

Jens Koch

List of Publications by Year in descending order

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Version: 2024-02-01

67
papers

10,150
citations

76326

40
h-index

106344

65
g-index

68
all docs

68
docs citations

68
times ranked

5509
citing authors

#	ARTICLE	IF	CITATIONS
1	Charge-insensitive qubit design derived from the Cooper pair box. <i>Physical Review A</i> , 2007, 76, .	2.5	2,184
2	Coupling superconducting qubits via a cavity bus. <i>Nature</i> , 2007, 449, 443-447.	27.8	1,109
3	On-chip quantum simulation with superconducting circuits. <i>Nature Physics</i> , 2012, 8, 292-299.	16.7	829
4	Fluxonium: Single Cooper-Pair Circuit Free of Charge Offsets. <i>Science</i> , 2009, 326, 113-116.	12.6	483
5	Franck-Condon Blockade and Giant Fano Factors in Transport through Single Molecules. <i>Physical Review Letters</i> , 2005, 94, 206804.	7.8	457
6	Suppressing charge noise decoherence in superconducting charge qubits. <i>Physical Review B</i> , 2008, 77, .	3.2	415
7	Controlling the Spontaneous Emission of a Superconducting Transmon Qubit. <i>Physical Review Letters</i> , 2008, 101, 080502.	7.8	336
8	Time-reversal-symmetry breaking in circuit-QED-based photon lattices. <i>Physical Review A</i> , 2010, 82, .	2.5	310
9	Observation of a Dissipative Phase Transition in a One-Dimensional Circuit QED Lattice. <i>Physical Review X</i> , 2017, 7, .	8.9	258
10	Circuit QED lattices: Towards quantum simulation with superconducting circuits. <i>Annalen Der Physik</i> , 2013, 525, 395-412.	2.4	253
11	Nonlinear response of the vacuum Rabi resonance. <i>Nature Physics</i> , 2009, 5, 105-109.	16.7	226
12	Theory of the Franck-Condon blockade regime. <i>Physical Review B</i> , 2006, 74, .	3.2	221
13	Thermopower of single-molecule devices. <i>Physical Review B</i> , 2004, 70, .	3.2	201
14	Randomized Benchmarking and Process Tomography for Gate Errors in a Solid-State Qubit. <i>Physical Review Letters</i> , 2009, 102, 090502.	7.8	179
15	Low-disorder microwave cavity lattices for quantum simulation with photons. <i>Physical Review A</i> , 2012, 86, .	2.5	168
16	Superfluidâ€“Mott-insulator transition of light in the Jaynes-Cummings lattice. <i>Physical Review A</i> , 2009, 80, .	2.5	147
17	Current-induced nonequilibrium vibrations in single-molecule devices. <i>Physical Review B</i> , 2006, 73, .	3.2	119
18	Quasiparticle Relaxation of Superconducting Qubits in the Presence of Flux. <i>Physical Review Letters</i> , 2011, 106, 077002.	7.8	119

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19	Fractional Shot Noise in the Kondo Regime. <i>Physical Review Letters</i> , 2006, 97, 086601.	7.8	109
20	Evidence for coherent quantum phase slips across a Josephson junction array. <i>Physical Review B</i> , 2012, 85, .	3.2	103
21	Synthetic gauge fields and homodyne transmission in Jaynes-Cummings lattices. <i>New Journal of Physics</i> , 2011, 13, 095008.	2.9	94
22	Pair Tunneling through Single Molecules. <i>Physical Review Letters</i> , 2006, 96, 056803.	7.8	92
23	Random access quantum information processors using multimode circuit quantum electrodynamics. <i>Nature Communications</i> , 2017, 8, 1904.	12.8	91
24	Universal Stabilization of a Parametrically Coupled Qubit. <i>Physical Review Letters</i> , 2017, 119, 150502.	7.8	87
25	Speedup for quantum optimal control from automatic differentiation based on graphics processing units. <i>Physical Review A</i> , 2017, 95, .	2.5	84
26	Life after charge noise: recent results with transmon qubits. <i>Quantum Information Processing</i> , 2009, 8, 105-115.	2.2	81
27	Circuit QED with fluxonium qubits: Theory of the dispersive regime. <i>Physical Review B</i> , 2013, 87, .	3.2	78
28	Experimental Realization of a Protected Superconducting Circuit Derived from the $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"} \langle \text{mml:mn} \rangle 0 \langle \text{mml:mn} \rangle \langle \text{mml:math} \rangle \hat{\epsilon} \langle \text{mml:math} \rangle \langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"} \langle \text{mml:mi} \rangle \hat{\epsilon} \langle \text{mml:mi} \rangle \langle \text{mml:math} \rangle$ Qubit. <i>PRX Quantum</i> , 2021, 2, .	9.2	77
29	Perturbative approach to Markovian open quantum systems. <i>Scientific Reports</i> , 2014, 4, 4887.	3.3	76
30	Charging Effects in the Inductively Shunted Josephson Junction. <i>Physical Review Letters</i> , 2009, 103, 217004.	7.8	75
31	Realization of a $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"} \langle \text{mml:mi mathvariant="normal"} \rangle \hat{\epsilon} \langle \text{mml:mi} \rangle \langle \text{mml:math} \rangle$ System with Metastable States of a Capacitively Shunted Fluxonium. <i>Physical Review Letters</i> , 2018, 120, 150504.	7.8	74
32	Protecting a bosonic qubit with autonomous quantum error correction. <i>Nature</i> , 2021, 590, 243-248.	27.8	68
33	Coherence properties of the $0 \text{-} \langle \text{mml:math} \rangle \hat{\epsilon} \langle \text{mml:math} \rangle$ qubit. <i>New Journal of Physics</i> , 2018, 20, 043053.	2.9	64
34	Full Counting Statistics of Strongly Non-Ohmic Transport through Single Molecules. <i>Physical Review Letters</i> , 2005, 95, 056801.	7.8	62
35	Proposal for generating and detecting multi-qubit GHZ states in circuit QED. <i>New Journal of Physics</i> , 2009, 11, 073040.	2.9	61
36	Universal Fast-Flux Control of a Coherent, Low-Frequency Qubit. <i>Physical Review X</i> , 2021, 11, .	8.9	58

