Kenneth R Brown

List of Publications by Year
in descending order

105	3,871	136950	138484
papers	citations	32 h-index	58 g-index

107	107	107	2814
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Large-scale modular quantum-computer architecture with atomic memory and photonic interconnects. Physical Review A, 2014, 89, .	2.5	400
2	Ground-state energy estimation of the water molecule on a trapped-ion quantum computer. Npj Quantum Information, 2020, 6, .	6.7	184
3	Suppression of Heating Rates in Cryogenic Surface-Electrode Ion Traps. Physical Review Letters, 2008, 100, 013001.	7.8	177
4	Fault-tolerant control of an error-corrected qubit. Nature, 2021, 598, 281-286.	27.8	170
5	Arbitrarily accurate composite pulse sequences. Physical Review A, 2004, 70, .	2.5	163
6	Co-designing a scalable quantum computer with trapped atomic ions. Npj Quantum Information, 2016, 2, .	6.7	151
7	Quantum Computer Systems for Scientific Discovery. PRX Quantum, 2021, 2, .	9.2	142
8	Fault-tolerant quantum error detection. Science Advances, 2017, 3, e1701074.	10.3	113
9	Experimental investigation of planar ion traps. Physical Review A, 2006, 73, .	2.5	93
10	Graphene reinforced carbon fibers. Science Advances, 2020, 6, eaaz4191.	10.3	87
11	Robust 2-Qubit Gates in a Linear Ion Crystal Using a Frequency-Modulated Driving Force. Physical Review Letters, 2018, 120, 020501.	7.8	86
12	Limitations of Quantum Simulation Examined by Simulating a Pairing Hamiltonian Using Nuclear Magnetic Resonance. Physical Review Letters, 2006, 97, 050504.	7.8	78
13	Robustness of composite pulses to time-dependent control noise. Physical Review A, 2014, 90, .	2.5	71
14	Challenges of laser-cooling molecular ions. New Journal of Physics, 2011, 13, 063023.	2.9	70
15	Coherence-Preserving Quantum Bits. Physical Review Letters, 2001, 87, 247902.	7.8	58
16	Effects of a random noisy oracle on search algorithm complexity. Physical Review A, 2003, 68, .	2.5	55
17	Simulating the performance of a distance-3 surface code in a linear ion trap. New Journal of Physics, 2018, 20, 043038.	2.9	55
18	Quantum Chemical Analysis ofpara-Substitution Effects on the Electronic Structure of Phenylnitrenium Ions in the Gas Phase and Aqueous Solution. Journal of the American Chemical Society, 1998, 120, 11778-11783.	13.7	50

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19	Loading and characterization of a printed-circuit-board atomic ion trap. Physical Review A, 2007, 75, .	2.5	50
20	Demonstration of integrated microscale optics in surface-electrode ion traps. New Journal of Physics, 2011, 13, 103005.	2.9	50
21	Materials challenges for trapped-ion quantum computers. Nature Reviews Materials, 2021, 6, 892-905.	48.7	49
22	A two-dimensional lattice ion trap for quantum simulation. Journal of Applied Physics, 2009, 105, .	2.5	48
23	Asymptotic improvements to quantum circuits via qutrits. , 2019, , .		48
24	Deterministic optical Fock-state generation. Physical Review A, 2003, 67, .	2.5	47
25	Laser ablation loading of a surface-electrode ion trap. Physical Review A, 2007, 76, .	2.5	44
26	High-Fidelity Two-Qubit Gates Using a Microelectromechanical-System-Based Beam Steering System for Individual Qubit Addressing. Physical Review Letters, 2020, 125, 150505.	7.8	43
27	Error compensation of single-qubit gates in a surface-electrode ion trap using composite pulses. Physical Review A, 2015, 92, .	2.5	42
28	Resource requirements for fault-tolerant quantum simulation: The ground state of the transverse Ising model. Physical Review A, 2009, 79, .	2.5	41
29	Heating rates and ion-motion control in a<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi mathvariant="sans-serif">Y</mml:mi></mml:math>-junction surface-electrode trap. Physical Review A, 2014, 89, .	2.5	40
30	Compact, filtered diode laser system for precision spectroscopy. Optics Letters, 2007, 32, 572.	3.3	37
31	Quantum Error Correction Decoheres Noise. Physical Review Letters, 2018, 121, 190501.	7.8	36
32	Approximation of realistic errors by Clifford channels and Pauli measurements. Physical Review A, 2013, 87, .	2.5	35
33	Errors and pseudothresholds for incoherent and coherent noise. Physical Review A, 2016, 94, .	2.5	34
34	Quantum computing with quantum dots on quantum linear supports. Physical Review A, 2001, 65, .	2.5	33
35	Spatially uniform single-qubit gate operations with near-field microwaves and composite pulse compensation. New Journal of Physics, 2013, 15, 083053.	2.9	32
36	2D Compass Codes. Physical Review X, 2019, 9, .	8.9	32

