Leslie Greengard

List of Publications by Year
in descending order

120 papers	11,556 citations	76031 42 h-index	32181 105 g-index
121 all docs	121 docs citations	121 times ranked	7231 citing authors

#	Article	IF	Citations
1	Fast multipole methods for the evaluation of layer potentials with locally-corrected quadratures. Journal of Computational Physics: X, 2021, 10, 100092.	1.1	5
2	A fast spectral method for electrostatics in doubly periodic slit channels. Journal of Chemical Physics, 2021, 154, 204107.	1.2	12
3	Recovering Missing Data in Coherent Diffraction Imaging. SIAM Journal on Imaging Sciences, 2021, 14, 620-644.	1.3	2
4	High-order discretization of a stable time-domain integral equation for 3D acoustic scattering. Journal of Computational Physics, 2020, 402, 109047.	1.9	10
5	A High‐Order Integral Equation‐Based Solver for the Time‐Dependent Schrödinger Equation. Communications on Pure and Applied Mathematics, 2020, , .	1.2	5
6	A Fast Boundary Integral Method for High-Order Multiscale Mesh Generation. SIAM Journal of Scientific Computing, 2020, 42, A1380-A1401.	1.3	3
7	A fast solver for the narrow capture and narrow escape problems in the sphere. Journal of Computational Physics: X, 2020, 5, 100047.	1.1	6
8	On the accurate evaluation of unsteady Stokes layer potentials in moving two-dimensional geometries. Advances in Computational Mathematics, 2020, 46, 1.	0.8	0
9	A New Mixed Potential Representation for Unsteady, Incompressible Flow. SIAM Review, 2019, 61, 733-755.	4.2	4
10	An Augmented Regularized Combined Source Integral Equation for Nonconforming Meshes. IEEE Transactions on Antennas and Propagation, 2019, 67, 2513-2521.	3.1	1
11	Hybrid asymptotic/numerical methods for the evaluation of layer heat potentials in two dimensions. Advances in Computational Mathematics, 2019, 45, 847-867.	0.8	5
12	Integral Equation Methods for Electrostatics, Acoustics, and Electromagnetics in Smoothly Varying, Anisotropic Media. SIAM Journal on Numerical Analysis, 2019, 57, 1020-1035.	1.1	4
13	A high-order wideband direct solver for electromagnetic scattering from bodies of revolution. Journal of Computational Physics, 2019, 387, 205-229.	1.9	14
14	Explicit unconditionally stable methods for the heat equation via potential theory. Pure and Applied Analysis, 2019, 1, 709-742.	0.4	2
15	Decoupled field integral equations for electromagnetic scattering from homogeneous penetrable obstacles. Communications in Partial Differential Equations, 2018, 43, 159-184.	1.0	12
16	A new hybrid integral representation for frequency domain scattering in layered media. Applied and Computational Harmonic Analysis, 2018, 45, 359-378.	1.1	9
17	The Anisotropic Truncated Kernel Method for Convolution with Free-Space Green's Functions. SIAM Journal of Scientific Computing, 2018, 40, A3733-A3754.	1.3	10
18	A fluctuating boundary integral method for Brownian suspensions. Journal of Computational Physics, 2018, 374, 1094-1119.	1.9	12

