Simon C Benjamin

List of Publications by Year
in descending order

104 papers	8,389 citations	66234 42 h-index	49773 87 g-index
104 all docs	104 docs citations	104 times ranked	4856 citing authors

#	Article	IF	Citations
1	Quantum analytic descent. Physical Review Research, 2022, 4, .	1.3	15
2	Hybrid Quantum-Classical Algorithms and Quantum Error Mitigation. Journal of the Physical Society of Japan, 2021, 90, 032001.	0.7	263
3	Variational Circuit Compiler for Quantum Error Correction. Physical Review Applied, 2021, 15, .	1.5	16
4	Mitigating Realistic Noise in Practical Noisy Intermediate-Scale Quantum Devices. Physical Review Applied, 2021, 15, .	1.5	53
5	Variational quantum algorithms. Nature Reviews Physics, 2021, 3, 625-644.	11.9	930
6	Variational algorithms for linear algebra. Science Bulletin, 2021, 66, 2181-2188.	4.3	72
7	The prospects of quantum computing in computational molecular biology. Wiley Interdisciplinary Reviews: Computational Molecular Science, 2021, 11, e1481.	6.2	108
8	Learning-Based Quantum Error Mitigation. PRX Quantum, 2021, 2, .	3.5	82
9	Demonstration of Adiabatic Variational Quantum Computing with a Superconducting Quantum Coprocessor. Physical Review Letters, 2020, 125, 180501.	2.9	33
10	Variational-state quantum metrology. New Journal of Physics, 2020, 22, 083038.	1.2	59
11	Quantum computational chemistry. Reviews of Modern Physics, 2020, 92, .	16.4	726
12	Variational Quantum Simulation of General Processes. Physical Review Letters, 2020, 125, 010501.	2.9	137
13	Mitigating coherent noise using Pauli conjugation. Npj Quantum Information, 2020, 6, .	2.8	23
14	QuESTlinkâ€”Mathematica embiggened by a hardware-optimised quantum emulator[*]. Quantum Science and Technology, 2020, 5, 034012.	2.6	27
15	Constructing Smaller Pauli Twirling Sets for Arbitrary Error Channels. Scientific Reports, 2019, 9, 11281.	1.6	16
16	QuEST and High Performance Simulation of Quantum Computers. Scientific Reports, 2019, 9, 10736.	1.6	136
17	Variational ansatz-based quantum simulation of imaginary time evolution. Npj Quantum Information, 2019, 5, .	2.8	285
18	Measurement-driven analog of adiabatic quantum computation for frustration-free Hamiltonians. Physical Review A, 2019, 100, .	1.0	0

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19	Variational quantum algorithms for discovering Hamiltonian spectra. Physical Review A, 2019, 99, .	1.0	164
20	Fault-tolerant protection of near-term trapped-ion topological qubits under realistic noise sources. Physical Review A, 2019, 100, .	1.0	20
21	High-Threshold Code for Modular Hardware With Asymmetric Noise. Physical Review Applied, 2019, 12, .	1.5	11
22	Network architecture for a topological quantum computer in silicon. Quantum Science and Technology, 2019, 4, 025003.	2.6	21
23	An integrity measure to benchmark quantum error correcting memories. New Journal of Physics, 2018, 20, 023009.	1.2	5
24	Practical Quantum Error Mitigation for Near-Future Applications. Physical Review X, 2018, 8, .	2.8	317
25	One-dimensional quantum computing with a â€˜segmented chainâ€™ is feasible with todayâ€™s gate fidelities. Npj Quantum Information, 2018, 4, .	2.8	10
26	Entanglement distillation between solid-state quantum network nodes. Science, 2017, 356, 928-932.	6.0	277
27	Efficient Variational Quantum Simulator Incorporating Active Error Minimization. Physical Review X, 2017, 7, .	2.8	409
28	Minimally complex ion traps as modules for quantum communication and computing. New Journal of Physics, 2016, 18, 103028.	1.2	39
29	A silicon-based surface code quantum computer. Npj Quantum Information, 2016, 2, .	2.8	53
30	Hierarchical surface code for network quantum computing with modules of arbitrary size. Physical Review A, 2016, 94, .	1.0	13
31	Stabilizers as a design tool for new forms of the Lechner-Hauke-Zoller annealer. Science Advances, 2016, 2, e1601246.	4.7	31
32	A Direct Mapping of Max k-SAT and High Order Parity Checks to a Chimera Graph. Scientific Reports, 2016, 6, 37107.	1.6	27
33	Resource Costs for Fault-Tolerant Linear Optical Quantum Computing. Physical Review X, 2015, 5, .	2.8	57
34	Quantum dynamics in a tiered non-Markovian environment. New Journal of Physics, 2015, 17, 023063.	1.2	11
35	Freely Scalable Quantum Technologies Using Cells of 5-to-50 Qubits with Very Lossy and Noisy Photonic Links. Physical Review X, 2014, 4, .	2.8	126
36	Topological quantum computing with a very noisy network and local error rates approaching one percent. Nature Communications, 2013, 4, 1756.	5.8	144

