Florian Marquardt

List of Publications by Year
in descending order

144 papers	17,158 citations	36691 53 h-index	16791 127 g-index
147 all docs	147 docs citations	147 times ranked	8907 citing authors

#	Article	IF	Citations
1	Cavity optomechanics. Reviews of Modern Physics, 2014, 86, 1391-1452.	16.4	4,064
2	Introduction to quantum noise, measurement, and amplification. Reviews of Modern Physics, 2010, 82, 1155-1208.	16.4	1,291
3	Strong dispersive coupling of a high-finesse cavity to a micromechanical membrane. Nature, 2008, 452, 72-75.	13.7	1,195
4	Quantum Theory of Cavity-Assisted Sideband Cooling of Mechanical Motion. Physical Review Letters, 2007, 99, 093902.	2.9	957
5	Optomechanics. Physics Magazine, 0, 2, .	0.1	681
6	Quantum squeezing of motion in a mechanical resonator. Science, 2015, 349, 952-955.	6.0	504
7	Generalized non-reciprocity in an optomechanical circuit via synthetic magnetism and reservoir engineering. Nature Physics, 2017, 13, 465-471.	6.5	360
8	Dispersive optomechanics: a membrane inside a cavity. New Journal of Physics, 2008, 10, 095008.	1.2	331
9	Dynamical Multistability Induced by Radiation Pressure in High-Finesse Micromechanical Optical Cavities. Physical Review Letters, 2006, 96, 103901.	2.9	323
10	Collective Dynamics in Optomechanical Arrays. Physical Review Letters, 2011, 107, 043603.	2.9	309
11	Magnon dark modes and gradient memory. Nature Communications, 2015, 6, 8914.	5.8	293
12	Back-action evasion and squeezing of a mechanical resonator using a cavity detector. New Journal of Physics, 2008, 10, 095010.	1.2	261
13	Quantum Many-Body Dynamics in Optomechanical Arrays. Physical Review Letters, 2013, 111, 073603.	2.9	246
14	Enhanced Quantum Nonlinearities in a Two-Mode Optomechanical System. Physical Review Letters, 2012, 109, 063601.	2.9	245
15	Topological Phases of Sound and Light. Physical Review X, 2015, 5, .	2.8	244
16	Observation of spontaneous Brillouin cooling. Nature Physics, 2012, 8, 203-207.	6.5	193
17	Arbitrarily large steady-state bosonic squeezing via dissipation. Physical Review A, 2013, 88, .	1.0	193
18	Strong Coupling of a Mechanical Oscillator and a Single Atom. Physical Review Letters, 2009, 103, 063005.	2.9	192

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19	Self-Induced Oscillations in an Optomechanical System Driven by Bolometric Backaction. Physical Review Letters, 2008, 101, 133903.	2.9	184
20	Optomechanically Induced Transparency in the Nonlinear Quantum Regime. Physical Review Letters, 2013, 111, 133601.	2.9	182
21	Photonic Cavity Synchronization of Nanomechanical Oscillators. Physical Review Letters, 2013, 111, 213902.	2.9	156
22	The optomechanical instability in the quantum regime. New Journal of Physics, 2008, 10, 095013.	1.2	150
23	Superradiant Phase Transitions and the Standard Description of Circuit QED. Physical Review Letters, 2011, 107, 113602.	2.9	148
24	Coupled spin-light dynamics in cavity optomagnonics. Physical Review A, 2016, 94, .	1.0	142
25	Reinforcement Learning with Neural Networks for Quantum Feedback. Physical Review X, 2018, 8, .	2.8	137
26	Optomechanical creation of magnetic fields for photons on a lattice. Optica, 2015, 2, 635.	4.8	131
27	Optomechanical circuits for nanomechanical continuous variable quantum state processing. New Journal of Physics, 2012, 14, 125005.	1.2	130
28	Snowflake phononic topological insulator at the nanoscale. Physical Review B, 2018, 97, .	1.1	108
29	Quantum Signatures of the Optomechanical Instability. Physical Review Letters, 2012, 109, 253601.	2.9	103
30	Pseudomagnetic fields for sound at the nanoscale. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E3390-E3395.	3.3	102
31	Single-atom cavity QED and optomicromechanics. Physical Review A, 2010, 81, .	1.0	101
32	Mesoscopic spin-boson models of trapped ions. Physical Review A, 2008, 78, .	1.0	99
33	Intracavity Squeezing Can Enhance Quantum-Limited Optomechanical Position Detection through Deamplification. Physical Review Letters, 2015, 115, 243603.	2.9	98
34	Quantum Nondemolition Measurement of a Quantum Squeezed State Beyond the 3ÂdB Limit. Physical Review Letters, 2016, 117, 100801.	2.9	94
35	Topological phase transitions and chiral inelastic transport induced by the squeezing of light. Nature Communications, 2016, 7, 10779.	5.8	92
36	Quantum Measurement of Phonon Shot Noise. Physical Review Letters, 2010, 104, 213603.	2.9	89

