Marc Van Barel

List of Publications by Year
in descending order

145 papers	2,464 citations	304743 22 h-index	243625 44 g-index
157 all docs	157 docs citations	157 times ranked	1498 citing authors

#	Article	IF	Citations
1	Backward error measures for roots of polynomials. Numerical Algorithms, 2021, 87, 19-39.	1.9	0
2	Truncated normal forms for solving polynomial systems: Generalized and efficient algorithms. Journal of Symbolic Computation, 2021, 102, 63-85.	0.8	4
3	Min-max elementwise backward error for roots of polynomials and a corresponding backward stable root finder. Linear Algebra and Its Applications, 2021, 623, 454-477.	0.9	2
4	A Robust Numerical Path Tracking Algorithm for Polynomial Homotopy Continuation. SIAM Journal of Scientific Computing, 2020, 42, A3610-A3637.	2.8	14
5	Non-unitary CMV-decomposition. Special Matrices, 2020, 8, 144-159.	0.5	1
6	Robust Numerical Tracking of One Path of a Polynomial Homotopy on Parallel Shared Memory Computers. Lecture Notes in Computer Science, 2020, , 563-582.	1.3	3
7	Truncated normal forms for solving polynomial systems. ACM Communications in Computer Algebra, 2019, 52, 78-81.	0.4	2
8	Uniform approximation on the sphere by least squares polynomials. Numerical Algorithms, 2019, 81, 1089-1111.	1.9	3
9	A stabilized normal form algorithm for generic systems of polynomial equations. Journal of Computational and Applied Mathematics, 2018, 342, 119-132.	2.0	16
10	Polynomial eigenvalue solver based on tropically scaled Lagrange linearization. Linear Algebra and Its Applications, 2018, 542, 186-208.	0.9	8
11	Solving Polynomial Systems via Truncated Normal Forms. SIAM Journal on Matrix Analysis and Applications, 2018, 39, 1421-1447.	1.4	14
12	Generalized de la Vallée Poussin approximations on [−1, 1]. Numerical Algorithms, 2017, 75, 1-31.	1.9	14
13	Nonnegative Matrix Factorization Using Nonnegative Polynomial Approximations. IEEE Signal Processing Letters, 2017, 24, 948-952.	3.6	4
14	Entropy-Based Incomplete Cholesky Decomposition for a Scalable Spectral Clustering Algorithm: Computational Studies and Sensitivity Analysis. Entropy, 2016, 18, 182.	2.2	5
15	Backward Error Analysis of Polynomial Eigenvalue Problems Solved by Linearization. SIAM Journal on Matrix Analysis and Applications, 2016, 37, 123-144.	1.4	12
16	Efficient evolutionary spectral clustering. Pattern Recognition Letters, 2016, 84, 78-84.	4.2	7
17	Designing rational filter functions for solving eigenvalue problems by contour integration. Linear Algebra and Its Applications, 2016, 502, 346-365.	0.9	20
18	Exact line and plane search for tensor optimization. Computational Optimization and Applications, 2016, 63, 121-142.	1.6	22

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19	Adaptive cross approximation for ill-posed problems. Journal of Computational and Applied Mathematics, 2016, 303, 206-217.	2.0	11
20	LÃ¶wner-Based Blind Signal Separation of Rational Functions With Applications. IEEE Transactions on Signal Processing, 2016, 64, 1909-1918.	5.3	36
21	A convex optimization model for finding non-negative polynomials. Journal of Computational and Applied Mathematics, 2016, 301, 121-134.	2.0	2
22	Nonlinear eigenvalue problems and contour integrals. Journal of Computational and Applied Mathematics, 2016, 292, 526-540.	2.0	29
23	On bounds of the Pythagoras number of the sum of square magnitudes of Laurent polynomials. Numerical Algebra, Control and Optimization, 2016, 6, 91-102.	1.6	1
24	Backward error of polynomial eigenvalue problems solved by linearization. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 585-586.	0.2	1
25	Structured Data Fusion. IEEE Journal on Selected Topics in Signal Processing, 2015, 9, 586-600.	10.8	186
26	An algorithm for decomposing a non-negative polynomial as a sum of squares of rational functions. Numerical Algorithms, 2015, 69, 397-413.	1.9	3
27	Algorithms for the Geronimus transformation for orthogonal polynomials on the unit circle. Journal of Computational and Applied Mathematics, 2014, 267, 195-217.	2.0	3
28	Inverse eigenvalue problems for extended Hessenberg and extended tridiagonal matrices. Journal of Computational and Applied Mathematics, 2014, 272, 377-398.	2.0	8
29	Numerical Solution of Bivariate and Polyanalytic Polynomial Systems. SIAM Journal on Numerical Analysis, 2014, 52, 1551-1572.	2.3	13
30	A convex optimization method to solve a filter design problem. Journal of Computational and Applied Mathematics, 2014, 255, 183-192.	2.0	4
31	The Pythagoras number of real sum of squares polynomials and sum of square magnitudes of polynomials. Calcolo, 2013, 50, 283-303.	1.1	5
32	An algorithm for computing the eigenvalues of block companion matrices. Numerical Algorithms, 2013, 62, 261-287.	1.9	4
33	Sparse spectral clustering method based on the incomplete Cholesky decomposition. Journal of Computational and Applied Mathematics, 2013, 237, 145-161.	2.0	18
34	Optimization-Based Algorithms for Tensor Decompositions: Canonical Polyadic Decomposition, Decomposition in Rank-$(L_r,L_r,1)$ Terms, and a New Generalization. SIAM Journal on Optimization, 2013, 23, 695-720.	2.0	399
35	Unconstrained Optimization of Real Functions in Complex Variables. SIAM Journal on Optimization, 2012, 22, 879-898.	2.0	131
36	When is the Uvarov transformation positive definite?. Numerical Algorithms, 2012, 59, 51-62.	1.9	1