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19	An Adaptive Fast Gauss Transform in Two Dimensions. SIAM Journal of Scientific Computing, 2018, 40, A1274-A1300.	1.3	6
20	An integral equation formulation for rigid bodies in Stokes flow in three dimensions. Journal of Computational Physics, 2017, 332, 504-519.	1.9	28
21	A fast summation method for oscillatory lattice sums. Journal of Mathematical Physics, 2017, 58, 023511.	0.5	4
22	High Resolution Inverse Scattering in Two Dimensions Using Recursive Linearization. SIAM Journal on Imaging Sciences, 2017, 10, 641-664.	1.3	24
23	Robust integral formulations for electromagnetic scattering from three-dimensional cavities. Journal of Computational Physics, 2017, 345, 1-16.	1.9	13
24	Pseudoâ€Spectral Methods for the Laplaceâ€Beltrami Equation and the Hodge Decomposition on Surfaces of Genus One. Numerical Methods for Partial Differential Equations, 2017, 33, 941-955.	2.0	7
25	Rapid Solution of the Cryo-EM Reconstruction Problem by Frequency Marching. SIAM Journal on Imaging Sciences, 2017, 10, 1170-1195.	1.3	30
26	The Decoupled Potential Integral Equation for Timeâ€Harmonic Electromagnetic Scattering. Communications on Pure and Applied Mathematics, 2016, 69, 771-812.	1.2	60
27	Validation of neural spike sorting algorithms without ground-truth information. Journal of Neuroscience Methods, 2016, 264, 65-77.	1.3	42
28	Fast convolution with free-space Green's functions. Journal of Computational Physics, 2016, 323, 191-203.	1.9	63
29	Integral Equation Methods for Elastance and Mobility Problems in Two Dimensions. SIAM Journal on Numerical Analysis, 2016, 54, 2889-2909.	1.1	18
30	Fast, Adaptive, High-Order Accurate Discretization of the Lippmann--Schwinger Equation in Two Dimensions. SIAM Journal of Scientific Computing, 2016, 38, A1770-A1787.	1.3	19
31	Fast Direct Methods for Gaussian Processes. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2016, 38, 252-265.	9.7	397
32	A fast multipole method for the evaluation of elastostatic fields in a half-space with zero normal stress. Advances in Computational Mathematics, 2016, 42, 175-198.	0.8	1
33	On the stability of time-domain integral equations for acoustic wave propagation. Discrete and Continuous Dynamical Systems, 2016, 36, 4367-4382.	0.5	17
34	Computational Software: Simple FMM Libraries for Electrostatics, Slow Viscous Flow, and Frequency-Domain Wave Propagation. Communications in Computational Physics, 2015, 18, 516-528.	0.7	30
35	Debye Sources, Beltrami Fields, and a Complex Structure on Maxwell Fields. Communications on Pure and Applied Mathematics, 2015, 68, 2237-2280.	1.2	10
36	Efficient sum-of-exponentials approximations for the heat kernel and their applications. Advances in Computational Mathematics, 2015, 41, 529-551.	0.8	17