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37	Gradient-based optimal control of open quantum systems using quantum trajectories and automatic differentiation. <i>Physical Review A</i> , 2019, 99, .	2.5	53
38	Effects of charge-dependent vibrational frequencies and anharmonicities in transport through molecules. <i>Physical Review B</i> , 2005, 72, .	3.2	48
39	Moving beyond the Transmon: Noise-Protected Superconducting Quantum Circuits. <i>PRX Quantum</i> , 2021, 2, .	9.2	43
40	Nonequilibrium charge-Kondo transport through negative-U molecules. <i>Physical Review B</i> , 2007, 75, .	3.2	40
41	Understanding degenerate ground states of a protected quantum circuit in the presence of disorder. <i>Physical Review B</i> , 2014, 90, .	3.2	39
42	Theory of vibrational absorption sidebands in the Coulomb-blockade regime of single-molecule transistors. <i>Physical Review B</i> , 2008, 77, .	3.2	38
43	Circuit quantization in the presence of time-dependent external flux. <i>Physical Review B</i> , 2019, 99, .	3.2	36
44	Engineering Dynamical Sweet Spots to Protect Qubits from $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll" \rangle \langle \text{mml:mn} \rangle 1 \langle \text{mml:mn} \rangle \langle \text{mml:mo} \rangle / \langle \text{mml:mi} \rangle f \langle \text{mml:mi} \rangle \langle \text{mml:math} \rangle$ Noise. <i>Physical Review Applied</i> , 2021, 15, .	3.8	35
45	Dispersive regime of the Jaynes-Cummings and Rabi lattice. <i>New Journal of Physics</i> , 2013, 15, 115002.	2.9	32
46	Quantum control of an oscillator using a stimulated Josephson nonlinearity. <i>Nature Physics</i> , 2020, 16, 211-217.	16.7	32
47	Universal gates for protected superconducting qubits using optimal control. <i>Physical Review A</i> , 2020, 101, .	2.5	30
48	Resummation for Nonequilibrium Perturbation Theory and Application to Open Quantum Lattices. <i>Physical Review X</i> , 2016, 6, .	8.9	27
49	Control and coherence time enhancement of the $0\hat{\pi}$ qubit. <i>New Journal of Physics</i> , 2019, 21, 043002.	2.9	26
50	Fifty years of Jaynes-Cummings physics. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2013, 46, 220201.	1.5	25
51	Scqubits: a Python package for superconducting qubits. <i>Quantum - the Open Journal for Quantum Science</i> , 0, 5, 583.	0.0	25
52	Effective equilibrium theory of nonequilibrium quantum transport. <i>Annals of Physics</i> , 2011, 326, 2963-2999.	2.8	24
53	Floquet-Engineered Enhancement of Coherence Times in a Driven Fluxonium Qubit. <i>Physical Review Applied</i> , 2020, 14, .	3.8	21
54	Symmetries and Collective Excitations in Large Superconducting Circuits. <i>Physical Review X</i> , 2013, 3, .	8.9	18

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55	Robust Quantum Optimal Control with Trajectory Optimization. <i>Physical Review Applied</i> , 2022, 17, .	3.8	18
56	Positive- and negative-frequency noise from an ensemble of two-level fluctuators. <i>Physical Review Research</i> , 2021, 3, .	3.6	17
57	Spectrum and coherence properties of the current-mirror qubit. <i>Physical Review B</i> , 2019, 100, .	3.2	15
58	Imaging Photon Lattice States by Scanning Defect Microscopy. <i>Physical Review X</i> , 2016, 6, .	8.9	13
59	Asymptotic expressions for charge-matrix elements of the fluxonium circuit. <i>Physical Review B</i> , 2013, 87, .	3.2	11
60	Discontinuous Current-Phase Relations in Small One-Dimensional Josephson Junction Arrays. <i>Physical Review Letters</i> , 2008, 101, 097007.	7.8	8
61	Universal stabilization of single-qubit states using a tunable coupler. <i>Physical Review A</i> , 2018, 97, .	2.5	8
62	Nematic quantum liquid crystals of bosons in frustrated lattices. <i>Physical Review B</i> , 2016, 93, .	3.2	7
63	Mapping repulsive to attractive interaction in drivenâ€“dissipative quantum systems. <i>New Journal of Physics</i> , 2017, 19, 115010.	2.9	5
64	Adaptive rotating-wave approximation for driven open quantum systems. <i>Physical Review A</i> , 2018, 98, .	2.5	4
65	Variational tight-binding method for simulating large superconducting circuits. <i>Physical Review Research</i> , 2021, 3, .	3.6	2
66	Novel Quantum Transport Effects in Single-Molecule Transistors. <i>Advances in Solid State Physics</i> , 2008, , 99-109.	0.8	0
67	Minimizing Random Disorder in a Kagome Lattice of Superconducting Resonators. , 2012, , .		0