Martin Gander

List of Publications by Year
in descending order

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116 papers	4,010 citations	136950 32 h-index	133252 59 g-index
126 all docs	126 docs citations	126 times ranked	1322 citing authors

#	Article	IF	Citations
1	Optimized Schwarz Methods. SIAM Journal on Numerical Analysis, 2006, 44, 699-731.	2.3	304
2	Analysis of the Parareal Timeâ€Parallel Timeâ€Integration Method. SIAM Journal of Scientific Computing, 2007, 29, 556-578.	2.8	283
3	Optimized Schwarz Methods without Overlap for the Helmholtz Equation. SIAM Journal of Scientific Computing, 2002, 24, 38-60.	2.8	275
4	Optimized Schwarz Waveform Relaxation Methods for Advection Reaction Diffusion Problems. SIAM Journal on Numerical Analysis, 2007, 45, 666-697.	2.3	153
5	50 Years of Time Parallel Time Integration. Contributions in Mathematical and Computational Sciences, 2015, , 69-113.	0.3	142
6	Space-Time Continuous Analysis of Waveform Relaxation for the Heat Equation. SIAM Journal of Scientific Computing, 1998, 19, 2014-2031.	2.8	138
7	Optimal Schwarz Waveform Relaxation for the One Dimensional Wave Equation. SIAM Journal on Numerical Analysis, 2003, 41, 1643-1681.	2.3	130
8	Why it is Difficult to Solve Helmholtz Problems with Classical Iterative Methods. Lecture Notes in Computational Science and Engineering, 2012, , 325-363.	0.3	122
9	A homographic best approximation problem with application to optimized Schwarz waveform relaxation. Mathematics of Computation, 2009, 78, 185-185.	2.1	93
10	A Class of Iterative Solvers for the Helmholtz Equation: Factorizations, Sweeping Preconditioners, Source Transfer, Single Layer Potentials, Polarized Traces, and Optimized Schwarz Methods. SIAM Review, 2019, 61, 3-76.	9.5	91
11	An optimized Schwarz method with two-sided Robin transmission conditions for the Helmholtz equation. International Journal for Numerical Methods in Fluids, 2007, 55, 163-175.	1.6	88
12	Optimization of the Hermitian and Skew-Hermitian Splitting Iteration for Saddle-Point Problems. BIT Numerical Mathematics, 2003, 43, 881-900.	2.0	87
13	Analysis of a New Space-Time Parallel Multigrid Algorithm for Parabolic Problems. SIAM Journal of Scientific Computing, 2016, 38, A2173-A2208.	2.8	85
14	Applying GMRES to the Helmholtz equation with shifted Laplacian preconditioning: what is the largest shift for which wavenumber-independent convergence is guaranteed?. Numerische Mathematik, 2015, 131, 567-614.	1.9	79
15	From Euler, Ritz, and Galerkin to Modern Computing. SIAM Review, 2012, 54, 627-666.	9.5	76
16	Nonlinear Convergence Analysis for the Parareal Algorithm. Lecture Notes in Computational Science and Engineering, 2008, , 45-56.	0.3	74
17	Why Restricted Additive Schwarz Converges Faster than Additive Schwarz. BIT Numerical Mathematics, 2003, 43, 945-959.	2.0	71
18	PARAEXP: A Parallel Integrator for Linear Initial-Value Problems. SIAM Journal of Scientific Computing, 2013, 35, C123-C142.	2.8	71

