

Arieh Iserles

List of Publications by Year in descending order

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75
papers

2,362
citations

331670

21
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214800

47
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77
all docs

77
docs citations

77
times ranked

899
citing authors

#	ARTICLE	IF	CITATIONS
1	Fast Computation of Orthogonal Systems with a Skew-Symmetric Differentiation Matrix. Communications on Pure and Applied Mathematics, 2021, 74, 478-506.	3.1	4
2	A Family of Orthogonal Rational Functions and Other Orthogonal Systems with a skew-Hermitian Differentiation Matrix. Journal of Fourier Analysis and Applications, 2020, 26, 1.	1.0	9
3	Compact schemes for laser-matter interaction in Schrödinger equation based on effective splittings of Magnus expansion. Computer Physics Communications, 2019, 234, 195-201.	7.5	8
4	Spectral computation of highly oscillatory integral equations in laser theory. Journal of Computational Physics, 2019, 395, 351-381.	3.8	7
5	Orthogonal Systems with a Skew-Symmetric Differentiation Matrix. Foundations of Computational Mathematics, 2019, 19, 1191-1221.	2.5	12
6	Solving Schrödinger equation in semiclassical regime with highly oscillatory time-dependent potentials. Journal of Computational Physics, 2019, 376, 564-584.	3.8	8
7	Solving the wave equation with multifrequency oscillations. Journal of Computational Dynamics, 2019, 6, 239-249.	1.1	3
8	Symmetric and arbitrarily high-order Birkhoff-Hermitian time integrators and their long-time behaviour for solving nonlinear Klein-Gordon equations. Journal of Computational Physics, 2018, 356, 1-30.	3.8	42
9	An Adaptive Filon Algorithm for Highly Oscillatory Integrals. , 2018, , 407-424.		2
10	Magnus-Lanczos Methods with Simplified Commutators for the Schrödinger Equation with a Time-Dependent Potential. SIAM Journal on Numerical Analysis, 2018, 56, 1547-1569.	2.3	10
11	Banded, skew-symmetric differentiation matrices of high order. AIP Conference Proceedings, 2017, , .	0.4	0
12	A generalization of Filon-Clenshaw-Curtis quadrature for highly oscillatory integrals. BIT Numerical Mathematics, 2017, 57, 943-961.	2.0	16
13	Error analysis of the extended Filon-type method for highly oscillatory integrals. Research in Mathematical Sciences, 2017, 4, 1.	1.0	12
14	The Joy and Pain of Skew Symmetry. Foundations of Computational Mathematics, 2016, 16, 1607-1630.	2.5	4
15	Arbitrary-Order Trigonometric Fourier Collocation Methods for Multi-Frequency Oscillatory Systems. Foundations of Computational Mathematics, 2016, 16, 151-181.	2.5	107
16	Numerical Stability in the Presence of Variable Coefficients. Foundations of Computational Mathematics, 2016, 16, 751-777.	2.5	10
17	Numerical solution of Sturm-Liouville problems via Fer streamers. Numerische Mathematik, 2015, 131, 541-565.	1.9	6
18	Asymptotic solvers for second-order differential equation systems with multiple frequencies. Calcolo, 2014, 51, 109-139.	1.1	2

#	ARTICLE	IF	CITATIONS
19	Effective Approximation for the Semiclassical Schrödinger Equation. Foundations of Computational Mathematics, 2014, 14, 689-720.	2.5	40
20	On expansions in orthogonal polynomials. Advances in Computational Mathematics, 2013, 38, 35-61.	1.6	1
21	On Rapid Computation of Expansions in Ultraspherical Polynomials. SIAM Journal on Numerical Analysis, 2012, 50, 307-327.	2.3	6
22	Explicit adaptive symplectic integrators for solving Hamiltonian systems. Celestial Mechanics and Dynamical Astronomy, 2012, 114, 297-317.	1.4	20
23	Spectral theory of large Wiener-Hopf operators with complex-symmetric kernels and rational symbols. Mathematical Proceedings of the Cambridge Philosophical Society, 2011, 151, 161-191.	0.4	12
24	A Class of Integrable Flows on the Space of Symmetric Matrices. Communications in Mathematical Physics, 2009, 290, 399-435.	2.2	13
25	Change of Editorship. IMA Journal of Numerical Analysis, 2007, 27, i-i.	2.9	0
26	Quadrature methods for multivariate highly oscillatory integrals using derivatives. Mathematics of Computation, 2006, 75, 1233-1259.	2.1	54
27	On an Isospectral Lie-Poisson System and Its Lie Algebra. Foundations of Computational Mathematics, 2006, 6, 121-144.	2.5	14
28	COMMUTATORS OF SKEW-SYMMETRIC MATRICES. World Scientific Series on Nonlinear Science, Series B, 2006, , 97-105.	0.2	0
29	On the numerical quadrature of highly-oscillating integrals II: Irregular oscillators. IMA Journal of Numerical Analysis, 2005, 25, 25-44.	2.9	64
30	Efficient Computation of the Matrix Exponential by Generalized Polar Decompositions. SIAM Journal on Numerical Analysis, 2005, 42, 2218-2256.	2.3	37
31	COMMUTATORS OF SKEW-SYMMETRIC MATRICES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2005, 15, 793-801.	1.7	11
32	Efficient quadrature of highly oscillatory integrals using derivatives. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2005, 461, 1383-1399.	2.1	249
33	On the numerical quadrature of highly-oscillating integrals I: Fourier transforms. IMA Journal of Numerical Analysis, 2004, 24, 365-391.	2.9	115
34	On the Spectra of Certain Matrices Generated by Involution Automorphisms. SIAM Journal on Matrix Analysis and Applications, 2004, 25, 1110-1123.	1.4	0
35	Complexity Theory for Lie-Group Solvers. Journal of Complexity, 2002, 18, 242-286.	1.3	13
36	On the Discretization of Double-Bracket Flows. Foundations of Computational Mathematics, 2002, 2, 305-329.	2.5	13