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37	Quantum sensors based on weak-value amplification cannot overcome decoherence. Physical Review A, 2013, 87, .	1.0	43
38	Practicality of Spin Chain Wiring in Diamond Quantum Technologies. Physical Review Letters, 2013, 110, 100503.	2.9	34
39	Comment on â€œQuantum Coherence and Sensitivity of Avian Magnetoreceptionâ€. Physical Review Letters, 2013, 110, 178901.	2.9	14
40	Long range failure-tolerant entanglement distribution. New Journal of Physics, 2013, 15, 023012.	1.2	21
41	Comment on â€˜A scattering quantum circuit for measuring Bell's time inequality: a nuclear magnetic resonance demonstration using maximally mixed statesâ€™. New Journal of Physics, 2012, 14, 058001.	1.2	7
42	Quantum entanglement distribution using a magnetic field sensor. New Journal of Physics, 2012, 14, 023046.	1.2	4
43	Measurement-based quantum computing with a spin ensemble coupled to a stripline cavity. New Journal of Physics, 2012, 14, 013030.	1.2	5
44	High threshold distributed quantum computing with three-qubit nodes. New Journal of Physics, 2012, 14, 093008.	1.2	28
45	Violation of a Leggettâ€“Garg inequality with ideal non-invasive measurements. Nature Communications, 2012, 3, 606.	5.8	172
46	A New Type of Radical-Pair-Based Model for Magnetoreception. Biophysical Journal, 2012, 102, 961-968.	0.2	32
47	Sustained Quantum Coherence and Entanglement in the Avian Compass. Physical Review Letters, 2011, 106, 040503.	2.9	255
48	Proposed Spin Amplification for Magnetic Sensors Employing Crystal Defects. Physical Review Letters, 2011, 107, 207210.	2.9	50
49	Rapid and Robust Spin State Amplification. Physical Review Letters, 2011, 106, 167204.	2.9	8
50	Magnetic field sensing beyond the standard quantum limit under the effect of decoherence. Physical Review A, 2011, 84, .	1.0	157
51	Entangling unstable optically active matter qubits. Physical Review A, 2011, 83, .	1.0	2
52	Snapshots of diamond spins. Nature Physics, 2011, 7, 929-930.	6.5	0
53	Distributed quantum computation with arbitrarily poor photon detection. Physical Review A, 2010, 82, .	1.0	5
54	Fault Tolerant Quantum Computation with Nondeterministic Gates. Physical Review Letters, 2010, 105, 250502.	2.9	41

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55	Quantum metrology with molecular ensembles. Physical Review A, 2010, 82, .	1.0	34
56	Probabilistic Growth of Large Entangled States with Low Error Accumulation. Physical Review Letters, 2010, 104, 050501.	2.9	20
57	Entangling Remote Nuclear Spins Linked by a Chromophore. Physical Review Letters, 2010, 104, 200501.	2.9	17
58	Magnetic Field Sensing Beyond the Standard Quantum Limit Using 10-Spin NOON States. Science, 2009, 324, 1166-1168.	6.0	214
59	Comment on "Multipartite Entanglement Among Single Spins in Diamond". Science, 2009, 323, 1169-1169.	6.0	5
60	Large spin entangled current from a passive device. New Journal of Physics, 2009, 11, 013018.	1.2	3
61	Prospects for measurementâ€based quantum computing with solid state spins. Laser and Photonics Reviews, 2009, 3, 556-574.	4.4	97
62	Measurement-based approach to entanglement generation in coupled quantum dots. Physical Review B, 2009, 79, .	1.1	4
63	High-fidelity all-optical control of quantum dot spins: Detailed study of the adiabatic approach. Physical Review B, 2008, 77, .	1.1	33
64	Robust adiabatic approach to optical spin entangling in coupled quantum dots. New Journal of Physics, 2008, 10, 073016.	1.2	21
65	Evolutionary route to computation in self-assembled nanoarrays. , 2008, , .		0
66	Measurement-Based Entanglement under Conditions of Extreme Photon Loss. Physical Review Letters, 2008, 101, 130502.	2.9	51
67	Efficient growth of complex graph states via imperfect path erasure. New Journal of Physics, 2007, 9, 196-196.	1.2	12
68	Quantum Information Processing with Delocalized Qubits under Global Control. Physical Review Letters, 2007, 99, 030501.	2.9	26
69	Adaptive strategies for graph-state growth in the presence of monitored errors. Physical Review A, 2007, 75, .	1.0	18
70	Toward Controlled Spacing in One-Dimensional Molecular Chains:Â Alkyl-Chain-Functionalized Fullerenes in Carbon Nanotubes. Journal of the American Chemical Society, 2007, 129, 8609-8614.	6.6	51
71	Manipulation of quantum information in N@C₆₀ using electron and nuclear magnetic resonance. Physica Status Solidi (B): Basic Research, 2007, 244, 3874-3878.	0.7	4
72	Coherence of spin qubits in silicon. Journal of Physics Condensed Matter, 2006, 18, S783-S794.	0.7	107

