

Gregory Beylkin

List of Publications by Year in descending order

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citations

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61
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85
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85
docs citations

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times ranked

2060
citing authors

#	ARTICLE	IF	CITATIONS
1	On the Fast Fourier Transform of Functions with Singularities. Applied and Computational Harmonic Analysis, 1995, 2, 363-381.	2.2	277
2	Algorithms for Numerical Analysis in High Dimensions. SIAM Journal of Scientific Computing, 2005, 26, 2133-2159.	2.8	267
3	On approximation of functions by exponential sums. Applied and Computational Harmonic Analysis, 2005, 19, 17-48.	2.2	226
4	Multiresolution quantum chemistry: Basic theory and initial applications. Journal of Chemical Physics, 2004, 121, 11587-11598.	3.0	214
5	Numerical operator calculus in higher dimensions. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 10246-10251.	7.1	210
6	A New Class of Time Discretization Schemes for the Solution of Nonlinear PDEs. Journal of Computational Physics, 1998, 147, 362-387.	3.8	209
7	Adaptive Solution of Partial Differential Equations in Multiwavelet Bases. Journal of Computational Physics, 2002, 182, 149-190.	3.8	204
8	Efficient solution of Poisson's equation with free boundary conditions. Journal of Chemical Physics, 2006, 125, 074105.	3.0	176
9	The inversion problem and applications of the generalized radon transform. Communications on Pure and Applied Mathematics, 1984, 37, 579-599.	3.1	164
10	Multiresolution representations using the autocorrelation functions of compactly supported wavelets. IEEE Transactions on Signal Processing, 1993, 41, 3584-3590.	5.3	124
11	On the Adaptive Numerical Solution of Nonlinear Partial Differential Equations in Wavelet Bases. Journal of Computational Physics, 1997, 132, 233-259.	3.8	119
12	Approximation by exponential sums revisited. Applied and Computational Harmonic Analysis, 2010, 28, 131-149.	2.2	112
13	A Multiresolution Strategy for Numerical Homogenization. Applied and Computational Harmonic Analysis, 1995, 2, 327-349.	2.2	109
14	Multiresolution quantum chemistry in multiwavelet bases: Hartree-Fock exchange. Journal of Chemical Physics, 2004, 121, 6680-6688.	3.0	98
15	Multiresolution quantum chemistry in multiwavelet bases: Analytic derivatives for Hartree-Fock and density functional theory. Journal of Chemical Physics, 2004, 121, 2866-2876.	3.0	84
16	MADNESS: A Multiresolution, Adaptive Numerical Environment for Scientific Simulation. SIAM Journal of Scientific Computing, 2016, 38, S123-S142.	2.8	72
17	Multivariate Regression and Machine Learning with Sums of Separable Functions. SIAM Journal of Scientific Computing, 2009, 31, 1840-1857.	2.8	70
18	A Multiresolution Strategy for Reduction of Elliptic PDEs and Eigenvalue Problems. Applied and Computational Harmonic Analysis, 1998, 5, 129-155.	2.2	69