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37	Correlation-Induced Resonances in Transport through Coupled Quantum Dots. Physical Review Letters, 2006, 96, 146801.	2.9	87
38	Controlled dephasing of electrons by non-gaussian shot noise. Nature Physics, 2007, 3, 534-537.	6.5	86
39	Entanglement of mechanical oscillators coupled to a nonequilibrium environment. Physical Review A, 2010, 82, .	1.0	85
40	Oscillating bound states for a giant atom. Physical Review Research, 2020, 2, .	1.3	83
41	Topological Quantum Fluctuations and Traveling Wave Amplifiers. Physical Review X, 2016, 6, .	2.8	81
42	Cavity optomagnonics with magnetic textures: Coupling a magnetic vortex to light. Physical Review B, 2018, 98, .	1.1	79
43	Cavity grid for scalable quantum computation with superconducting circuits. Europhysics Letters, 2009, 85, 50007.	0.7	75
44	Full photon statistics of a light beam transmitted through an optomechanical system. Physical Review A, 2013, 87, .	1.0	72
45	Position-Squared Coupling in a Tunable Photonic Crystal Optomechanical Cavity. Physical Review X, 2015, 5, .	2.8	72
46	Superposition of two mesoscopically distinct quantum states: Coupling a Cooper-pair box to a large superconducting island. Physical Review B, 2001, 63, .	1.1	71
47	Measuring the size of a quantum superposition of many-body states. Physical Review A, 2008, 78, .	1.0	71
48	Noise-induced transitions in optomechanical synchronization. New Journal of Physics, 2016, 18, 013043.	1.2	68
49	Thermalization of interacting fermions and delocalization in Fock space. Physical Review E, 2012, 85, 060101.	0.8	67
50	Dissipative optomechanical squeezing of light. New Journal of Physics, 2014, 16, 063058.	1.2	64
51	Decoherence by quantum telegraph noise: A numerical evaluation. Physical Review B, 2008, 78, .	1.1	63
52	Photon shuttle: Landau-Zener-StÃ¼ckelberg dynamics in an optomechanical system. Physical Review A, 2010, 81, .	1.0	63
53	Quantum nondemolition photon detection in circuit QED and the quantum Zeno effect. Physical Review A, 2009, 79, .	1.0	60
54	Nonlinear Radiation Pressure Dynamics in an Optomechanical Crystal. Physical Review Letters, 2015, 115, 233601.	2.9	60

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55	Influence of Dephasing on Shot Noise in an Electronic Mach-Zehnder Interferometer. Physical Review Letters, 2004, 92, 056805.	2.9	53
56	Quantum theory of optomechanical cooling. Journal of Modern Optics, 2008, 55, 3329-3338.	0.6	53
57	Observing the Nonequilibrium Dynamics of the Quantum Transverse-Field Ising Chain in Circuit QED. Physical Review Letters, 2013, 110, 030601.	2.9	52
58	Laser Theory for Optomechanics: Limit Cycles in the Quantum Regime. Physical Review X, 2014, 4, .	2.8	51
59	Coherence oscillations in dephasing by non-Gaussian shot noise. New Journal of Physics, 2007, 9, 112-112.	1.2	49
60	Effects of dephasing on shot noise in an electronic Mach-Zehnder interferometer. Physical Review B, 2004, 70, .	1.1	47
61	Resonant quantum gates in circuit quantum electrodynamics. Physical Review B, 2010, 82, .	1.1	45
62	Dynamics of levitated nanospheres: towards the strong coupling regime. New Journal of Physics, 2013, 15, 015001.	1.2	45
63	Quantum-coherent phase oscillations in synchronization. Physical Review A, 2017, 95, .	1.0	42
64	Optomechanical cooling of levitated spheres with doubly resonant fields. Physical Review A, 2012, 85, .	1.0	40
65	Perturbative corrections to the Gutzwiller mean-field solution of the Mott-Hubbard model. Physical Review A, 2004, 70, .	1.0	39
66	Dephasing in sequential tunneling through a double-dot interferometer. Physical Review B, 2003, 68, .	1.1	38
67	Measurement-based synthesis of multiqubit entangled states in superconducting cavity QED. Physical Review A, 2009, 79, .	1.0	38
68	Optomechanical Dirac physics. New Journal of Physics, 2015, 17, 023025.	1.2	35
69	Cavity optomechanics in a levitated helium drop. Physical Review A, 2017, 96, .	1.0	35
70	Efficient on-chip source of microwave photon pairs in superconducting circuit QED. Physical Review B, 2007, 76, .	1.1	34
71	Separation quality of a geometric ratchet. Physical Review E, 2002, 65, 041927.	0.8	30
72	Pattern phase diagram for two-dimensional arrays of coupled limit-cycle oscillators. Physical Review E, 2015, 92, 012902.	0.8	30