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19	A waveform relaxation algorithm with overlapping splitting for reaction diffusion equations. Numerical Linear Algebra With Applications, 1999, 6, 125-145.	1.6	60
20	Optimized Multiplicative, Additive, and Restricted Additive Schwarz Preconditioning. SIAM Journal of Scientific Computing, 2007, 29, 2402-2425.	2.8	55
21	Scientific Computing - An Introduction using Maple and MATLAB. Texts in Computational Science and Engineering, 2014, , .	0.1	52
22	Effective transmission conditions for domain decomposition methods applied to the time-harmonic curlâ€“curl Maxwell's equations. Journal of Computational Physics, 2015, 280, 232-247.	3.8	50
23	Optimized Schwarz methods with an overset grid for the shallow-water equations: preliminary results. Applied Numerical Mathematics, 2008, 58, 459-471.	2.1	47
24	Absorbing boundary conditions for the wave equation and parallel computing. Mathematics of Computation, 2004, 74, 153-177.	2.1	46
25	Nonlinear Preconditioning: How to Use a Nonlinear Schwarz Method to Precondition Newton's Method. SIAM Journal of Scientific Computing, 2016, 38, A3357-A3380.	2.8	43
26	Overlapping Schwarz Waveform Relaxation for the Heat Equation in N Dimensions. BIT Numerical Mathematics, 2002, 42, 779-795.	2.0	42
27	The Optimized Schwarz Method with a Coarse Grid Correction. SIAM Journal of Scientific Computing, 2012, 34, A421-A458.	2.8	40
28	Analysis of Two Parareal Algorithms for Time-Periodic Problems. SIAM Journal of Scientific Computing, 2013, 35, A2393-A2415.	2.8	39
29	AN INCOMPLETE LU PRECONDITIONER FOR PROBLEMS IN ACOUSTICS. Journal of Computational Acoustics, 2005, 13, 455-476.	1.0	38
30	Optimized Schwarz Methods for the Time-Harmonic Maxwell Equations with Damping. SIAM Journal of Scientific Computing, 2012, 34, A2048-A2071.	2.8	38
31	Overlapping Schwarz Waveform Relaxation for Convection-Dominated Nonlinear Conservation Laws. SIAM Journal of Scientific Computing, 2005, 27, 415-439.	2.8	35
32	Optimization of Transmission Conditions in Waveform Relaxation Techniques for RC Circuits. SIAM Journal on Numerical Analysis, 2014, 52, 1076-1101.	2.3	34
33	Analysis for parareal algorithms applied to Hamiltonian differential equations. Journal of Computational and Applied Mathematics, 2014, 259, 2-13.	2.0	31
34	Optimized Schwarz waveform relaxation for advection reaction diffusion equations in two dimensions. Numerische Mathematik, 2016, 134, 513-567.	1.9	30
35	Optimized Schwarz methods for a diffusion problem with discontinuous coefficient. Numerical Algorithms, 2015, 69, 109-144.	1.9	29
36	How Large a Shift is Needed in the Shifted Helmholtz Preconditioner for its Effective Inversion by Multigrid?. SIAM Journal of Scientific Computing, 2017, 39, A438-A478.	2.8	29

