

Christian Lubich

List of Publications by Year in descending order

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65
papers

5,882
citations

117571

34
h-index

123376

61
g-index

65
all docs

65
docs citations

65
times ranked

2680
citing authors

#	ARTICLE	IF	CITATIONS
1	An unconventional robust integrator for dynamical low-rank approximation. BIT Numerical Mathematics, 2022, 62, 23-44.	1.0	29
2	A rank-adaptive robust integrator for dynamical low-rank approximation. BIT Numerical Mathematics, 2022, 62, 1149-1174.	1.0	17
3	Time Integration of Tree Tensor Networks. SIAM Journal on Numerical Analysis, 2021, 59, 289-313.	1.1	16
4	Finding the Nearest Passive or Nonpassive System via Hamiltonian Eigenvalue Optimization. SIAM Journal on Matrix Analysis and Applications, 2021, 42, 1553-1580.	0.7	3
5	Time integration of symmetric and anti-symmetric low-rank matrices and Tucker tensors. BIT Numerical Mathematics, 2020, 60, 591-614.	1.0	7
6	Computing quantum dynamics in the semiclassical regime. Acta Numerica, 2020, 29, 229-401.	6.3	42
7	A Quasi-Conservative Dynamical Low-Rank Algorithm for the Vlasov Equation. SIAM Journal of Scientific Computing, 2019, 41, B1061-B1081.	1.3	23
8	A Low-Rank Projector-Splitting Integrator for the Vlasov-Poisson Equation. SIAM Journal of Scientific Computing, 2018, 40, B1330-B1360.	1.3	45
9	Energy behaviour of the Boris method for charged-particle dynamics. BIT Numerical Mathematics, 2018, 58, 969-979.	1.0	29
10	Numerical analysis of parabolic problems with dynamic boundary conditions. IMA Journal of Numerical Analysis, 2017, 37, 1-39.	1.5	26
11	Stable and convergent fully discrete interior-exterior coupling of Maxwell's equations. Numerische Mathematik, 2017, 137, 91-117.	0.9	13
12	On the Nearest Singular Matrix Pencil. SIAM Journal on Matrix Analysis and Applications, 2017, 38, 776-806.	0.7	16
13	Matrix Stabilization Using Differential Equations. SIAM Journal on Numerical Analysis, 2017, 55, 3097-3119.	1.1	11
14	Geometric Numerical Integration. Oberwolfach Reports, 2016, 13, 869-948.	0.0	1
15	Unifying time evolution and optimization with matrix product states. Physical Review B, 2016, 94, .	1.1	387
16	Discretized Dynamical Low-Rank Approximation in the Presence of Small Singular Values. SIAM Journal on Numerical Analysis, 2016, 54, 1020-1038.	1.1	54
17	Long-term analysis of the Störmer-Verlet method for Hamiltonian systems with a solution-dependent high frequency. Numerische Mathematik, 2016, 134, 119-138.	0.9	22
18	Time Integration in the Multiconfiguration Time-Dependent Hartree Method of Molecular Quantum Dynamics. Applied Mathematics Research EXpress, 2015, 2015, 311-328.	1.0	48

#	ARTICLE	IF	CITATIONS
19	Stable numerical coupling of exterior and interior problems for the wave equation. <i>Numerische Mathematik</i> , 2015, 129, 611-646.	0.9	57
20	Long-term analysis of numerical integrators for oscillatory Hamiltonian systems under minimal non-resonance conditions. <i>BIT Numerical Mathematics</i> , 2015, 55, 705-732.	1.0	13
21	Time Integration of Tensor Trains. <i>SIAM Journal on Numerical Analysis</i> , 2015, 53, 917-941.	1.1	117
22	Low rank differential equations for Hamiltonian matrix nearness problems. <i>Numerische Mathematik</i> , 2015, 129, 279-319.	0.9	22
23	Computing Extremal Points of Symplectic Pseudospectra and Solving Symplectic Matrix Nearness Problems. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2014, 35, 1407-1428.	0.7	6
24	PLANE WAVE STABILITY OF THE SPLIT-STEP FOURIER METHOD FOR THE NONLINEAR SCHRÖDINGER EQUATION. <i>Forum of Mathematics, Sigma</i> , 2014, 2, .	0.3	15
25	A projector-splitting integrator for dynamical low-rank approximation. <i>BIT Numerical Mathematics</i> , 2014, 54, 171-188.	1.0	94
26	Low-Rank Dynamics. <i>Lecture Notes in Computational Science and Engineering</i> , 2014, , 381-396.	0.1	0
27	Low-Rank Dynamics for Computing Extremal Points of Real Pseudospectra. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2013, 34, 40-66.	0.7	43
28	Sobolev Stability of Plane Wave Solutions to the Cubic Nonlinear Schrödinger Equation on a Torus. <i>Communications in Partial Differential Equations</i> , 2013, 38, 1123-1140.	1.0	28
29	Dynamical Approximation by Hierarchical Tucker and Tensor-Train Tensors. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2013, 34, 470-494.	0.7	110
30	Metastable Energy Strata in Weakly Nonlinear Wave Equations. <i>Communications in Partial Differential Equations</i> , 2012, 37, 1391-1413.	1.0	8
31	On the Energy Distribution in Fermiâ€Pastaâ€Ulam Lattices. <i>Archive for Rational Mechanics and Analysis</i> , 2012, 205, 993-1029.	1.1	12
32	An error analysis of the multi-configuration time-dependent Hartree method of quantum dynamics. <i>ESAIM: Mathematical Modelling and Numerical Analysis</i> , 2010, 44, 759-780.	0.8	36
33	Nonlinear Schrödinger Equations and Their Spectral Semi-Discretizations Over Long Times. <i>Foundations of Computational Mathematics</i> , 2010, 10, 141-169.	1.5	35
34	Dynamical Tensor Approximation. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2010, 31, 2360-2375.	0.7	87
35	Computing Semiclassical Quantum Dynamics with Hagedorn Wavepackets. <i>SIAM Journal of Scientific Computing</i> , 2009, 31, 3027-3041.	1.3	72
36	Dynamical low-rank approximation: applications and numerical experiments. <i>Mathematics and Computers in Simulation</i> , 2008, 79, 1346-1357.	2.4	34