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37	Extension of the Lorenz–Mie–Debye method for electromagnetic scattering to the time-domain. Journal of Computational Physics, 2015, 299, 98-105.	1.9	6
38	Inverse Obstacle Scattering in Two Dimensions with Multiple Frequency Data and Multiple Angles of Incidence. SIAM Journal on Imaging Sciences, 2015, 8, 280-298.	1.3	15
39	Visualizing skin effects in conductors with MRI: <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si5.gif" overflow="scroll"><mml:mrow><mml:msup><mml:mrow /><mml:mrow><mml:mn>7</mml:mn></mml:mrow></mml:msup></mml:mrow></mml:math>Li MRI experiments and calculations. Journal of Magnetic Resonance, 2014, 245, 143-149.	1.2	63
40	A fast solver for multi-particle scattering in a layered medium. Optics Express, 2014, 22, 20481.	1.7	14
41	A Fast Direct Solver for High Frequency Scattering from a Large Cavity in Two Dimensions. SIAM Journal of Scientific Computing, 2014, 36, B887-B903.	1.3	30
42	A Fast Semidirect Least Squares Algorithm for Hierarchically Block Separable Matrices. SIAM Journal on Matrix Analysis and Applications, 2014, 35, 725-748.	0.7	9
43	A fast direct solver for scattering from periodic structures with multiple material interfaces in two dimensions. Journal of Computational Physics, 2014, 258, 738-751.	1.9	15
44	On the efficient representation of the half-space impedance Green's function for the Helmholtz equation. Wave Motion, 2014, 51, 1-13.	1.0	26
45	Fast and Accurate Evaluation of Nonlocal Coulomb and Dipole-Dipole Interactions via the Nonuniform FFT. SIAM Journal of Scientific Computing, 2014, 36, B777-B794.	1.3	41
46	Norm-Preserving Discretization of Integral Equations for Elliptic PDEs with Internal Layers I: The One-Dimensional Case. SIAM Review, 2014, 56, 625-641.	4.2	4
47	Boundary integral equation analysis on the sphere. Numerische Mathematik, 2014, 128, 463-487.	0.9	22
48	The solution of the scalar wave equation in the exterior of a sphere. Journal of Computational Physics, 2014, 274, 191-207.	1.9	10
49	On the Convergence of Local Expansions of Layer Potentials. SIAM Journal on Numerical Analysis, 2013, 51, 2660-2679.	1.1	33
50	Overcoming Low-Frequency Breakdown of the Magnetic Field Integral Equation. IEEE Transactions on Antennas and Propagation, 2013, 61, 1285-1290.	3.1	28
51	Quadrature by expansion: A new method for the evaluation of layer potentials. Journal of Computational Physics, 2013, 252, 332-349.	1.9	131
52	A Consistency Condition for the Vector Potential in Multiply-Connected Domains. IEEE Transactions on Magnetics, 2013, 49, 1072-1076.	1.2	10
53	A fast, high-order solver for the Grad–Shafranov equation. Journal of Computational Physics, 2013, 243, 28-45.	1.9	29
54	Fast multi-particle scattering: A hybrid solver for the Maxwell equations in microstructured materials. Journal of Computational Physics, 2013, 232, 22-32.	1.9	42

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55	A fast multipole method for the Rotne–Prager–Yamakawa tensor and its applications. Journal of Computational Physics, 2013, 234, 133-139.	1.9	34
56	Debye Sources and the Numerical Solution of the Time Harmonic Maxwell Equations II. Communications on Pure and Applied Mathematics, 2013, 66, 753-789.	1.2	38
57	On the Calculation of Displacement, Stress, and Strain Induced by Triangular Dislocations. Bulletin of the Seismological Society of America, 2012, 102, 2776-2780.	1.1	12
58	A Fast Direct Solver for Structured Linear Systems by Recursive Skeletonization. SIAM Journal of Scientific Computing, 2012, 34, A2507-A2532.	1.3	148
59	Integral Equation Methods for Unsteady Stokes Flow in Two Dimensions. SIAM Journal of Scientific Computing, 2012, 34, A2197-A2219.	1.3	17
60	Stable and accurate integral equation methods for scattering problems with multiple material interfaces in two dimensions. Journal of Computational Physics, 2012, 231, 2389-2395.	1.9	19
61	A free-space adaptive FMM-Based PDE solver in three dimensions. Communications in Applied Mathematics and Computational Science, 2011, 6, 79-122.	0.7	39
62	Fast elliptic solvers in cylindrical coordinates and the Coulomb collision operator. Journal of Computational Physics, 2011, 230, 7840-7852.	1.9	24
63	A new integral representation for quasi-periodic scattering problems in two dimensions. BIT Numerical Mathematics, 2011, 51, 67-90.	1.0	52
64	Spectral edge detection in two dimensions using wavefronts. Applied and Computational Harmonic Analysis, 2011, 30, 69-95.	1.1	4
65	Debye sources and the numerical solution of the time harmonic Maxwell equations. Communications on Pure and Applied Mathematics, 2010, 63, 413-463.	1.2	16
66	A new integral representation for quasi-periodic fields and its application to two-dimensional band structure calculations. Journal of Computational Physics, 2010, 229, 6898-6914.	1.9	48
67	A mesh-free approach to acoustic scattering from multiple spheres nested inside a large sphere by using diagonal translation operators. Journal of the Acoustical Society of America, 2010, 127, 850-861.	0.5	11
68	The Fast Generalized Gauss Transform. SIAM Journal of Scientific Computing, 2010, 32, 3092-3107.	1.3	24
69	Fast direct solvers for integral equations in complex three-dimensional domains. Acta Numerica, 2009, 18, 243-275.	6.3	144
70	A fast and stable method for rotating spherical harmonic expansions. Journal of Computational Physics, 2009, 228, 5621-5627.	1.9	55
71	High Order Accurate Methods for the Evaluation of Layer Heat Potentials. SIAM Journal of Scientific Computing, 2009, 31, 3847-3860.	1.3	24
72	A fast multipole method for the three-dimensional Stokes equations. Journal of Computational Physics, 2008, 227, 1613-1619.	1.9	73