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37	Implicit double shift QR-algorithm for companion matrices. Numerische Mathematik, 2010, 116, 177-212.	1.9	28
38	Solving a large dense linear system by adaptive cross approximation. Journal of Computational and Applied Mathematics, 2010, 234, 3181-3195.	2.0	10
39	On Gauss-type quadrature formulas with prescribed nodes anywhere on the real line. Calcolo, 2010, 47, 21-48.	1.1	16
40	A method to compute recurrence relation coefficients for bivariate orthogonal polynomials by unitary matrix transformations. Numerical Algorithms, 2010, 55, 383-402.	1.9	2
41	Structures preserved by generalized inversion and Schur complementation. Linear Algebra and Its Applications, 2010, 432, 817-836.	0.9	0
42	Orthogonal Rational Functions with real coefficients and semiseparable matrices. Journal of Computational and Applied Mathematics, 2010, 233, 1192-1201.	2.0	3
43	A multiple shift QR-step for structured rank matrices. Journal of Computational and Applied Mathematics, 2010, 233, 1326-1344.	2.0	3
44	A numerical solution of the constrained weighted energy problem. Journal of Computational and Applied Mathematics, 2010, 235, 950-965.	2.0	4
45	Using semiseparable matrices to compute the SVD of a general matrix product/quotient. Journal of Computational and Applied Mathematics, 2010, 234, 3175-3180.	2.0	2
46	A direct method to solve block banded block Toeplitz systems with non-banded Toeplitz blocks. Journal of Computational and Applied Mathematics, 2010, 234, 1485-1491.	2.0	12
47	QR-factorization of Displacement Structured Matrices Using a Rank Structured Matrix Approach. , 2010, , 229-254.		1
48	Fast computation of determinants of BÃ©zout matrices and application to curve implicitization. Linear Algebra and Its Applications, 2009, 430, 27-33.	0.9	2
49	A Quasi-Separable Approach to Solve the Symmetric Definite Tridiagonal Generalized Eigenvalue Problem. SIAM Journal on Matrix Analysis and Applications, 2009, 31, 154-174.	1.4	2
50	Rational QR-iteration without inversion. Numerische Mathematik, 2008, 110, 561-575.	1.9	2
51	A fast algorithm for computing the smallest eigenvalue of a symmetric positive–definite Toeplitz matrix. Numerical Linear Algebra With Applications, 2008, 15, 327-337.	1.6	2
52	A Schur-based algorithm for computing bounds to the smallest eigenvalue of a symmetric positive definite Toeplitz matrix. Linear Algebra and Its Applications, 2008, 428, 479-491.	0.9	8
53	A Cholesky LR algorithm for the positive definite symmetric diagonal-plus-semiseparable eigenproblem. Linear Algebra and Its Applications, 2008, 428, 586-599.	0.9	4
54	Fast QR factorization of Cauchy-like matrices. Linear Algebra and Its Applications, 2008, 428, 697-711.	0.9	5