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73	Towards a fullerene-based quantum computer. Journal of Physics Condensed Matter, 2006, 18, S867-S883.	0.7	138
74	Brokered graph-state quantum computation. New Journal of Physics, 2006, 8, 141-141.	1.2	109
75	The N@C60 nuclear spin qubit: Bang-bang decoupling and ultrafast phase gates. Physica Status Solidi (B): Basic Research, 2006, 243, 3028-3031.	0.7	30
76	Bangâ€"bang control of fullerene qubits using ultrafast phase gates. Nature Physics, 2006, 2, 40-43.	6.5	174
77	Processor Core Model for Quantum Computing. Physical Review Letters, 2006, 96, 220501.	2.9	28
78	All-Optical Measurement-Based Quantum-Information Processing in Quantum Dots. Physical Review Letters, 2006, 97, 250504.	2.9	21
79	Optical generation of matter qubit graph states. New Journal of Physics, 2005, 7, 194-194.	1.2	50
80	Comment on â€œEfficient high-fidelity quantum computation using matter qubits and linear opticsâ€• Physical Review A, 2005, 72, .	1.0	29
81	Quantum computing in arrays coupled by â€œalways-onâ€•interactions. Physical Review A, 2004, 70, .	1.0	46
82	Optical quantum computation with perpetually coupled spins. Physical Review A, 2004, 70, .	1.0	17
83	Multi-qubit gates in arrays coupled by Âalways-onÂ interactions. New Journal of Physics, 2004, 6, 61-61.	1.2	14
84	Nanoscale solid-state quantum computing. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2003, 361, 1473-1485.	1.6	52
85	Quantum Computing with an Always-On Heisenberg Interaction. Physical Review Letters, 2003, 90, 247901.	2.9	161
86	Comment on â€œQuantum Games and Quantum Strategies''. Physical Review Letters, 2001, 87, 069801.	2.9	121
87	Evolutionary quantum game. Journal of Physics A, 2001, 34, L547-L552.	1.6	44
88	Multiplayer quantum games. Physical Review A, 2001, 64, .	1.0	231
89	Simple pulses for universal quantum computation with a HeisenbergABABchain. Physical Review A, 2001, 64, .	1.0	40
90	Quantum Computing Without Local Control of Qubit-Qubit Interactions. Physical Review Letters, 2001, 88, 017904.	2.9	68

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91	Comment on â€œA quantum approach to static games of completeÂinformationâ€• Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 277, 180-182.	0.9	27
92	Schemes for parallel quantum computation without local control of qubits. Physical Review A, 2000, 61, .	1.0	60
93	QUANTUM CRYPTOGRAPHY: Single Photons. Science, 2000, 290, 2273-2274.	6.0	17
94	Cellular structures for computation in the quantum regime. Physical Review A, 1999, 60, 4334-4337.	1.0	10
95	Exact dynamical response of an N-electron quantum dotsubject to a time-dependent potential. Physical Review B, 1997, 55, R4903-R4906.	1.1	2
96	A possible nanometer-scale computing device based on an adding cellular automaton. Applied Physics Letters, 1997, 70, 2321-2323.	1.5	42
97	Cellular automata models of traffic flow along a highway containing a junction. Journal of Physics A, 1996, 29, 3119-3127.	1.6	231
98	Analytic results for the linear and nonlinear response of atoms in a trap with a model interaction. Physical Review A, 1996, 54, 4309-4314.	1.0	6
99	Entangled electronic states in multiple-quantum-dot systems. Physical Review B, 1995, 51, 14733-14736.	1.1	27
100	Electron correlations and fractional quantum Hall states in a double-layer electron system. Journal of Physics Condensed Matter, 1995, 7, L159-L164.	0.7	1
101	Investigating the potential for a limited quantum speedup on protein lattice problems. New Journal of Physics, 0, , .	1.2	6
102	Theory of variational quantum simulation. Quantum - the Open Journal for Quantum Science, 0, 3, 191.	0.0	245
103	A Silicon Surface Code Architecture Resilient Against Leakage Errors. Quantum - the Open Journal for Quantum Science, 0, 3, 212.	0.0	9
104	Robust quantum compilation and circuit optimisation via energy minimisation. Quantum - the Open Journal for Quantum Science, 0, 6, 628.	0.0	22