

Vladimir Rokhlin

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

58

papers

3,195

citations

26

h-index

56

g-index

62

ext. papers

3,631

ext. citations

3.7

avg, IF

5.29

L-index

#	Paper	IF	Citations
58	A new version of the Fast Multipole Method for the Laplace equation in three dimensions. <i>Acta Numerica</i> , 1997 , 6, 229-269	15.1	582
57	Randomized algorithms for the low-rank approximation of matrices. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007 , 104, 20167-72	11.5	291
56	Spectral Deferred Correction Methods for Ordinary Differential Equations. <i>BIT Numerical Mathematics</i> , 2000 , 40, 241-266	1.7	242
55	A wideband fast multipole method for the Helmholtz equation in three dimensions. <i>Journal of Computational Physics</i> , 2006 , 216, 300-325	4.1	193
54	A Randomized Algorithm for Principal Component Analysis. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2010 , 31, 1100-1124	1.5	183
53	A fast randomized algorithm for the approximation of matrices. <i>Applied and Computational Harmonic Analysis</i> , 2008 , 25, 335-366	3.1	176
52	A randomized algorithm for the decomposition of matrices. <i>Applied and Computational Harmonic Analysis</i> , 2011 , 30, 47-68	3.1	161
51	A Fast Algorithm for the Evaluation of Legendre Expansions. <i>SIAM Journal on Scientific and Statistical Computing</i> , 1991 , 12, 158-179		129
50	Fast direct solvers for integral equations in complex three-dimensional domains. <i>Acta Numerica</i> , 2009 , 18, 243-275	15.1	107
49	A Fast Algorithm for the Calculation of the Roots of Special Functions. <i>SIAM Journal of Scientific Computing</i> , 2007 , 29, 1420-1438	2.6	81
48	A fast randomized algorithm for overdetermined linear least-squares regression. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008 , 105, 13212-7	11.5	75
47	High-Order Corrected Trapezoidal Quadrature Rules for Singular Functions. <i>SIAM Journal on Numerical Analysis</i> , 1997 , 34, 1331-1356	2.4	66
46	A Nonlinear Optimization Procedure for Generalized Gaussian Quadratures. <i>SIAM Journal of Scientific Computing</i> , 2010 , 32, 1761-1788	2.6	62
45	Fast Algorithms for Spherical Harmonic Expansions. <i>SIAM Journal of Scientific Computing</i> , 2006 , 27, 1903-1928	10.28	57
44	A Generalized Fast Multipole Method for Nonoscillatory Kernels. <i>SIAM Journal of Scientific Computing</i> , 2003 , 24, 796-817	2.6	56
43	An algorithm for the rapid evaluation of special function transforms. <i>Applied and Computational Harmonic Analysis</i> , 2010 , 28, 203-226	3.1	53
42	A New Class of Highly Accurate Solvers for Ordinary Differential Equations. <i>Journal of Scientific Computing</i> , 2009 , 38, 368-399	2.3	50

41	Universal quadratures for boundary integral equations on two-dimensional domains with corners. <i>Journal of Computational Physics</i> , 2010 , 229, 8259-8280	4.1	50
40	An Improved Fast Multipole Algorithm for Potential Fields. <i>SIAM Journal of Scientific Computing</i> , 1998 , 19, 1804-1826	2.6	48
39	An Improved Fast Multipole Algorithm for Potential Fields on the Line. <i>SIAM Journal on Numerical Analysis</i> , 1999 , 36, 629-666	2.4	40
38	Approximate formulae for certain prolate spheroidal wave functions valid for large values of both order and band-limit. <i>Applied and Computational Harmonic Analysis</i> , 2007 , 22, 105-123	3.1	33
37	An adaptive fast direct solver for boundary integral equations in two dimensions. <i>Applied and Computational Harmonic Analysis</i> , 2011 , 31, 346-369	3.1	32
36	Second kind integral equations for the classical potential theory on open surfaces II. <i>Journal of Computational Physics</i> , 2004 , 195, 1-16	4.1	31
35	Randomized approximate nearest neighbors algorithm. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, 15679-86	11.5	30
34	Efficient discretization of Laplace boundary integral equations on polygonal domains. <i>Journal of Computational Physics</i> , 2010 , 229, 2507-2525	4.1	28
33	Approximation of bandlimited functions. <i>Applied and Computational Harmonic Analysis</i> , 2006 , 21, 413-429	3.1	27
32	A fast divide-and-conquer algorithm for computing the spectra of real symmetric tridiagonal matrices. <i>Applied and Computational Harmonic Analysis</i> , 2013 , 34, 379-414	3.1	24
31	On the solution of elliptic partial differential equations on regions with corners. <i>Journal of Computational Physics</i> , 2016 , 305, 150-171	4.1	22
30	A Generalized One-Dimensional Fast Multipole Method with Application to Filtering of Spherical Harmonics. <i>Journal of Computational Physics</i> , 1998 , 147, 594-609	4.1	21
29	On interpolation and integration in finite-dimensional spaces of bounded functions. <i>Communications in Applied Mathematics and Computational Science</i> , 2006 , 1, 133-142	1.1	20
28	On the numerical solution of two-point boundary value problems II. <i>Communications on Pure and Applied Mathematics</i> , 1994 , 47, 1117-1159	2.5	19
27	High-order quadratures for the solution of scattering problems in two dimensions. <i>Journal of Computational Physics</i> , 2009 , 228, 2152-2174	4.1	18
26	On the evaluation of prolate spheroidal wave functions and associated quadrature rules. <i>Applied and Computational Harmonic Analysis</i> , 2014 , 36, 108-142	3.1	16
25	High-Frequency Asymptotic Expansions for Certain Prolate Spheroidal Wave Functions. <i>Journal of Fourier Analysis and Applications</i> , 2003 , 9, 575-596	1.1	15
24	On the accurate calculation of vortex shedding. <i>Physics of Fluids A, Fluid Dynamics</i> , 1990 , 2, 883-885		15