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55	Rank-deficient submatrices of Fourier matrices. Linear Algebra and Its Applications, 2008, 429, 1587-1605.	0.9	19
56	A fast algorithm for the recursive calculation of dominant singular subspaces. Journal of Computational and Applied Mathematics, 2008, 218, 238-246.	2.0	8
57	Eigenvalue computation for unitary rank structured matrices. Journal of Computational and Applied Mathematics, 2008, 213, 268-287.	2.0	13
58	Unitary rank structured matrices. Journal of Computational and Applied Mathematics, 2008, 215, 49-78.	2.0	4
59	A QZ-method based on semiseparable matrices. Journal of Computational and Applied Mathematics, 2008, 218, 482-491.	2.0	3
60	A continuation method for solving symmetric Toeplitz systems. Computational Mathematics and Mathematical Physics, 2008, 48, 2126-2139.	0.8	4
61	Computing a Lower Bound of the Smallest Eigenvalue of a Symmetric Positive-Definite Toeplitz Matrix. IEEE Transactions on Information Theory, 2008, 54, 4726-4731.	2.4	4
62	A Givens-Weight Representation for Rank Structured Matrices. SIAM Journal on Matrix Analysis and Applications, 2008, 29, 1147-1170.	1.4	19
63	A QR-Based Solver for Rank Structured Matrices. SIAM Journal on Matrix Analysis and Applications, 2008, 30, 464-490.	1.4	18
64	A Hessenberg Reduction Algorithm for Rank Structured Matrices. SIAM Journal on Matrix Analysis and Applications, 2007, 29, 895-926.	1.4	9
65	A Levinson-like algorithm for symmetric strongly nonsingular higher order semiseparable plus band matrices. Journal of Computational and Applied Mathematics, 2007, 198, 75-97.	2.0	4
66	Rank-deficient submatrices of Kronecker products of Fourier matrices. Linear Algebra and Its Applications, 2007, 426, 349-367.	0.9	6
67	Structures preserved by matrix inversion. SIAM Journal on Matrix Analysis and Applications, 2006, 28, 213-228.	1.4	9
68	Structures Preserved by Schur Complementation. SIAM Journal on Matrix Analysis and Applications, 2006, 28, 229-252.	1.4	3
69	Rank structures preserved by the QR-algorithm: The singular case. Journal of Computational and Applied Mathematics, 2006, 189, 157-178.	2.0	11
70	Structures preserved by the QR-algorithm. Journal of Computational and Applied Mathematics, 2006, 187, 29-40.	2.0	13
71	On computing the eigenvectors of a class of structured matrices. Journal of Computational and Applied Mathematics, 2006, 189, 580-591.	2.0	3
72	A numerical solution of the constrained energy problem. Journal of Computational and Applied Mathematics, 2006, 189, 442-452.	2.0	6

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73	A note on the nullity theorem. Journal of Computational and Applied Mathematics, 2006, 189, 179-190.	2.0	7
74	Necessary and sufficient conditions for orthogonal similarity transformations to obtain the Arnoli(Lanczos)â€"Ritz values. Linear Algebra and Its Applications, 2006, 414, 435-444.	0.9	0
75	A small note on the scaling of symmetric positive definite semiseparable matrices. Numerical Algorithms, 2006, 41, 319-326.	1.9	0
76	Orthogonal similarity transformation of a symmetric matrix into a diagonal-plus-semiseparable one with free choice of the diagonal. Numerische Mathematik, 2006, 102, 709-726.	1.9	11
77	On the convergence properties of the orthogonal similarity transformations to tridiagonal and semiseparable (plus diagonal) form. Numerische Mathematik, 2006, 104, 205-239.	1.9	4
78	Generalizations of orthogonal polynomials. Journal of Computational and Applied Mathematics, 2005, 179, 57-95.	2.0	9
79	An implicitQR algorithm for symmetric semiseparable matrices. Numerical Linear Algebra With Applications, 2005, 12, 625-658.	1.6	29
80	A superfast solver for real symmetric Toeplitz systems using real trigonometric transformations. Numerical Linear Algebra With Applications, 2005, 12, 699-713.	1.6	9
81	A note on the representation and definition of semiseparable matrices. Numerical Linear Algebra With Applications, 2005, 12, 839-858.	1.6	51
82	Orthogonal similarity transformation into block-semiseparable matrices of semiseparability rankk. Numerical Linear Algebra With Applications, 2005, 12, 981-1000.	1.6	4
83	Orthonormal rational function vectors. Numerische Mathematik, 2005, 100, 409-440.	1.9	3
84	An Implicit Q Theorem for Hessenberg-like Matrices. Mediterranean Journal of Mathematics, 2005, 2, 259-275.	0.8	3
85	A bibliography on semiseparable matrices*. Calcolo, 2005, 42, 249-270.	1.1	75
86	A Lanczosâ€"like reduction of symmetric structured matrices to semiseparable form*. Calcolo, 2005, 42, 227-241.	1.1	1
87	A note on the recursive calculation of dominant singular subspaces. Numerical Algorithms, 2005, 38, 237-242.	1.9	5
88	Divide and conquer algorithms for computing the eigendecomposition of symmetric diagonal-plus-semiseparable matrices. Numerical Algorithms, 2005, 39, 379-398.	1.9	18
89	An Orthogonal Similarity Reduction of a Matrix into Semiseparable Form. SIAM Journal on Matrix Analysis and Applications, 2005, 27, 176-197.	1.4	16
90	Orthogonal Rational Functions and Structured Matrices. SIAM Journal on Matrix Analysis and Applications, 2005, 26, 810-829.	1.4	25