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37	Long-Time Analysis of Nonlinearly Perturbed Wave Equations Via Modulated Fourier Expansions. <i>Archive for Rational Mechanics and Analysis</i> , 2008, 187, 341-368.	1.1	46
38	Conservation of energy, momentum and actions in numerical discretizations of non-linear wave equations. <i>Numerische Mathematik</i> , 2008, 110, 113-143.	0.9	98
39	Adaptive, Fast, and Oblivious Convolution in Evolution Equations with Memory. <i>SIAM Journal of Scientific Computing</i> , 2008, 30, 1015-1037.	1.3	65
40	Free and constrained symplectic integrators for numerical general relativity. <i>Classical and Quantum Gravity</i> , 2008, 25, 225018.	1.5	7
41	Dynamical Low-Rank Approximation. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2007, 29, 434-454.	0.7	174
42	Fast and Oblivious Convolution Quadrature. <i>SIAM Journal of Scientific Computing</i> , 2006, 28, 421-438.	1.3	124
43	Convolution quadrature time discretization of fractional diffusion-wave equations. <i>Mathematics of Computation</i> , 2006, 75, 673-697.	1.1	213
44	Geometric Numerical Integration. <i>Oberwolfach Reports</i> , 2006, 3, 805-882.	0.0	75
45	A Poisson Integrator for Gaussian Wavepacket Dynamics. <i>Computing and Visualization in Science</i> , 2006, 9, 45-55.	1.2	27
46	Numerical Integrators for Highly Oscillatory Hamiltonian Systems: A Review. , 2006, , 553-576.		40
47	Fast Runge-Kutta approximation of inhomogeneous parabolic equations. <i>Numerische Mathematik</i> , 2005, 102, 277-291.	0.9	24
48	On variational approximations in quantum molecular dynamics. <i>Mathematics of Computation</i> , 2004, 74, 765-780.	1.1	37
49	Convolution Quadrature Revisited. <i>BIT Numerical Mathematics</i> , 2004, 44, 503-514.	1.0	125
50	Symmetric multistep methods over long times. <i>Numerische Mathematik</i> , 2004, 97, 699-723.	0.9	47
51	A variational splitting integrator for quantum molecular dynamics. <i>Applied Numerical Mathematics</i> , 2004, 48, 355-368.	1.2	24
52	On Magnus Integrators for Time-Dependent Schrödinger Equations. <i>SIAM Journal on Numerical Analysis</i> , 2003, 41, 945-963.	1.1	79
53	Geometric numerical integration illustrated by the Störmer-Verlet method. <i>Acta Numerica</i> , 2003, 12, 399-450.	6.3	436
54	Geometric numerical integration illustrated by the Störmer-Verlet method. , 2003, , 399-450.		10

#	ARTICLE	IF	CITATIONS
55	Geometric Numerical Integration. Springer Series in Computational Mathematics, 2002, , .	0.1	801
56	Fast Convolution for Nonreflecting Boundary Conditions. SIAM Journal of Scientific Computing, 2002, 24, 161-182.	1.3	167
57	On Dynamics and Bifurcations of Nonlinear Evolution Equations Under Numerical Discretization. , 2001, , 469-500.		5
58	Error Bounds for Exponential Operator Splittings. BIT Numerical Mathematics, 2000, 40, 735-744.	1.0	172
59	Long-Time Energy Conservation of Numerical Methods for Oscillatory Differential Equations. SIAM Journal on Numerical Analysis, 2000, 38, 414-441.	1.1	195
60	Invariant tori of dissipatively perturbed Hamiltonian systems under symplectic discretization. Applied Numerical Mathematics, 1999, 29, 57-71.	1.2	20
61	Exponential Integrators for Quantum-Classical Molecular Dynamics. BIT Numerical Mathematics, 1999, 39, 620-645.	1.0	67
62	A Gautschi-type method for oscillatory second-order differential equations. Numerische Mathematik, 1999, 83, 403-426.	0.9	204
63	A Bunch of Time Integrators for Quantum/Classical Molecular Dynamics. Lecture Notes in Computational Science and Engineering, 1999, , 421-432.	0.1	11
64	Exponential Integrators for Large Systems of Differential Equations. SIAM Journal of Scientific Computing, 1998, 19, 1552-1574.	1.3	398
65	On Krylov Subspace Approximations to the Matrix Exponential Operator. SIAM Journal on Numerical Analysis, 1997, 34, 1911-1925.	1.1	613