#	ARTICLE	IF	CITATIONS
37	Think globally, act locally: Solving highly-oscillatory ordinary differential equations. Applied Numerical Mathematics, 2002, 43, 145-160.	2.1	36
38	Title is missing!. BIT Numerical Mathematics, 2002, 42, 561-599.	2.0	73
39	Semi-explicit methods for isospectral flows. Advances in Computational Mathematics, 2001, 14, 1-24.	1.6	4
40	Optimal acceleration of convergence. Methods and Applications of Analysis, 2001, 8, 15-32.	0.5	0
41	Lie-group methods. Acta Numerica, 2000, 9, 215-365.	10.7	606
42	Preserving algebraic invariants with Runge-Kutta methods. Journal of Computational and Applied Mathematics, 2000, 125, 69-81.	2.0	34
43	On the Dimension of Certain Graded Lie Algebras Arising in Geometric Integration of Differential Equations. LMS Journal of Computation and Mathematics, 2000, 3, 44-75.	0.9	4
44	Approximating the exponential from a Lie algebra to a Lie group. Mathematics of Computation, 2000, 69, 1457-1481.	2.1	69
45	Approximately preserving symmetries in the numerical integration of ordinary differential equations. European Journal of Applied Mathematics, 1999, 10, 419-445.	2.9	12
46	Runge-Kutta methods for quadratic ordinary differential equations. BIT Numerical Mathematics, 1998, 38, 315-346.	2.0	14
47	Numerical solution of isospectral flows. Mathematics of Computation, 1997, 66, 1461-1487.	2.1	82
48	Exact and discretized stability of the pantograph equation. Applied Numerical Mathematics, 1997, 24, 295-308.	2.1	47
49	On Neutral Functional-Differential Equations with Proportional Delays. Journal of Mathematical Analysis and Applications, 1997, 207, 73-95.	1.0	66
50	Integro-differential Equations and Generalized Hypergeometric Functions. Journal of Mathematical Analysis and Applications, 1997, 208, 404-424.	1.0	16
51	Biorthogonal polynomials: Recent developments. Numerical Algorithms, 1996, 11, 215-228.	1.9	0
52	RUNGE-KUTTA METHODS ON MANIFOLDS. , 1996, , 57-70.		7
53	Explicit representations of biorthogonal polynomials. Numerical Algorithms, 1995, 10, 51-67.	1.9	1
54	Stability and Asymptotic Stability of Functional-Differential Equations. Journal of the London Mathematical Society, 1995, 51, 559-572.	1.0	32

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55	Global Bounds on Numerical Error for Ordinary Differential Equations. Journal of Complexity, 1993, 9, 97-112.	1.3	8
56	Stability of the discretized pantograph differential equation. Mathematics of Computation, 1993, 60, 575-589.	2.1	90
57	Biorthogonality and Its Applications to Numerical Analysis.. Mathematics of Computation, 1993, 60, 855.	2.1	31
58	Rational Approximations to the Exponential Function with Two Complex Conjugate Interpolation Points. SIAM Journal on Mathematical Analysis, 1985, 16, 814-821.	1.9	2
59	A proof of the first dahlquist barrier by order stars. BIT Numerical Mathematics, 1984, 24, 529-537.	2.0	10
60	Composite Methods for Numerical Solution of Stiff Systems of ODEs. SIAM Journal on Numerical Analysis, 1984, 21, 340-351.	2.3	8
61	Barriers to Stability. SIAM Journal on Numerical Analysis, 1983, 20, 1251-1257.	2.3	11
62	The optimal accuracy of difference schemes. Transactions of the American Mathematical Society, 1983, 277, 779-803.	0.9	64
63	Order Stars and a Saturation Theorem for First-order Hyperbolics. IMA Journal of Numerical Analysis, 1982, 2, 49-61.	2.9	33
64	Composite exponential approximations. Mathematics of Computation, 1982, 38, 99-112.	2.1	12
65	Rational Interpolation to $\exp(-x)$ with Application to Certain Stiff Systems. SIAM Journal on Numerical Analysis, 1981, 18, 1-12.	2.3	11
66	On Multivalued Exponential Approximations. SIAM Journal on Numerical Analysis, 1981, 18, 480-499.	2.3	2
67	Efficient Two-Step Numerical Methods for Parabolic Differential Equations. North-Holland Mathematics Studies, 1981, 47, 319-326.	0.2	0
68	On the A-Acceptability of Padé Approximations. SIAM Journal on Mathematical Analysis, 1979, 10, 1002-1007.	1.9	4
69	A note on Padé approximations and generalized hypergeometric functions. BIT Numerical Mathematics, 1979, 19, 543-545.	2.0	11
70	On the Generalized Padé Approximations to the Exponential Function. SIAM Journal on Numerical Analysis, 1979, 16, 631-636.	2.3	14
71	A-acceptable exponentially fitted combinations of three Padé approximations. Journal of Computational and Applied Mathematics, 1978, 4, 143-146.	2.0	1
72	On the A-stability of implicit Runge-Kutta processes. BIT Numerical Mathematics, 1978, 18, 157-169.	2.0	5

#	ARTICLE	IF	CITATIONS
73	?-stability and dominating pairs. Mathematics of Computation, 1978, 32, 19-33.	2.1	9
74	Functional fittingâ€“new family of schemes for integration of stiff O.D.E. Mathematics of Computation, 1977, 31, 112-123.	2.1	5
75	Banded, stable, skew-symmetric differentiation matrices of high order. IMA Journal of Numerical Analysis, 0, , drw037.	2.9	0