Arieh Iserles

List of Publications by Year
in descending order

75 papers	2,362 citations	331670 21 h-index	214800 47 g-index
77 all docs	77 docs citations	77 times ranked	899 citing authors

#	Article	IF	Citations
1	Lie-group methods. Acta Numerica, 2000, 9, 215-365.	10.7	606
2	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
3	On the numerical quadrature of highly-oscillating integrals I: Fourier transforms. IMA Journal of Numerical Analysis, 2004, 24, 365-391.	2.9	115
4	Arbitrary-Order Trigonometric Fourier Collocation Methods for Multi-Frequency Oscillatory Systems. Foundations of Computational Mathematics, 2016, 16, 151-181.	2.5	107
5	Stability of the discretized pantograph differential equation. Mathematics of Computation, 1993, 60, 575-589.	2.1	90
6	Numerical solution of isospectral flows. Mathematics of Computation, 1997, 66, 1461-1487.	2.1	82
7	Title is missing!. BIT Numerical Mathematics, 2002, 42, 561-599.	2.0	73
8	Approximating the exponential from a Lie algebra to a Lie group. Mathematics of Computation, 2000, 69, 1457-1481.	2.1	69
9	On Neutral Functionalâ€“Differential Equations with Proportional Delays. Journal of Mathematical Analysis and Applications, 1997, 207, 73-95.	1.0	66
10	The optimal accuracy of difference schemes. Transactions of the American Mathematical Society, 1983, 277, 779-803.	0.9	64
11	On the numerical quadrature of highly-oscillating integrals II: Irregular oscillators. IMA Journal of Numerical Analysis, 2005, 25, 25-44.	2.9	64
12	Quadrature methods for multivariate highly oscillatory integrals using derivatives. Mathematics of Computation, 2006, 75, 1233-1259.	2.1	54
13	Exact and discretized stability of the pantograph equation. Applied Numerical Mathematics, 1997, 24, 295-308.	2.1	47
14	Symmetric and arbitrarily high-order Birkhoffâ€“Hermite time integrators and their long-time behaviour for solving nonlinear Kleinâ€“Gordon equations. Journal of Computational Physics, 2018, 356, 1-30.	3.8	42
15	Effective Approximation for the Semiclassical SchrÃ¶dinger Equation. Foundations of Computational Mathematics, 2014, 14, 689-720.	2.5	40
16	Efficient Computation of the Matrix Exponential by Generalized Polar Decompositions. SIAM Journal on Numerical Analysis, 2005, 42, 2218-2256.	2.3	37
17	Think globally, act locally: Solving highly-oscillatory ordinary differential equations. Applied Numerical Mathematics, 2002, 43, 145-160.	2.1	36
18	Preserving algebraic invariants with Rungeâ€“Kutta methods. Journal of Computational and Applied Mathematics, 2000, 125, 69-81.	2.0	34

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19	Order Stars and a Saturation Theorem for First-order Hyperbolics. IMA Journal of Numerical Analysis, 1982, 2, 49-61.	2.9	33
20	Stability and Asymptotic Stability of Functional-Differential Equations. Journal of the London Mathematical Society, 1995, 51, 559-572.	1.0	32
21	Biorthogonality and Its Applications to Numerical Analysis.. Mathematics of Computation, 1993, 60, 855.	2.1	31
22	Explicit adaptive symplectic integrators for solving Hamiltonian systems. Celestial Mechanics and Dynamical Astronomy, 2012, 114, 297-317.	1.4	20
23	Integro-differential Equations and Generalized Hypergeometric Functions. Journal of Mathematical Analysis and Applications, 1997, 208, 404-424.	1.0	16
24	A generalization of Filonâ€“Clenshawâ€“Curtis quadrature for highly oscillatory integrals. BIT Numerical Mathematics, 2017, 57, 943-961.	2.0	16
25	On the Generalized PadÃ© Approximations to the Exponential Function. SIAM Journal on Numerical Analysis, 1979, 16, 631-636.	2.3	14
26	Runge-Kutta methods for quadratic ordinary differential equations. BIT Numerical Mathematics, 1998, 38, 315-346.	2.0	14
27	On an Isospectral Lieâ€“Poisson System and Its Lie Algebra. Foundations of Computational Mathematics, 2006, 6, 121-144.	2.5	14
28	Complexity Theory for Lie-Group Solvers. Journal of Complexity, 2002, 18, 242-286.	1.3	13
29	On the Discretization of Double-Bracket Flows. Foundations of Computational Mathematics, 2002, 2, 305-329.	2.5	13
30	A Class of Integrable Flows on the Space of Symmetric Matrices. Communications in Mathematical Physics, 2009, 290, 399-435.	2.2	13
31	Composite exponential approximations. Mathematics of Computation, 1982, 38, 99-112.	2.1	12
32	Approximately preserving symmetries in the numerical integration of ordinary differential equations. European Journal of Applied Mathematics, 1999, 10, 419-445.	2.9	12
33	Spectral theory of large Wienerâ€“Hopf operators with complex-symmetric kernels and rational symbols. Mathematical Proceedings of the Cambridge Philosophical Society, 2011, 151, 161-191.	0.4	12
34	Error analysis of the extended Filon-type method for highly oscillatory integrals. Research in Mathematical Sciences, 2017, 4, 1.	1.0	12
35	Orthogonal Systems with a Skew-Symmetric Differentiation Matrix. Foundations of Computational Mathematics, 2019, 19, 1191-1221.	2.5	12
36	A note on PadÃ© approximations and generalized hypergeometric functions. BIT Numerical Mathematics, 1979, 19, 543-545.	2.0	11