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91	Numerically robust transfer function modeling from noisy frequency domain data. IEEE Transactions on Automatic Control, 2005, 50, 1835-1839.	5.7	27
92	Convergence of the Isometric Arnoldi Process. SIAM Journal on Matrix Analysis and Applications, 2005, 26, 782-809.	1.4	13
93	Newton-Like Iteration Based on a Cubic Polynomial for Structured Matrices. Numerical Algorithms, 2004, 36, 365-380.	1.9	20
94	A QR?method for computing the singular values via semiseparable matrices. Numerische Mathematik, 2004, 99, 163-195.	1.9	6
95	Orthogonal basis functions in discrete least-squares rational approximation. Journal of Computational and Applied Mathematics, 2004, 164-165, 175-194.	2.0	13
96	Two fast algorithms for solving diagonal-plus-semiseparable linear systems. Journal of Computational and Applied Mathematics, 2004, 164-165, 731-747.	2.0	19
97	Iterative inversion of structured matrices. Theoretical Computer Science, 2004, 315, 581-592.	0.9	14
98	On Computing the Spectral Decomposition of Symmetric Arrowhead Matrices. Lecture Notes in Computer Science, 2004, , 932-941.	1.3	0
99	Solving Toeplitz Least Squares Problems by Means of Newton's Iteration. Numerical Algorithms, 2003, 33, 93-103.	1.9	14
100	Error Analysis of a Derivative-Free Algorithm for Computing Zeros of Holomorphic Functions. Computing (Vienna/New York), 2003, 70, 335-347.	4.8	5
101	A perturbation result for generalized eigenvalue problems and its application to error estimation in a quadrature method for computing zeros of analytic functions. Journal of Computational and Applied Mathematics, 2003, 161, 339-347.	2.0	18
102	A superfast method for solving Toeplitz linear least squares problems. Linear Algebra and Its Applications, 2003, 366, 441-457.	0.9	15
103	An error analysis of two related quadrature methods for computing zeros of analytic functions. Journal of Computational and Applied Mathematics, 2003, 152, 467-480.	2.0	21
104	Orthogonal rational functions and diagonal-plus-semiseparable matrices. , 2002, , .		10
105	A Kronecker product variant of the FACR method for solving the generalized Poisson equation. Journal of Computational and Applied Mathematics, 2002, 140, 369-380.	2.0	3
106	Fast direct solution methods for symmetric banded Toeplitz systems, based on the sine transform. Linear Algebra and Its Applications, 2002, 343-344, 211-232.	0.9	1
107	A Stabilized Superfast Solver for Nonsymmetric Toeplitz Systems. SIAM Journal on Matrix Analysis and Applications, 2001, 23, 494-510.	1.4	44
108	BÃ©zout and Hankel matrices associated with row reduced matrix polynomials, Barnett-type formulas. Linear Algebra and Its Applications, 2001, 332-334, 583-606.	0.9	2