#	ARTICLE	IF	CITATIONS
19	On Generalized Gaussian Quadratures for Exponentials and Their Applications. Applied and Computational Harmonic Analysis, 2002, 12, 332-373.	2.2	61
20	Wave propagation using bases for bandlimited functions. Wave Motion, 2005, 41, 263-291.	2.0	47
21	A fast reconstruction algorithm for electron microscope tomography. Journal of Structural Biology, 2003, 144, 61-72.	2.8	45
22	Fast Spectral Projection Algorithms for Density-Matrix Computations. Journal of Computational Physics, 1999, 152, 32-54.	3.8	44
23	Compactly Supported Wavelets Based on Almost Interpolating and Nearly Linear Phase Filters (Coiflets). Applied and Computational Harmonic Analysis, 1999, 7, 184-210.	2.2	43
24	Rotationally invariant quadratures for the sphere. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2009, 465, 3103-3125.	2.1	41
25	Singular operators in multiwavelet bases. IBM Journal of Research and Development, 2004, 48, 161-171.	3.1	32
26	Multiresolution Quantum Chemistry in Multiwavelet Bases. Lecture Notes in Computer Science, 2003, , 103-110.	1.3	32
27	Toward Multiresolution Estimation and Efficient Representation of Gravitational Fields. Celestial Mechanics and Dynamical Astronomy, 2002, 84, 87-104.	1.4	31
28	Fast adaptive algorithms in the non-standard form for multidimensional problems. Applied and Computational Harmonic Analysis, 2008, 24, 354-377.	2.2	31
29	Approximating a wavefunction as an unconstrained sum of Slater determinants. Journal of Mathematical Physics, 2008, 49, .	1.1	31
30	Full-wave-equation depth extrapolation for migration. Geophysics, 2009, 74, WCA121-WCA128.	2.6	30
31	Fast convolution with the free space Helmholtz Green's function. Journal of Computational Physics, 2009, 228, 2770-2791.	3.8	28
32	Comparisons of the Cubed-Sphere Gravity Model with the Spherical Harmonics. Journal of Guidance, Control, and Dynamics, 2010, 33, 415-425.	2.8	27
33	Multiresolution quantum chemistry in multiwavelet bases: excited states from time-dependent Hartree-Fock and density functional theory via linear response. Physical Chemistry Chemical Physics, 2015, 17, 31405-31416.	2.8	27
34	Nonlinear inversion of a band-limited Fourier transform. Applied and Computational Harmonic Analysis, 2009, 27, 351-366.	2.2	26
35	Randomized Alternating Least Squares for Canonical Tensor Decompositions: Application to A PDE With Random Data. SIAM Journal of Scientific Computing, 2016, 38, A2634-A2664.	2.8	26
36	Multiresolution separated representations of singular and weakly singular operators. Applied and Computational Harmonic Analysis, 2007, 23, 235-253.	2.2	25

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37	Fast algorithms for Helmholtz Green's functions. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2008, 464, 3301-3326.	2.1	24
38	A Multiresolution Approach to Regularization of Singular Operators and Fast Summation. SIAM Journal of Scientific Computing, 2002, 24, 81-117.	2.8	21
39	Randomized interpolative decomposition of separated representations. Journal of Computational Physics, 2015, 281, 116-134.	3.8	19
40	Grids and transforms for band-limited functions in a disk. Inverse Problems, 2007, 23, 2059-2088.	2.0	16
41	Multiresolution representation of operators with boundary conditions on simple domains. Applied and Computational Harmonic Analysis, 2012, 33, 109-139.	2.2	16
42	Fast and Accurate Con-Eigenvalue Algorithm for Optimal Rational Approximations. SIAM Journal on Matrix Analysis and Applications, 2012, 33, 1101-1125.	1.4	15
43	Reconstructing discontinuities in multidimensional inverse scattering problems: smooth errors vs small errors. Applied Optics, 1985, 24, 4086.	2.1	13
44	Implementation of Operators via Filter Banks. Applied and Computational Harmonic Analysis, 1996, 3, 164-185.	2.2	13
45	Solving Burgers's equation using optimal rational approximations. Applied and Computational Harmonic Analysis, 2013, 34, 83-95.	2.2	11
46	On the Design of Highly Accurate and Efficient IIR and FIR Filters. IEEE Transactions on Signal Processing, 2012, 60, 4045-4054.	5.3	10
47	ODE solvers using band-limited approximations. Journal of Computational Physics, 2014, 265, 156-171.	3.8	10
48	The fast Gauss transform with complex parameters. Journal of Computational Physics, 2005, 203, 274-286.	3.8	8
49	Multiresolution Analysis of Elastic Degradation in Heterogeneous Materials. Meccanica, 2001, 36, 131-150.	2.0	7
50	Bandlimited implicit Runge-Kutta integration for Astrodynamics. Celestial Mechanics and Dynamical Astronomy, 2014, 119, 143-168.	1.4	7
51	On computing distributions of products of non-negative independent random variables. Applied and Computational Harmonic Analysis, 2019, 46, 400-416.	2.2	7
52	Multiparameter inversion for acoustic and elastic media. , 1987, , .		6
53	Multiresolution computational chemistry. Journal of Physics: Conference Series, 2005, 16, 243-246.	0.4	6
54	On generalized Gaussian quadratures for bandlimited exponentials. Applied and Computational Harmonic Analysis, 2013, 34, 352-365.	2.2	6