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73	Efficient representation of nonreflecting boundary conditions for the time‐dependent Schrödinger equation in two dimensions. Communications on Pure and Applied Mathematics, 2008, 61, 261-288.	1.2	49
74	A mathematical tool for exploring the dynamics of biological networks. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 19169-19174.	3.3	34
75	On the numerical solution of the heat equation I: Fast solvers in free space. Journal of Computational Physics, 2007, 226, 1891-1901.	1.9	33
76	Plasmon-Assisted Chemical Vapor Deposition. Nano Letters, 2006, 6, 2592-2597.	4.5	153
77	The fast sinc transform and image reconstruction from nonuniform samples in k-space. Communications in Applied Mathematics and Computational Science, 2006, 1, 121-131.	0.7	21
78	Electrostatics and heat conduction in high contrast composite materials. Journal of Computational Physics, 2006, 211, 64-76.	1.9	28
79	A wideband fast multipole method for the Helmholtz equation in three dimensions. Journal of Computational Physics, 2006, 216, 300-325.	1.9	242
80	The type 3 nonuniform FFT and its applications. Journal of Computational Physics, 2005, 206, 1-5.	1.9	149
81	Integral equation methods for Stokes flow in doubly-periodic domains. Journal of Engineering Mathematics, 2004, 48, 157-170.	0.6	26
82	High order marching schemes for the wave equation in complex geometry. Journal of Computational Physics, 2004, 198, 295-309.	1.9	16
83	Accelerating the Nonuniform Fast Fourier Transform. SIAM Review, 2004, 46, 443-454.	4.2	556
84	Fast, accurate integral equation methods for the analysis of photonic crystal fibers I: Theory. Optics Express, 2004, 12, 3791.	1.7	32
85	Sensitivity analysis of photonic crystal fiber. Optics Express, 2004, 12, 4220.	1.7	12
86	Strongly consistent marching schemes for the wave equation. Journal of Computational Physics, 2003, 188, 194-208.	1.9	7
87	Nonreflecting Boundary Conditions for the Time-Dependent Wave Equation. Journal of Computational Physics, 2002, 180, 270-296.	1.9	108
88	A New Version of the Fast Multipole Method for Screened Coulomb Interactions in Three Dimensions. Journal of Computational Physics, 2002, 180, 642-658.	1.9	105
89	Coulomb Interactions on Planar Structures: Inverting the Square Root of the Laplacian. SIAM Journal of Scientific Computing, 2001, 22, 2093-2108.	1.3	14
90	A New Fast-Multipole Accelerated Poisson Solver in Two Dimensions. SIAM Journal of Scientific Computing, 2001, 23, 741-760.	1.3	75