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37	Sympathetic cooling of molecular ion motion to the ground state. New Journal of Physics, 2015, 17, 035009.	2.9	31
38	Multi-qubit compensation sequences. New Journal of Physics, 2010, 12, 015002.	2.9	30
39	Comparison of a quantum error-correction threshold for exact and approximate errors. Physical Review A, 2015, 91, .	2.5	29
40	Transport implementation of the Bernsteinâ€“Vazirani algorithm with ion qubits. New Journal of Physics, 2016, 18, 083030.	2.9	29
41	Entangling an arbitrary pair of qubits in a long ion crystal. Physical Review A, 2018, 98, .	2.5	28
42	Comparing Zeeman qubits to hyperfine qubits in the context of the surface code: <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mmultiscripts><mml:mi>Yb</mml:mi><mml:none /><mml:mo>+</mml:mo><mml:mprescripts /><mml:none /><mml:mn>174</mml:mn></mml:mmultiscripts></mml:math> and <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mmultiscripts><mml:mi>Yb</mml:mi><mml:none /><mml:mo>+</mml:mo><mml:mprescripts /><mml:none /><mml:mn>171</mml:mn></mml:mmultiscripts>	2.5	28
43	Transformed composite sequences for improved qubit addressing. Physical Review A, 2014, 90, .	2.5	27
44	Observation of vibrational overtones by single-molecule resonant photodissociation. Nature Communications, 2015, 6, 7825.	12.8	25
45	Optimized surface code communication in superconducting quantum computers. , 2017, , .		25
46	Detection of single-ion spectra by Coulomb-crystal heating. Physical Review A, 2010, 81, .	2.5	24
47	Fault tolerance with bare ancillary qubits for a [[7,1,3]] code. Physical Review A, 2017, 96, .	2.5	24
48	Fault-tolerant weighted union-find decoding on the toric code. Physical Review A, 2020, 102, .	2.5	24
49	Carbon fibers derived from commodity polymers: A review. Carbon, 2022, 196, 422-439.	10.3	24
50	Compiler Management of Communication and Parallelism for Quantum Computation. , 2015, , .		22
51	Real-time calibration with spectator qubits. Npj Quantum Information, 2020, 6, .	6.7	22
52	Identifying Single Molecular Ions by Resolved Sideband Measurements. Journal of Physical Chemistry A, 2013, 117, 9725-9731.	2.5	20
53	Handling leakage with subsystem codes. New Journal of Physics, 2019, 21, 073055.	2.9	20
54	Logical performance of 9 qubit compass codes in ion traps with crosstalk errors. Quantum Science and Technology, 2020, 5, 034002.	5.8	19

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55	Stabilizer Slicing: Coherent Error Cancellations in Low-Density Parity-Check Stabilizer Codes. Physical Review Letters, 2018, 121, 250502.	7.8	18
56	Hidden Inverses: Coherent Error Cancellation at the Circuit Level. Physical Review Applied, 2022, 17, .	3.8	17
57	Scalable ion trap quantum computation in decoherence-free subspaces with pairwise interactions only. Physical Review A, 2003, 67, .	2.5	16
58	Transmission spectrum of an optical cavity containingNatoms. Physical Review A, 2004, 69, .	2.5	16
59	Modular cryostat for ion trapping with surface-electrode ion traps. Review of Scientific Instruments, 2013, 84, 043112.	1.3	16
60	Spectroscopy of Molecular Ions in Coulomb Crystals. Journal of Physical Chemistry Letters, 2018, 9, 5797-5804.	4.6	16
61	Resource-Efficient Quantum Computing by Breaking Abstractions. Proceedings of the IEEE, 2020, 108, 1353-1370.	21.3	16
62	Batch Optimization of Frequency-Modulated Pulses for Robust Two-Qubit Gates in Ion Chains. Physical Review Applied, 2021, 16, .	3.8	15
63	Full protection of superconducting qubit systems from coupling errors. Physical Review B, 2005, 72, .	3.2	14
64	Direct measurement of Bacon-Shor code stabilizers. Physical Review A, 2018, 98, .	2.5	14
65	Leakage mitigation for quantum error correction using a mixed qubit scheme. Physical Review A, 2019, 100, .	2.5	14
66	Energy protection arguments fail in the interaction picture. Physical Review A, 2007, 76, .	2.5	13
67	Controlling error orientation to improve quantum algorithm success rates. Physical Review A, 2019, 99, .	2.5	13
68	Comparison of ancilla preparation and measurement procedures for the Steane [[7,1,3]] code on a model ion-trap quantum computer. Physical Review A, 2013, 88, .	2.5	12
69	Magic state distillation and gate compilation in quantum algorithms for quantum chemistry. International Journal of Quantum Chemistry, 2015, 115, 1296-1304.	2.0	12
70	Generating Fault-Tolerant Cluster States from Crystal Structures. Quantum - the Open Journal for Quantum Science, 0, 4, 295.	0.0	12
71	Vibronic Spectroscopy of Sympathetically Cooled CaH⁺. ChemPhysChem, 2016, 17, 3764-3768.	2.1	11
72	Boseâ€“Einstein condensation in a mm-scale Ioffeâ€“Pritchard trap. Applied Physics B: Lasers and Optics, 2006, 82, 533-538.	2.2	10