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37	Rational Interpolation to $exp (- x)$ with Application to Certain Stiff Systems. SIAM Journal on Numerical Analysis, 1981, 18, 1-12.	2.3	11
38	Barriers to Stability. SIAM Journal on Numerical Analysis, 1983, 20, 1251-1257.	2.3	11
39	COMMUTATORS OF SKEW-SYMMETRIC MATRICES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2005, 15, 793-801.	1.7	11
40	A proof of the first dahlquist barrier by order stars. BIT Numerical Mathematics, 1984, 24, 529-537.	2.0	10
41	Numerical Stability in the Presence of Variable Coefficients. Foundations of Computational Mathematics, 2016, 16, 751-777.	2.5	10
42	Magnus–Lanczos Methods with Simplified Commutators for the SchrÃ¶dinger Equation with a Time-Dependent Potential. SIAM Journal on Numerical Analysis, 2018, 56, 1547-1569.	2.3	10
43	?-stability and dominating pairs. Mathematics of Computation, 1978, 32, 19-33.	2.1	9
44	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
45	Composite Methods for Numerical Solution of Stiff Systems of ODEâ€™s. SIAM Journal on Numerical Analysis, 1984, 21, 340-351.	2.3	8
46	Global Bounds on Numerical Error for Ordinary Differential Equations. Journal of Complexity, 1993, 9, 97-112.	1.3	8
47	Compact schemes for laserâ€“matter interaction in SchrÃ¶dinger equation based on effective splittings of Magnus expansion. Computer Physics Communications, 2019, 234, 195-201.	7.5	8
48	Solving SchrÃ¶dinger equation in semiclassical regime with highly oscillatory time-dependent potentials. Journal of Computational Physics, 2019, 376, 564-584.	3.8	8
49	Spectral computation of highly oscillatory integral equations in laser theory. Journal of Computational Physics, 2019, 395, 351-381.	3.8	7
50	RUNGEâ€“KUTTA METHODS ON MANIFOLDS. , 1996, , 57-70.		7
51	On Rapid Computation of Expansions in Ultraspherical Polynomials. SIAM Journal on Numerical Analysis, 2012, 50, 307-327.	2.3	6
52	Numerical solution of Sturmâ€“Liouville problems via Fer streamers. Numerische Mathematik, 2015, 131, 541-565.	1.9	6
53	Functional fittingâ€“new family of schemes for integration of stiff O.D.E. Mathematics of Computation, 1977, 31, 112-123.	2.1	5
54	On theA-stability of implicit Runge-Kutta processes. BIT Numerical Mathematics, 1978, 18, 157-169.	2.0	5

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55	On theA-Acceptability of PadÃ© Approximations. SIAM Journal on Mathematical Analysis, 1979, 10, 1002-1007.	1.9	4
56	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
57	Semi-explicit methods for isospectral flows. Advances in Computational Mathematics, 2001, 14, 1-24.	1.6	4
58	The Joy and Pain of Skew Symmetry. Foundations of Computational Mathematics, 2016, 16, 1607-1630.	2.5	4
59	Fast Computation of Orthogonal Systems with a <scp>Skewâ€Symmetric</scp> Differentiation Matrix. Communications on Pure and Applied Mathematics, 2021, 74, 478-506.	3.1	4
60	Solving the wave equation with multifrequency oscillations. Journal of Computational Dynamics, 2019, 6, 239-249.	1.1	3
61	On Multivalued Exponential Approximations. SIAM Journal on Numerical Analysis, 1981, 18, 480-499.	2.3	2
62	Rational Approximations to the Exponential Function with Two Complex Conjugate Interpolation Points. SIAM Journal on Mathematical Analysis, 1985, 16, 814-821.	1.9	2
63	Asymptotic solvers for second-order differential equation systems with multiple frequencies. Calcolo, 2014, 51, 109-139.	1.1	2
64	An Adaptive Filon Algorithm for Highly Oscillatory Integrals. , 2018, , 407-424.		2
65	A-acceptable exponentially fitted combinations of three PadÃ© approximations. Journal of Computational and Applied Mathematics, 1978, 4, 143-146.	2.0	1
66	Explicit representations of biorthogonal polynomials. Numerical Algorithms, 1995, 10, 51-67.	1.9	1
67	On expansions in orthogonal polynomials. Advances in Computational Mathematics, 2013, 38, 35-61.	1.6	1
68	Efficient Two-Step Numerical Methods for Parabolic Differential Equations. North-Holland Mathematics Studies, 1981, 47, 319-326.	0.2	0
69	Biorthogonal polynomials: Recent developments. Numerical Algorithms, 1996, 11, 215-228.	1.9	0
70	On the Spectra of Certain Matrices Generated by Involutory Automorphisms. SIAM Journal on Matrix Analysis and Applications, 2004, 25, 1110-1123.	1.4	0
71	Change of Editorship. IMA Journal of Numerical Analysis, 2007, 27, i-i.	2.9	0
72	Banded, stable, skew-symmetric differentiation matrices of high order. IMA Journal of Numerical Analysis, 0, , drw037.	2.9	0

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73	Banded, skew-symmetric differentiation matrices of high order. AIP Conference Proceedings, 2017, , .	0.4	0
74	Optimal acceleration of convergence. Methods and Applications of Analysis, 2001, 8, 15-32.	0.5	0
75	COMMUTATORS OF SKEW-SYMMETRIC MATRICES. World Scientific Series on Nonlinear Science, Series B, 2006, , 97-105.	0.2	0