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91	Spectral Approximation of the Free-Space Heat Kernel. Applied and Computational Harmonic Analysis, 2000, 9, 83-97.	1.1	62
92	An Integral Evolution Formula for the Wave Equation. Journal of Computational Physics, 2000, 162, 536-543.	1.9	26
93	Spectral Deferred Correction Methods for Ordinary Differential Equations. BIT Numerical Mathematics, 2000, 40, 241-266.	1.0	321
94	Rapid Evaluation of Nonreflecting Boundary Kernels for Time-Domain Wave Propagation. SIAM Journal on Numerical Analysis, 2000, 37, 1138-1164.	1.1	166
95	A Fast Adaptive Multipole Algorithm in Three Dimensions. Journal of Computational Physics, 1999, 155, 468-498.	1.9	535
96	A Fast Direct Solver for Elliptic Partial Differential Equations on Adaptively Refined Meshes. SIAM Journal of Scientific Computing, 1999, 21, 1551-1566.	1.3	34
97	Accelerating fast multipole methods for the Helmholtz equation at low frequencies. IEEE Computational Science and Engineering, 1998, 5, 32-38.	0.6	197
98	On the numerical evaluation of elastostatic fields in locally isotropic two-dimensional composites. Journal of the Mechanics and Physics of Solids, 1998, 46, 1441-1462.	2.3	82
99	A Method of Images for the Evaluation of Electrostatic Fields in Systems of Closely Spaced Conducting Cylinders. SIAM Journal on Applied Mathematics, 1998, 58, 122-141.	0.8	45
100	An Integral Equation Approach to the Incompressible Navier--Stokes Equations in Two Dimensions. SIAM Journal of Scientific Computing, 1998, 20, 318-336.	1.3	37
101	A new version of the Fast Multipole Method for the Laplace equation in three dimensions. Acta Numerica, 1997, 6, 229-269.	6.3	692
102	A Fast Adaptive Numerical Method for Stiff Two-Point Boundary Value Problems. SIAM Journal of Scientific Computing, 1997, 18, 403-429.	1.3	51
103	A Fast Algorithm for Particle Simulations. Journal of Computational Physics, 1997, 135, 280-292.	1.9	193
104	On the Numerical Evaluation of Electrostatic Fields in Dense Random Dispersions of Cylinders. Journal of Computational Physics, 1997, 136, 629-639.	1.9	38
105	Integral Equation Methods for Stokes Flow and Isotropic Elasticity in the Plane. Journal of Computational Physics, 1996, 125, 403-414.	1.9	109
106	A Direct Adaptive Poisson Solver of Arbitrary Order Accuracy. Journal of Computational Physics, 1996, 125, 415-424.	1.9	69
107	A Fast Poisson Solver for Complex Geometries. Journal of Computational Physics, 1995, 118, 348-355.	1.9	112
108	A numerical study of the η_2 parameter for random suspensions of disks. Journal of Applied Physics, 1995, 77, 2015-2019.	1.1	9

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109	On the numerical evaluation of electrostatic fields in composite materials. Acta Numerica, 1994, 3, 379-410.	6.3	60
110	A renormalization method for the evaluation of lattice sums. Journal of Mathematical Physics, 1994, 35, 6036-6048.	0.5	90
111	Laplace's Equation and the Dirichlet-Neumann Map in Multiply Connected Domains. Journal of Computational Physics, 1993, 105, 267-278.	1.9	131
112	On the numerical solution of the biharmonic equation in the plane. Physica D: Nonlinear Phenomena, 1992, 60, 216-225.	1.3	53
113	On the numerical solution of two-point boundary value problems. Communications on Pure and Applied Mathematics, 1991, 44, 419-452.	1.2	64
114	The Fast Gauss Transform. SIAM Journal on Scientific and Statistical Computing, 1991, 12, 79-94.	1.5	355
115	On the accurate calculation of vortex shedding. Physics of Fluids A, Fluid Dynamics, 1990, 2, 883-885.	1.6	15
116	A fast algorithm for the evaluation of heat potentials. Communications on Pure and Applied Mathematics, 1990, 43, 949-963.	1.2	91
117	A parallel version of the fast multipole method. Computers and Mathematics With Applications, 1990, 20, 63-71.	1.4	98
118	The Numerical Solution of the N-Body Problem. Computers in Physics, 1990, 4, 142-152.	0.6	73
119	The fast multipole method for gridless particle simulation. Computer Physics Communications, 1988, 48, 117-125.	3.0	27
120	A fast algorithm for particle simulations. Journal of Computational Physics, 1987, 73, 325-348.	1.9	3,849