23	A new class of highly accurate differentiation schemes based on the prolate spheroidal wave functions. <i>Applied and Computational Harmonic Analysis</i> , 2012 , 33, 226-260	3.1	14
22	On the asymptotics of Bessel functions in the Fresnel regime. <i>Applied and Computational Harmonic Analysis</i> , 2015 , 39, 347-356	3.1	12
21	A Highly Accurate Solver for Stiff Ordinary Differential Equations. <i>SIAM Journal of Scientific Computing</i> , 2012 , 34, A1296-A1315	2.6	12
20	Quadruple and octuple layer potentials in two dimensions: Analytical apparatus. <i>Applied and Computational Harmonic Analysis</i> , 2003 , 14, 47-74	3.1	12
19	Sparse Diagonal Forms for Translation Operators for the Helmholtz Equation in Two Dimensions, 1995 ,		12
18	A Randomized Algorithm for the Approximation of Matrices 2006 ,		11
17	A randomized approximate nearest neighbors algorithm. <i>Applied and Computational Harmonic Analysis</i> , 2013 , 34, 415-444	3.1	10
16	On the existence of nonoscillatory phase functions for second order ordinary differential equations in the high-frequency regime. <i>Journal of Computational Physics</i> , 2015 , 290, 1-27	4.1	9
15	Improved estimates for nonoscillatory phase functions. <i>Discrete and Continuous Dynamical Systems</i> , 2016 , 36, 4101-4131	2	9
14	On the solution of the Helmholtz equation on regions with corners. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 9171-6	11.5	7
13	Second kind integral equations for the classical potential theory on open surfaces I: analytical apparatus. <i>Journal of Computational Physics</i> , 2003 , 191, 40-74	4.1	6
12	An Improved Fast Multipole Algorithm for Potential Fields. 1995 ,		6
11	A New Class of Analysis-Based Fast Transforms 2007 ,		6
10	On the Numerical Solution of Elliptic Partial Differential Equations on Polygonal Domains. <i>SIAM Journal of Scientific Computing</i> , 2019 , 41, A2552-A2578	2.6	5
9	A fast summation method for oscillatory lattice sums. <i>Journal of Mathematical Physics</i> , 2017 , 58, 023511	1.2	3
8	A Randomized Approximate Nearest Neighbors Algorithm 2010 ,		3
7	A fast simple algorithm for computing the potential of charges on a line. <i>Applied and Computational Harmonic Analysis</i> , 2020 , 49, 815-830	3.1	3
6	On the nonoscillatory phase function for Legendre's differential equation. <i>Journal of Computational Physics</i> , 2017 , 350, 326-342	4.1	1

- 5 On the Numerical Solution of Fourth-Order Linear Two-Point Boundary Value Problems. *SIAM Journal of Scientific Computing*, **2020**, 42, A1789-A1808 2.6 0
- 4 Quadrature Rules and Interpolation via PSWFs. *Applied Mathematical Sciences (Switzerland)*, **2013**, 275-3519
- 3 Asymptotic Analysis of PSWFs. *Applied Mathematical Sciences (Switzerland)*, **2013**, 243-274 0.9
- 2 Numerical Algorithms. *Applied Mathematical Sciences (Switzerland)*, **2013**, 353-370 0.9
- 1 Mathematical and Numerical Preliminaries. *Applied Mathematical Sciences (Switzerland)*, **2013**, 5-32 0.9