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37	Best Robin Parameters for Optimized Schwarz Methods at Cross Points. SIAM Journal of Scientific Computing, 2012, 34, A1849-A1879.	2.8	28
38	Algorithm 932. ACM Transactions on Mathematical Software, 2013, 40, 1-25.	2.9	28
39	A Direct Time Parallel Solver by Diagonalization for the Wave Equation. SIAM Journal of Scientific Computing, 2019, 41, A220-A245.	2.8	27
40	Chladni Figures and the Tacoma Bridge: Motivating PDE Eigenvalue Problems via Vibrating Plates. SIAM Review, 2012, 54, 573-596.	9.5	25
41	Optimized Schwarz Methods for Circular Domain Decompositions with Overlap. SIAM Journal on Numerical Analysis, 2014, 52, 1981-2004.	2.3	24
42	On the Scalability of Classical One-Level Domain-Decomposition Methods. Vietnam Journal of Mathematics, 2018, 46, 1053-1088.	0.8	24
43	Analysis of the Parallel Schwarz Method for Growing Chains of Fixed-Sized Subdomains: Part I. SIAM Journal on Numerical Analysis, 2017, 55, 1330-1356.	2.3	23
44	MÃ©thodes de relaxation d'ondes (SWR) pour l'Ã©quation de la chaleur en dimension 1. Comptes Rendus Mathematique, 2003, 336, 519-524.	0.3	22
45	AILU FOR HELMHOLTZ PROBLEMS: A NEW PRECONDITIONER BASED ON THE ANALYTIC PARABOLIC FACTORIZATION. Journal of Computational Acoustics, 2001, 09, 1499-1506.	1.0	21
46	A New Parareal Algorithm for Problems with Discontinuous Sources. SIAM Journal of Scientific Computing, 2019, 41, B375-B395.	2.8	21
47	A New Cement to Glue Nonconforming Grids with Robin Interface Conditions: The Finite Element Case. , 2005, , 259-266.		20
48	Optimized Schwarz methods with nonoverlapping circular domain decomposition. Mathematics of Computation, 2016, 86, 637-660.	2.1	20
49	Domain Decomposition Approaches for Mesh Generation via the Equidistribution Principle. SIAM Journal on Numerical Analysis, 2012, 50, 2111-2135.	2.3	19
50	Stable computation of high order Gauss quadrature rules using discretization for measures in radiation transfer. Journal of Quantitative Spectroscopy and Radiative Transfer, 2001, 68, 213-223.	2.3	18
51	Optimized Schwarz Methods with Overlap for the Helmholtz Equation. SIAM Journal of Scientific Computing, 2016, 38, A3195-A3219.	2.8	18
52	Multigrid interpretations of the parareal algorithm leading to an overlapping variant and MGRIT. Computing and Visualization in Science, 2018, 19, 59-74.	1.2	18
53	A Superlinear Convergence Estimate for the Parareal Schwarz Waveform Relaxation Algorithm. SIAM Journal of Scientific Computing, 2019, 41, A1148-A1169.	2.8	18
54	Stochastic gene expression in switching environments. Journal of Mathematical Biology, 2007, 55, 249-269.	1.9	17

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55	Convergence analysis of a periodic-like waveform relaxation method for initial-value problems via the diagonalization technique. Numerische Mathematik, 2019, 143, 489-527.	1.9	17
56	Parareal Schwarz Waveform Relaxation Methods. Lecture Notes in Computational Science and Engineering, 2013, , 451-458.	0.3	17
57	A mathematical analysis of optimized waveform relaxation for a small RC circuit. Applied Numerical Mathematics, 2014, 75, 61-76.	2.1	16
58	Analysis of Schwarz Methods for a Hybridizable Discontinuous Galerkin Discretization. SIAM Journal on Numerical Analysis, 2015, 53, 573-597.	2.3	15
59	Optimized Schwarz Methods for Model Problems with Continuously Variable Coefficients. SIAM Journal of Scientific Computing, 2016, 38, A2964-A2986.	2.8	15
60	Waveform Relaxation Technique for Longitudinal Partitioning of Transmission Lines. , 2006, , .		14
61	Optimized waveform relaxation solution of electromagnetic and circuit problems. , 2010, , .		14
62	Heterogeneous Optimized Schwarz Methods for Second Order Elliptic PDEs. SIAM Journal of Scientific Computing, 2019, 41, A2329-A2354.	2.8	14
63	PARAOPT: A Parareal Algorithm for Optimality Systems. SIAM Journal of Scientific Computing, 2020, 42, A2773-A2802.	2.8	14
64	Optimized Domain Decomposition Methods for the Spherical Laplacian. SIAM Journal on Numerical Analysis, 2010, 48, 524-551.	2.3	13
65	On the influence of geometry on optimized Schwarz methods. BoletÃn De La Sociedad EspaÃ‘ola De MatemÃ‡tica Aplicada, 2011, 53, 71-78.	0.9	13
66	Analysis of a new dimension-wise splitting iteration with selective relaxation for saddle point problems. BIT Numerical Mathematics, 2016, 56, 441-465.	2.0	13
67	Analysis of the Parallel Schwarz Method for Growing Chains of Fixed-sized Subdomains: Part II. SIAM Journal on Numerical Analysis, 2018, 56, 1498-1524.	2.3	13
68	Time Parallelization for Nonlinear Problems Based on Diagonalization. Lecture Notes in Computational Science and Engineering, 2017, , 163-170.	0.3	13
69	Circular Billiard. SIAM Review, 1998, 40, 315-323.	9.5	12
70	Optimized waveform relaxation solution of RLCG transmission line type circuits. , 2013, , .		12
71	Dirichlet-Neumann and Neumann-Neumann Waveform Relaxation for the Wave Equation. Lecture Notes in Computational Science and Engineering, 2016, , 501-509.	0.3	12
72	An Optimal Block Iterative Method and Preconditioner for Banded Matrices with Applications to PDEs on Irregular Domains. SIAM Journal on Matrix Analysis and Applications, 2012, 33, 653-680.	1.4	11

