Michael Biercuk

List of Publications by Year
in descending order

69 papers	5,875 citations	126901 33 h-index	102480 66 g-index
70 all docs	70 docs citations	70 times ranked	5878 citing authors

#	Article	IF	Citations
1	Carbon nanotube composites for thermal management. Applied Physics Letters, 2002, 80, 2767-2769.	3.3	1,572
2	Engineered two-dimensional Ising interactions in a trapped-ion quantum simulator with hundreds of spins. Nature, 2012, 484, 489-492.	27.8	722
3	Optimized dynamical decoupling in a model quantum memory. Nature, 2009, 458, 996-1000.	27.8	468
4	Thermal properties of carbon nanotubes and nanotube-based materials. Applied Physics A: Materials Science and Processing, 2002, 74, 339-343.	2.3	445
5	Local Gate Control of a Carbon Nanotube Double Quantum Dot. Science, 2004, 303, 655-658.	12.6	182
6	Low-temperature atomic-layer-deposition lift-off method for microelectronic and nanoelectronic applications. Applied Physics Letters, 2003, 83, 2405-2407.	3.3	166
7	Dynamical decoupling sequence construction as a filter-design problem. Journal of Physics B: Atomic, Molecular and Optical Physics, 2011, 44, 154002.	1.5	140
8	Ultrasensitive detection of force and displacement using trapped ions. Nature Nanotechnology, 2010, 5, 646-650.	31.5	126
9	Experimental Uhrig dynamical decoupling using trapped ions. Physical Review A, 2009, 79, .	2.5	102
10	Experimental noise filtering by quantum control. Nature Physics, 2014, 10, 825-829.	16.7	100
11	Arbitrary quantum control of qubits in the presence of universal noise. New Journal of Physics, 2013, 15, 095004.	2.9	98
12	Assessing the Progress of Trapped-Ion Processors Towards Fault-Tolerant Quantum Computation. Physical Review X, 2017, 7, .	8.9	93
13	Gate-Defined Quantum Dots on Carbon Nanotubes. Nano Letters, 2005, 5, 1267-1271.	9.1	86
14	Electrical Transport in Single-Wall Carbon Nanotubes. Topics in Applied Physics, 2007, , 455-493.	0.8	83
15	Optimized Noise Filtration through Dynamical Decoupling. Physical Review Letters, 2009, 103, 040501.	7.8	81
16	Decoherence due to Elastic Rayleigh Scattering. Physical Review Letters, 2010, 105, 200401.	7.8	71
17	Robustness of composite pulses to time-dependent control noise. Physical Review A, 2014, 90, .	2.5	71
18	Near-ground-state transport of trapped-ion qubits through a multidimensional array. Physical Review A, 2011, 84, .	2.5	68

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19	The role of master clock stability in quantum information processing. Npj Quantum Information, 2016, 2, .	6.7	63
20	Prediction and real-time compensation of qubit decoherence via machine learning. Nature Communications, 2017, 8, 14106.	12.8	57
21	High-Order Noise Filtering in Nontrivial Quantum Logic Gates. Physical Review Letters, 2012, 109, 020501.	7.8	56
22	Effect of noise correlations on randomized benchmarking. Physical Review A, 2016, 93, .	2.5	56
23	Phase-Modulated Decoupling and Error Suppression in Qubit-Oscillator Systems. Physical Review Letters, 2015, 114, 120502.	7.8	54
24	Experimental Deep Reinforcement Learning for Error-Robust Gate-Set Design on a Superconducting Quantum Computer. PRX Quantum, 2021, 2, .	9.2	53
25	Designing a practical high-fidelity long-time quantum memory. Nature Communications, 2013, 4, 2045.	12.8	50
26	Spectroscopy and Thermometry of Drumhead Modes in a Mesoscopic Trapped-Ion Crystal Using Entanglement. Physical Review Letters, 2012, 108, 213003.	7.8	49
27	Software tools for quantum control: improving quantum computer performance through noise and error suppression. Quantum Science and Technology, 2021, 6, 044011.	5.8	49
28	Local Gating of Carbon Nanotubes. Nano Letters, 2004, 4, 1-4.	9.1	47
29	Anomalous Conductance Quantization in Carbon Nanotubes. Physical Review Letters, 2005, 94, 026801.	7.8	46
30	Application of optimal band-limited control protocols to quantum noise sensing. Nature Communications, 2017, 8, 2189.	12.8	45
31	Phase-Modulated Entangling Gates Robust to Static and Time-Varying Errors. Physical Review Applied, 2020, 13, .	3.8	43
32	Charge sensing in carbon-nanotube quantum dots on microsecond timescales. Physical Review B, 2006, 73, .	3.2	42
33	Experimental quantum verification in the presence of temporally correlated noise. Npj Quantum Information, 2018, 4, .	6.7	42
34	Experimental bath engineering for quantitative studies of quantum control. Physical Review A, 2014, 89, .	2.5	31
35	Locally Addressable Tunnel Barriers within a Carbon Nanotube. Nano Letters, 2004, 4, 2499-2502.	9.1	29
36	Reducing sequencing complexity in dynamical quantum error suppression by Walsh modulation. Physical Review A, 2011, 84, .	2.5	29