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55	Dirac-Fock calculations on molecules in an adaptive multiwavelet basis. Journal of Chemical Physics, 2019, 151, 234112.	3.0	6
56	On computing distributions of products of random variables via Gaussian multiresolution analysis. Applied and Computational Harmonic Analysis, 2019, 47, 306-337.	2.2	6
57	On Factored FIR Approximation of IIR Filters. Applied and Computational Harmonic Analysis, 1995, 2, 293-298.	2.2	5
58	Multiresolution adaptive space refinement in geophysical fluid dynamics simulation. , 2005, , 161-170.		5
59	Preliminary results on approximating a wavefunction as an unconstrained sum of Slater determinants. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1010301-1010302.	0.2	5
60	Near optimal rational approximations of large data sets. Applied and Computational Harmonic Analysis, 2013, 35, 251-263.	2.2	5
61	Efficient Fourier basis particle simulation. Journal of Computational Physics, 2019, 396, 837-847.	3.8	5
62	On derivatives of smooth functions represented in multiwavelet bases. Journal of Computational Physics: X, 2019, 4, 100033.	0.7	5
63	Efficient representation and accurate evaluation of oscillatory integrals and functions. Discrete and Continuous Dynamical Systems, 2016, 36, 4077-4100.	0.9	5
64	<title>Inversion Of The Generalized Radon Transform</title>. Proceedings of SPIE, 1983, 0413, 32.	0.8	4
65	Multiscale Inversion of Elliptic Operators. Wavelet Analysis and Its Applications, 1998, 7, 341-359.	0.2	4
66	Full-wave equation depth migration using multiple reflections. , 2010, , .		4
67	Rational approximations for tomographic reconstructions. Inverse Problems, 2013, 29, 065020.	2.0	4
68	Optimization via separated representations and the canonical tensor decomposition. Journal of Computational Physics, 2017, 348, 220-230.	3.8	4
69	Efficient Evaluation of Two-Center Gaussian Integrals in Periodic Systems. Journal of Chemical Theory and Computation, 2021, 17, 3916-3922.	5.3	4
70	Acoustic and elastic modeling using bases for bandlimited functions. , 2006, , .		3
71	A fast algorithm for computing the Boys function. Journal of Chemical Physics, 2021, 155, 174117.	3.0	3
72	A multiresolution model for small-body gravity estimation. Celestial Mechanics and Dynamical Astronomy, 2011, 111, 309-335.	1.4	2

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73	Real-space quasi-relativistic quantum chemistry. Computational and Theoretical Chemistry, 2020, 1175, 112711.	2.5	2
74	Adaptive algorithm for electronic structure calculations using reduction of Gaussian mixtures. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2019, 475, 20180901.	2.1	2
75	GRT inversion for elastic parameters using PP, PS, SP, and SS seismic data. , 1990, , .		1
76	Sequential Orbit Determination with the Cubed-Sphere Gravity Model. Journal of Spacecraft and Rockets, 2012, 49, 145-156.	1.9	1
77	Reduction of multivariate mixtures and its applications. Journal of Computational Physics, 2019, 383, 94-124.	3.8	1
78	<title>Adaptive pseudowavelet algorithms for solving nonlinear partial differential equations</title>. , 1996, , .		0
79	<title>Approximations and fast algorithms</title>. , 2001, , .		0
80	A New Representation For Small-Body Gravity Estimation. , 2010, , .		0
81	Layer Stripping Migration Velocity Analysis Using Accurate Survey Sinking. , 2015, , .		0
82	Fast radon transform for multiple attenuation. , 1998, , .		0