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73	Advection Diffusion Problems with Pure Advection Approximation in Subregions. , 2007, , 239-246.		11
74	An Introduction to Numerical Integrators Preserving Physical Properties. , 2000, , 181-246.		10
75	A Diagonalization-Based Parareal Algorithm for Dissipative and Wave Propagation Problems. SIAM Journal on Numerical Analysis, 2020, 58, 2981-3009.	2.3	10
76	Dirichletâ€“Neumann waveform relaxation methods for parabolic and hyperbolic problems in multiple subdomains. BIT Numerical Mathematics, 2021, 61, 173-207.	2.0	10
77	A Direct Solver for Time Parallelization. Lecture Notes in Computational Science and Engineering, 2016, , 491-499.	0.3	10
78	Viscous Problems with Inviscid Approximations in Subregions: a New Approach Based on Operator Factorization. ESAIM: Proceedings and Surveys, 2009, 27, 272-288.	0.4	9
79	Optimization of Schwarz waveform relaxation over short time windows. Numerical Algorithms, 2013, 64, 221-243.	1.9	9
80	A cross correlation method for chemical profiles in minerals, with an application to zircons of the Kilgore Tuff (USA). Contributions To Mineralogy and Petrology, 2018, 173, 1.	3.1	9
81	Modeling and Analysis of the Coupling in Discrete Fracture Matrix Models. SIAM Journal on Numerical Analysis, 2021, 59, 195-218.	2.3	9
82	On the positivity of Poisson integrators for the Lotkaâ€“Volterra equations. BIT Numerical Mathematics, 2015, 55, 319-340.	2.0	8
83	Optimized Schwarz methods with general Ventcell transmission conditions for fully anisotropic diffusion with discrete duality finite volume discretizations. Moroccan Journal of Pure and Applied Analysis, 2021, 7, 182-213.	0.4	8
84	Schwarz methods by domain truncation. Acta Numerica, 2022, 31, 1-134.	10.7	7
85	A new algorithm based on factorization for heterogeneous domain decomposition. Numerical Algorithms, 2016, 73, 167-195.	1.9	6
86	Optimized Schwarz Methods with Elliptical Domain Decompositions. Journal of Scientific Computing, 2021, 86, 1.	2.3	5
87	On the Minimal Shift in the Shifted Laplacian Preconditioner for Multigrid to Work. Lecture Notes in Computational Science and Engineering, 2016, , 137-145.	0.3	5
88	On Optimal Coarse Spaces for Domain Decomposition and Their Approximation. Lecture Notes in Computational Science and Engineering, 2018, , 271-280.	0.3	5
89	Optimized Restricted Additive Schwarz Methods. , 2007, , 213-220.		5
90	Multilevel Optimized Schwarz Methods. SIAM Journal of Scientific Computing, 2020, 42, A3180-A3209.	2.8	5