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37	Optimally band-limited spectroscopy of control noise using a qubit sensor. Physical Review A, 2018, 98, .	2.5	26
38	Analog quantum simulation of chemical dynamics. Chemical Science, 2021, 12, 9794-9805.	7.4	26
39	Error-Robust Quantum Logic Optimization Using a Cloud Quantum Computer Interface. Physical Review Applied, 2021, 15, .	3.8	26
40	Walsh-synthesized noise filters for quantum logic. EPJ Quantum Technology, 2015, 2, .	6.3	25
41	Phenomenological study of decoherence in solid-state spin qubits due to nuclear spin diffusion. Physical Review B, 2011, 83, .	3.2	22
42	Programmable quantum simulation by dynamic Hamiltonian engineering. New Journal of Physics, 2014, 16, 083027.	2.9	21
43	Simultaneous Spectral Estimation of Dephasing and Amplitude Noise on a Qubit Sensor via Optimally Band-Limited Control. Physical Review Applied, 2020, 14, .	3.8	18
44	Numeric Optimization for Configurable, Parallel, Errorâ€Robust Entangling Gates in Large Ion Registers. Advanced Quantum Technologies, 2020, 3, 2000044.	3.9	17
45	Dynamically corrected gates suppressing spatiotemporal error correlations as measured by randomized benchmarking. Physical Review Research, 2020, 2, .	3.6	17
46	A high-power 626 nm diode laser system for Beryllium ion trapping. Review of Scientific Instruments, 2013, 84, 063107.	1.3	15
47	Vibration-induced field fluctuations in a superconducting magnet. Physical Review A, 2016, 93, .	2.5	15
48	Towards fully commercial, UV-compatible fiber patch cords. Optics Express, 2017, 25, 15643.	3.4	14
49	Frequency stabilization of a 369 nm diode laser by nonlinear spectroscopy of Ytterbium ions in a discharge. Optics Express, 2014, 22, 7210.	3.4	13
50	Quantum Oscillator Noise Spectroscopy via Displaced Cat States. Physical Review Letters, 2021, 126, 250506.	7.8	13
51	Machine Learning for Predictive Estimation of Qubit Dynamics Subject to Dephasing. Physical Review Applied, 2018, 9, .	3.8	12
52	Site-resolved imaging of beryllium ion crystals in a high-optical-access Penning trap with inbore optomechanics. Review of Scientific Instruments, 2019, 90, 053103.	1.3	12
53	Scalable hyperfine qubit state detection via electron shelving in the <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msup><mml:mrow /><mml:mn>2</mml:mn></mml:msup><mml:msub><mml:mi>D</mml:mi><mml:mrow><mml:mn>5</mml:mn><mml:mo>/</mml:mo> and <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msup><mml:mrow /><mml:mn>2</mml:mn></mml:msup><mml:msub><mml:mi>F</mml:mi><mml:mrow><mml:mn>7</mml:mn><mml:m.	2.5	10
54	Solid-state spins survive. Nature Nanotechnology, 2011, 6, 9-11.	31.5	9

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55	Adaptive characterization of spatially inhomogeneous fields and errors in qubit registers. Npj Quantum Information, 2020, 6, .	6.7	9
56	Integration of spectator qubits into quantum computer architectures for hardware tune-up and calibration. Physical Review A, 2020, 102, .	2.5	8
57	Quantum firmware and the quantum computing stack. Physics Today, 2021, 74, 28-34.	0.3	7
58	Phase-coherent detection of an optical dipole force by Doppler velocimetry. Optics Express, 2011, 19, 10304.	3.4	6
59	Functional Basis for Efficient Physical Layer Classical Control in Quantum Processors. Physical Review Applied, 2016, 6, .	3.8	4
60	Analytically exploiting noise correlations inside the feedback loop to improve locked-oscillator performance. Physical Review E, 2016, 94, 022204.	2.1	4
61	Precision characterization of the <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mmultiscripts><mml:mi>D</mml:mi><mml:mrow><mml:mn>5</mml:mn></mml:mrow /><mml:mprescripts /><mml:none /><mml:mn>2</mml:mn></mml:mmultiscripts></mml:math> state and the quadratic Zeeman coefficient in <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. Physical Review A, 2021, 104, .	2.5	3
62	A quantum spectrum analyser. Nature Physics, 2011, 7, 525-526.	16.7	2
63	Adaptive filtering of projective quantum measurements using discrete stochastic methods. Physical Review A, 2021, 104, .	2.5	2
64	The path to adaptive microsystems. , 2006, 6232, 623201.		1
65	Prolonging qubit coherence: dynamical decoupling schemes studied in a Penning ion trap. Proceedings of SPIE, 2009, , .	0.8	1
66	Quantum computing: Solid-state spins survive. Nature Nanotechnology, 2011, 6, 9-11.	31.5	1
67	Preserving quantum coherence using optimized open-loop control techniques. , 2010, , .		0
68	Toward spin squeezing with trapped ions. , 2012, , .		0
69	High-power spectral beamsplitter for closely spaced frequencies. Optics Express, 2020, 28, 11372.	3.4	0