	0.7	37
69	The Quadratic Eigenvalue Problem. SIAM Review, 2001, 43, 235-286.	4.2	1,030
70	Locking and Restarting Quadratic Eigenvalue Solvers. SIAM Journal of Scientific Computing, 2001, 22, 1814-1839.	1.3	44
71	The Lanczos Method with Semi-Definite Inner Product. BIT Numerical Mathematics, 2001, 41, 1069-1078.	1.0	6
72	APPLICATION OF A DOMAIN DECOMPOSITION METHOD WITH LAGRANGE MULTIPLIERS TO ACOUSTIC PROBLEMS ARISING FROM THE AUTOMOTIVE INDUSTRY. Journal of Computational Acoustics, 2000, 08, 503-521.	1.0	24

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73	Using Krylov approximations to the matrix exponential operator in Davidson's method. Applied Numerical Mathematics, 1999, 31, 331-351.	1.2	5
74	Using Generalized Cayley Transformations within an Inexact Rational Krylov Sequence Method. SIAM Journal on Matrix Analysis and Applications, 1998, 20, 131-148.	0.7	48
75	Implicitly restarted Arnoldi with purification for the shift-invert transformation. Mathematics of Computation, 1997, 66, 667-690.	1.1	47
76	The Restarted Arnoldi Method Applied to Iterative Linear System Solvers for the Computation of Rightmost Eigenvalues. SIAM Journal on Matrix Analysis and Applications, 1997, 18, 1-20.	0.7	28
77	The implicit application of a rational filter in the RKS method. BIT Numerical Mathematics, 1997, 37, 925-947.	1.0	13
78	Matrix transformations for computing rightmost eigenvalues of large sparse non-symmetric eigenvalue problems. IMA Journal of Numerical Analysis, 1996, 16, 297-346.	1.5	63
79	Shift-invert and Cayley transforms for detection of rightmost eigenvalues of nonsymmetric matrices. BIT Numerical Mathematics, 1994, 34, 409-423.	1.0	75
80	Subspace method for multiparameter eigenvalue problems based on tensor train representations. Numerical Linear Algebra With Applications, 0, , .	0.9	1