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91	Analysis of the parallel Schwarz method for growing chains of fixed-sized subdomains: Part III. Electronic Transactions on Numerical Analysis, 0, 49, 210-243.	0.0	5
92	Asymptotic properties of theQR factorization of banded Hessenberg-Toeplitz matrices. Numerical Linear Algebra With Applications, 2005, 12, 659-682.	1.6	4
93	Natural Domain Decomposition Algorithms for the Solution of Time-Harmonic Elastic Waves. SIAM Journal of Scientific Computing, 2020, 42, A3313-A3339.	2.8	4
94	Discrete Optimization of Robin Transmission Conditions for Anisotropic Diffusion with Discrete Duality Finite Volume Methods. Vietnam Journal of Mathematics, 2021, 49, 1349-1378.	0.8	4
95	Closed Form Dispersion Corrections Including a Real Shifted WaveNumber for Finite Difference Discretizations of 2D Constant Coefficient Helmholtz Problems. SIAM Journal of Scientific Computing, 2021, 43, A278-A308.	2.8	4
96	Does the Partition of Unity Influence the Convergence of Schwarz Methods?. Lecture Notes in Computational Science and Engineering, 2020, , 3-15.	0.3	4
97	Optimized Schwarz Methods for Domain Decompositions with Parabolic Interfaces. Lecture Notes in Computational Science and Engineering, 2017, , 323-331.	0.3	4
98	A non-decomposable approximation on the complete density function space for the non-additive kinetic potential. Journal of Chemical Physics, 2022, 156, 044103.	3.0	4
99	Iterative Methods and Preconditioners for Systems of Linear Equations. , 2022, , .		4
100	Asymptotic Analysis for Overlap in Waveform Relaxation Methods for RC Type Circuits. Journal of Scientific Computing, 2020, 84, 1.	2.3	3
101	A Continuous Analysis of Neumann–Neumann Methods: Scalability and New Coarse Spaces. SIAM Journal of Scientific Computing, 2020, 42, A3785-A3811.	2.8	3
102	Exact BDF stability angles with maple. BIT Numerical Mathematics, 2020, 60, 615-617.	2.0	3
103	Optimized Schwarz Algorithms in the Framework of DDFV Schemes. Lecture Notes in Computational Science and Engineering, 2014, , 457-466.	0.3	3
104	Analysis of Overlap in Waveform Relaxation Methods for RC Circuits. Lecture Notes in Computational Science and Engineering, 2018, , 281-289.	0.3	3
105	Restrictions on the Use of Sweeping Type Preconditioners for Helmholtz Problems. Lecture Notes in Computational Science and Engineering, 2018, , 321-332.	0.3	2
106	Toward error estimates for general space-time discretizations of the advection equation. Computing and Visualization in Science, 2020, 23, 1.	1.2	2
107	ParaStieltjes : Parallel computation of Gauss quadrature rules using a Parareal â€like approach for the Stieltjes procedure. Numerical Linear Algebra With Applications, 2021, 28, e2314.	1.6	2
108	Is There More Than One Dirichlet–Neumann Algorithm for the Biharmonic Problem?. SIAM Journal of Scientific Computing, 2021, 43, A1881-A1906.	2.8	2

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109	Optimized Schwarz Method with Two-Sided Transmission Conditions in an Unsymmetric Domain Decomposition. Lecture Notes in Computational Science and Engineering, 2016, , 631-639.	0.3	2
110	Linear and nonlinear substructured Restricted Additive Schwarz iterations and preconditioning. Numerical Algorithms, 2022, 91, 81-107.	1.9	2
111	Multiscale analysis of heterogeneous domain decomposition methods for time-dependent advectionâ€“reactionâ€“diffusion problems. Journal of Computational and Applied Mathematics, 2018, 344, 904-924.	2.0	1
112	Asymptotic Analysis for Different Partitionings of RLC Transmission Lines. Lecture Notes in Computational Science and Engineering, 2020, , 251-259.	0.3	1
113	Multitrace Formulations and Dirichlet-Neumann Algorithms. Lecture Notes in Computational Science and Engineering, 2016, , 147-155.	0.3	1
114	Optimized Schwarz Methods for Advection Diffusion Equations in Bounded Domains. Lecture Notes in Computational Science and Engineering, 2019, , 921-929.	0.3	1
115	How to Best Choose the Outer Coarse Mesh in the Domain Decomposition Method of Bank and Jimack. Vietnam Journal of Mathematics, 2022, 50, 867-899.	0.8	1
116	Partition of Unity Methods for Heterogeneous Domain Decomposition. Lecture Notes in Computational Science and Engineering, 2018, , 177-186.	0.3	0