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73	Topological subsystem codes from graphs and hypergraphs. Physical Review A, 2012, 86, .	2.5	10
74	Quantum rotations. , 2013, , .		10
75	A hybrid ion-atom trap with integrated high resolution mass spectrometer. Review of Scientific Instruments, 2019, 90, 103201.	1.3	10
76	Fault-tolerant compass codes. Physical Review A, 2020, 101, .	2.5	10
77	TILT: Achieving Higher Fidelity on a Trapped-Ion Linear-Tape Quantum Computing Architecture. , 2021, , .		10
78	Bounds on the entanglement attainable from unitary transformed thermal states in liquid-state nuclear magnetic resonance. Physical Review A, 2005, 71, .	2.5	9
79	Design and characterization of a planar trap. Journal of Physics B: Atomic, Molecular and Optical Physics, 2009, 42, 154006.	1.5	9
80	Quantum rotations. Computer Architecture News, 2013, 41, 166-176.	2.5	9
81	Modulating carrier and sideband coupling strengths in a standing-wave gate beam. Physical Review A, 2015, 92, .	2.5	9
82	Rovibronic Spectroscopy of Sympathetically Cooled ⁴⁰CaH⁺. Journal of Physical Chemistry A, 2018, 122, 3177-3181.	2.5	8
83	Demonstration of Shor Encoding on a Trapped-Ion Quantum Computer. Physical Review Applied, 2021, 16, .	3.8	8
84	Analytical error analysis of Clifford gates by the fault-path tracer method. Quantum Information Processing, 2016, 15, 3065-3079.	2.2	7
85	Photon-mediated charge exchange reactions between ³⁹K atoms and ⁴⁰Ca⁺ ions in a hybrid trap. Physical Chemistry Chemical Physics, 2020, 22, 10870-10881.	2.8	7
86	Extended flag gadgets for low-overhead circuit verification. Physical Review A, 2020, 102, .	2.5	7
87	Making classical ground-state spin computing fault-tolerant. Physical Review E, 2010, 82, 031106.	2.1	6
88	Reassigning the CaH+ 11Î£ â†' 21Î£ vibronic transition with CaD+. Journal of Chemical Physics, 2017, 147, 214309.	3.0	6
89	Between Shor and Steane: A Unifying Construction for Measuring Error Syndromes. Physical Review Letters, 2021, 127, 090505.	7.8	6
90	Dipoleâ€"phonon quantum logic with alkaline-earth monoxide and monosulfide cations. Physical Chemistry Chemical Physics, 2020, 22, 24964-24973.	2.8	6

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91	Critical faults of leakage errors on the surface code. , 2020, , .		4
92	Controlled preparation and vibrational excitation of single ultracold molecular hydrogen ions. Molecular Physics, 2022, 120, .	1.7	4
93	Toward systematic architectural design of near-term trapped ion quantum computers. Communications of the ACM, 2022, 65, 101-109.	4.5	4
94	Optimizing Stabilizer Parities for Improved Logical Qubit Memories. Physical Review Letters, 2021, 127, 240501.	7.8	4
95	Quantum technologies and the National Quantum Initiative. Quantum Engineering, 2019, 1, e7.	2.5	3
96	Analyzing the effect of misalignment on single-filament carbon fiber tensile testing via stereoscopic computer vision imaging. Measurement Science and Technology, 2021, 32, 065904.	2.6	3
97	Monte Carlo analysis of critical phenomenon of the Ising model on memory stabilizer structures. Physical Review A, 2009, 80, .	2.5	2
98	Constructions for measuring error syndromes in Calderbank-Shor-Steane codes between Shor and Steane methods. Physical Review A, 2021, 104, .	2.5	2
99	High-fidelity Two-qubit Gates Using a MEMS-based Beam Steering System for Individual Qubit Addressing. , 2020, , .		2
100	Quantum Fan-out: Circuit Optimizations and Technology Modeling. , 2021, , .		2
101	Chemistry from photons. Nature Chemistry, 2010, 2, 76-77.	13.6	0
102	Analytical solution of thermal magnetization on memory stabilizer structures. Physical Review A, 2010, 82, .	2.5	0
103	Probing the Electron. Science, 2014, 343, 255-256.	12.6	0
104	Laser-cooled atomic ions as probes of molecular ions. , 2015, , .		0
105	Sympathetic Heating Spectroscopy: Probing Molecular Ions with Laser-Cooled Atomic Ions. , 2010, , .		0