Andrew M Childs

List of Publications by Year
in descending order

73 papers	7,029 citations	136950 32 h-index	138484 58 g-index
73 all docs	73 docs citations	73 times ranked	3157 citing authors

#	Article	IF	Citations
1	Nearly optimal time-independent reversal of a spin chain. Physical Review Research, 2022, 4, .	3.6	4
2	Efficient product formulas for commutators and applications to quantum simulation. Physical Review Research, 2022, 4, .	3.6	7
3	Theory of Trotter Error with Commutator Scaling. Physical Review X, 2021, 11, .	8.9	185
4	Efficient quantum algorithm for dissipative nonlinear differential equations. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	74
5	Signaling and scrambling with strongly long-range interactions. Physical Review A, 2020, 102, .	2.5	27
6	Destructive Error Interference in Product-Formula Lattice Simulation. Physical Review Letters, 2020, 124, 220502.	7.8	20
7	Quantum Spectral Methods for Differential Equations. Communications in Mathematical Physics, 2020, 375, 1427-1457.	2.2	57
8	Symmetries, Graph Properties, and Quantum Speedups. , 2020, , .		7
9	Nearly Optimal Lattice Simulation by Product Formulas. Physical Review Letters, 2019, 123, 050503.	7.8	71
10	Locality and Digital Quantum Simulation of Power-Law Interactions. Physical Review X, 2019, 9, .	8.9	62
11	Toward the first quantum simulation with quantum speedup. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9456-9461.	7.1	271
12	Quantum algorithm for multivariate polynomial interpolation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20170480.	2.1	7
13	Automated optimization of large quantum circuits with continuous parameters. Npj Quantum Information, 2018, 4, .	6.7	120
14	EXPONENTIAL IMPROVEMENT IN PRECISION FOR SIMULATING SPARSE HAMILTONIANS. Forum of Mathematics, Sigma, 2017, 5, .	0.7	14
15	Quantum advantage deferred. Nature Physics, 2017, 13, 1148-1148.	16.7	0
16	Quantum Algorithm for Linear Differential Equations with Exponentially Improved Dependence on Precision. Communications in Mathematical Physics, 2017, 356, 1057-1081.	2.2	101
17	Quantum Algorithm for Systems of Linear Equations with Exponentially Improved Dependence on Precision. SIAM Journal on Computing, 2017, 46, 1920-1950.	1.0	277
18	Optimal state discrimination and unstructured search in nonlinear quantum mechanics. Physical Review A, 2016, 93, .	2.5	16

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19	Simulating Hamiltonian Dynamics with a Truncated Taylor Series. Physical Review Letters, 2015, 114, 090502.	7.8	375
20	Hamiltonian Simulation with Nearly Optimal Dependence on all Parameters. , 2015, , .		155
21	Exponential improvement in precision for simulating sparse Hamiltonians. , 2014, , .		121
22	The Bose-Hubbard Model is QMA-complete. Lecture Notes in Computer Science, 2014, , 308-319.	1.3	16
23	Spatial search by continuous-time quantum walks on crystal lattices. Physical Review A, 2014, 89, .	2.5	34
24	Quantum computation of discrete logarithms in semigroups. Journal of Mathematical Cryptology, 2014, 8, 405-416.	0.7	18
25	Constructing elliptic curve isogenies in quantum subexponential time. Journal of Mathematical Cryptology, 2014, 8, 1-29.	0.7	150
26	A Framework for Bounding Nonlocality of State Discrimination. Communications in Mathematical Physics, 2013, 323, 1121-1153.	2.2	70
27	Universal Computation by Multiparticle Quantum Walk. Science, 2013, 339, 791-794.	12.6	326
28	Product formulas for exponentials of commutators. Journal of Mathematical Physics, 2013, 54, .	1.1	7
29	Interpolatability distinguishes LOCC from separable von Neumann measurements. Journal of Mathematical Physics, 2013, 54, .	1.1	2
30	Time-Efficient Quantum Walks for 3-Distinctness. Lecture Notes in Computer Science, 2013, , 105-122.	1.3	21
31	Levinson's theorem for graphs II. Journal of Mathematical Physics, 2012, 53, .	1.1	12
32	Quantum Query Complexity of Minor-Closed Graph Properties. SIAM Journal on Computing, 2012, 41, 1426-1450.	1.0	12
33	The Quantum Query Complexity of Read-Many Formulas. Lecture Notes in Computer Science, 2012, , 337-348.	1.3	10
34	Black-box Hamiltonian simulation and unitary implementation. Quantum Information and Computation, 2012, 12, 29-62.	0.3	71
35	Hamiltonian simulation using linear combinations of unitary operations. Quantum Information and Computation, 2012, 12, 901-924.	0.3	159
36	Levinson's theorem for graphs. Journal of Mathematical Physics, 2011, 52, .	1.1	6