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109	An Algorithm Based on Orthogonal Polynomial Vectors for Toeplitz Least Squares Problems. Lecture Notes in Computer Science, 2001, , 27-34.	1.3	2
110	<title>Solving Toeplitz least-squares problems via discrete polynomial least-squares approximation at roots of unity</title>. , 2000, , .		1
111	ZEAL: A mathematical software package for computing zeros of analytic functions. Computer Physics Communications, 2000, 124, 212-232.	7.5	28
112	On an Alternative Parameterization of the Solutions of the Partial Realization Problem. Acta Applicandae Mathematicae, 2000, 61, 317-331.	1.0	0
113	Coupled Vandermonde matrices and the superfast computation of Toeplitz determinants. Numerical Algorithms, 2000, 24, 99-116.	1.9	3
114	Computing the Zeros of Analytic Functions. Lecture Notes in Mathematics, 2000, , .	0.2	51
115	Extending the notions of companion and infinite companion to matrix polynomials. Linear Algebra and Its Applications, 1999, 290, 61-94.	0.9	2
116	On Locating Clusters of Zeros of Analytic Functions. BIT Numerical Mathematics, 1999, 39, 646-682.	2.0	54
117	A Derivative-Free Algorithm for Computing Zeros of Analytic Functions. Computing (Vienna/New) Tj ETQq1 1 0.784314 rgBT /Overloc	4.8	23
118	<title>Algorithms for solving rational interpolation problems related to fast and superfast solvers for Toeplitz systems</title>. , 1999, 3807, 359.		1
119	On computing zeros and poles of meromorphic functions. , 1999, , .		4
120	A stabilized superfast solver for indefinite Hankel systems. Linear Algebra and Its Applications, 1998, 284, 335-355.	0.9	16
121	A fast Hankel solver based on an inversion formula for Loewner matrices. Linear Algebra and Its Applications, 1998, 282, 275-295.	0.9	10
122	Look-ahead methods for block Hankel systems. Journal of Computational and Applied Mathematics, 1997, 86, 311-333.	2.0	2
123	A generalized minimal partial realization problem. Linear Algebra and Its Applications, 1997, 254, 527-551.	0.9	6
124	A lookahead algorithm for the solution of block toeplitz systems. Linear Algebra and Its Applications, 1997, 266, 291-335.	0.9	11
125	A fast block Hankel solver based on an inversion formula for block Loewner matrices. Calcolo, 1996, 33, 147-164.	1.1	9
126	Inversion of a block LÃ¶wner matrix. Journal of Computational and Applied Mathematics, 1996, 69, 261-284.	2.0	9

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127	Duality in vector PadÃ©-Hermite approximation problems. Journal of Computational and Applied Mathematics, 1996, 66, 153-166.	2.0	1
128	Formal orthogonal polynomials and Hankel/Toeplitz duality. Numerical Algorithms, 1995, 10, 289-335.	1.9	7
129	A look-ahead method for computing vector PadÃ©-Hermite approximants. Constructive Approximation, 1995, 11, 455-476.	3.0	4
130	Vector Orthogonal Polynomials and Least Squares Approximation. SIAM Journal on Matrix Analysis and Applications, 1995, 16, 863-885.	1.4	28
131	Discrete linearized least-squares rational approximation on the unit circle. Journal of Computational and Applied Mathematics, 1994, 50, 545-563.	2.0	23
132	First-Order Linear Recurrence Systems and General N-Fractions. , 1994, , 433-446.		0
133	A parallel algorithm for discrete least squares rational approximation. Numerische Mathematik, 1992, 63, 99-121.	1.9	23
134	A new formal approach to the rational interpolation problem. Numerische Mathematik, 1992, 62, 87-122.	1.9	14
135	A general module theoretic framework for vector M-PadÃ© and matrix rational interpolation. Numerical Algorithms, 1992, 3, 451-461.	1.9	51
136	The computation of non-perfect PadÃ©-Hermite approximants. Numerical Algorithms, 1991, 1, 285-304.	1.9	29
137	A new approach to the rational interpolation problem. Journal of Computational and Applied Mathematics, 1990, 32, 281-289.	2.0	27
138	A new approach to the rational interpolation problem: The vector case. Journal of Computational and Applied Mathematics, 1990, 33, 331-346.	2.0	24
139	Minimal vector PadÃ© approximation. Journal of Computational and Applied Mathematics, 1990, 32, 27-37.	2.0	9
140	A canonical matrix continued fraction solution of the minimal (partial) realization problem. Linear Algebra and Its Applications, 1989, 122-124, 973-1002.	0.9	18
141	An algebraic method to solve the minimal partial realization problem for scalar sequences. Linear Algebra and Its Applications, 1988, 104, 117-129.	0.9	0
142	PadÃ© techniques for model reduction in linear system theory: a survey. Journal of Computational and Applied Mathematics, 1986, 14, 401-438.	2.0	157
143	Generation of orthogonal rational functions by procedures for structured matrices. Numerical Algorithms, 0, , 1.	1.9	2
144	Biorthogonal rational Krylov subspace methods. Electronic Transactions on Numerical Analysis, 0, 51, 451-468.	0.0	4

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145	Robust rational approximation for identification. , 0, , .		0