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37	Simulating Sparse Hamiltonians with Star Decompositions. Lecture Notes in Computer Science, 2011, , 94-103.	1.3	34
38	On the Relationship Between Continuous- and Discrete-Time Quantum Walk. Communications in Mathematical Physics, 2010, 294, 581-603.	2.2	245
39	Any AND-OR Formula of Size <i>N</i> Can Be Evaluated in Time $N^{1/2+o(1)}$ on a Quantum Computer. SIAM Journal on Computing, 2010, 39, 2513-2530.	1.0	96
40	Quantum algorithms for algebraic problems. Reviews of Modern Physics, 2010, 82, 1-52.	45.6	188
41	Equation solving by simulation. Nature Physics, 2009, 5, 861-861.	16.7	25
42	Universal Computation by Quantum Walk. Physical Review Letters, 2009, 102, 180501.	7.8	721
43	Title is missing!. Theory of Computing, 2009, 5, 119-123.	0.5	35
44	Optimal Quantum Adversary Lower Bounds for Ordered Search. Lecture Notes in Computer Science, 2008, , 869-880.	1.3	6
45	Quantum algorithms for the ordered search problem via semidefinite programming. Physical Review A, 2007, 75, .	2.5	24
46	Quantum Algorithms for Hidden Nonlinear Structures. , 2007, , .		23
47	Any AND-OR Formula of Size N can be Evaluated in time N^{1/2 + o(1)} on a Quantum Computer. , 2007, , .		60
48	The limitations of nice mutually unbiased bases. Journal of Algebraic Combinatorics, 2007, 25, 111-123.	0.8	31
49	Weak Fourier-Schur Sampling, the Hidden Subgroup Problem, and the Quantum Collision Problem. , 2007, , 598-609.		10
50	Any AND-OR Formula of Size N can be Evaluated in time N^{1/2 + o(1)} on a Quantum Computer. , 2007, , .		2
51	Quantum Algorithms for Hidden Nonlinear Structures. , 2007, , .		1
52	TWO-WAY QUANTUM COMMUNICATION CHANNELS. International Journal of Quantum Information, 2006, 04, 63-83.	1.1	15
53	Unified derivations of measurement-based schemes for quantum computation. Physical Review A, 2005, 71, .	2.5	93
54	Spatial search by quantum walk. Physical Review A, 2004, 70, .	2.5	510

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55	Spatial search and the Dirac equation. Physical Review A, 2004, 70, .	2.5	115
56	Reversible Simulation of Bipartite Product Hamiltonians. IEEE Transactions on Information Theory, 2004, 50, 1189-1197.	2.4	15
57	Exponential algorithmic speedup by a quantum walk. , 2003, , .		374
58	Lower bounds on the complexity of simulating quantum gates. Physical Review A, 2003, 68, .	2.5	32
59	Quantum search by measurement. Physical Review A, 2002, 66, .	2.5	55
60	Universal simulation of Hamiltonian dynamics for quantum systems with finite-dimensional state spaces. Physical Review A, 2002, 66, .	2.5	74
61	An Example of the Difference Between Quantum and Classical Random Walks. Quantum Information Processing, 2002, 1, 35-43.	2.2	334
62	Realization of quantum process tomography in NMR. Physical Review A, 2001, 64, .	2.5	162
63	Exact sampling from nonattractive distributions using summary states. Physical Review E, 2001, 63, 036113.	2.1	11
64	Robustness of adiabatic quantum computation. Physical Review A, 2001, 65, .	2.5	359
65	Universal simulation of Markovian quantum dynamics. Physical Review A, 2001, 64, .	2.5	83
66	Quantum information and precision measurement. Journal of Modern Optics, 2000, 47, 155-176.	1.3	130
67	Universal quantum computation with two-level trapped ions. Physical Review A, 2000, 63, .	2.5	65
68	Quantum information and precision measurement. Journal of Modern Optics, 2000, 47, 155-176.	1.3	8
69	Quantum routing with fast reversals. Quantum - the Open Journal for Quantum Science, 0, 5, 533.	0.0	6
70	Faster quantum simulation by randomization. Quantum - the Open Journal for Quantum Science, 0, 3, 182.	0.0	79
71	Quantum algorithms and lower bounds for convex optimization. Quantum - the Open Journal for Quantum Science, 0, 4, 221.	0.0	19
72	Time-dependent Hamiltonian simulation with L^1 scaling. Quantum - the Open Journal for Quantum Science, 0, 4, 254.	0.0	50

#	ARTICLE	IF	CITATIONS
73	High-precision quantum algorithms for partial differential equations. Quantum - the Open Journal for Quantum Science, 0, 5, 574.	0.0	54