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73	Classical dynamical gauge fields in optomechanics. New Journal of Physics, 2016, 18, 113029.	1.2	30
74	Aharonov-Bohm ring with fluctuating flux. Physical Review B, 2002, 65, .	1.1	29
75	Self-consistent calculation of the electron distribution near a quantum point contact in the integer quantum Hall effect. Physical Review B, 2007, 75, .	1.1	29
76	L lines, C points and Chern numbers: understanding band structure topology using polarization fields. New Journal of Physics, 2017, 19, 115013.	1.2	29
77	The effect of Landauâ€“Zener dynamics on phonon lasing. New Journal of Physics, 2013, 15, 123022.	1.2	28
78	Fermionic Mach-Zehnder interferometer subject to a quantum bath. Europhysics Letters, 2005, 72, 788-794.	0.7	26
79	Coupled multimode optomechanics in the microwave regime. Europhysics Letters, 2011, 93, 18003.	0.7	26
80	Electron-nuclei spin relaxation through phonon-assisted hyperfine interaction in a quantum dot. Physical Review B, 2004, 70, .	1.1	25
81	Optimal control of circuit quantum electrodynamics in one and two dimensions. Physical Review B, 2010, 81, .	1.1	25
82	Topological phonon transport in an optomechanical system. Nature Communications, 2022, 13, .	5.8	25
83	Decoherence in weak localization. I. Pauli principle in influence functional. Physical Review B, 2007, 76, .	1.1	23
84	Many-Body Dephasing in a Trapped-Ion Quantum Simulator. Physical Review Letters, 2020, 125, 120605.	2.9	23
85	TMM-Fast, a transfer matrix computation package for multilayer thin-film optimization: tutorial. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2022, 39, 1007.	0.8	23
86	Single-site-resolved measurement of the current statistics in optical lattices. Physical Review A, 2014, 89, .	1.0	22
87	Quantum theory of continuum optomechanics. New Journal of Physics, 2018, 20, 045005.	1.2	22
88	Non-Markoffian effects of a simple nonlinear bath. Physical Review E, 2002, 66, 041111.	0.8	21
89	Spin relaxation in a quantum dot due to Nyquist noise. Physical Review B, 2005, 71, .	1.1	21
90	Quantum-mechanical theory of optomechanical Brillouin cooling. Physical Review A, 2011, 84, .	1.0	21

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91	Creation and dynamics of remote spin-entangled pairs in the expansion of strongly correlated fermions in an optical lattice. New Journal of Physics, 2013, 15, 053043.	1.2	21
92	Nonlinear dynamics of weakly dissipative optomechanical systems. New Journal of Physics, 2020, 22, 013049.	1.2	21
93	Decoherence in weak localization. II. Bethe-Salpeter calculation of the cooperon. Physical Review B, 2007, 76, .	1.1	20
94	Deep Reinforcement Learning for Quantum State Preparation with Weak Nonlinear Measurements. Quantum - the Open Journal for Quantum Science, 0, 6, 747.	0.0	20
95	Focus on optomechanics. New Journal of Physics, 2014, 16, 085006.	1.2	18
96	Quantum nondemolition measurement of mechanical motion quanta. Nature Communications, 2018, 9, 3621.	5.8	18
97	Dephasing by electronâ€“electron interactions in a ballistic Machâ€“Zehnder interferometer. New Journal of Physics, 2008, 10, 115018.	1.2	17
98	Dynamics of coupled multimode and hybrid optomechanical systems. Comptes Rendus Physique, 2011, 12, 837-847.	0.3	17
99	Entanglement rate for Gaussian continuous variable beams. New Journal of Physics, 2016, 18, 063022.	1.2	17
100	Anderson localization of composite excitations in disordered optomechanical arrays. New Journal of Physics, 2017, 19, 013006.	1.2	17
101	Many-Particle Dephasing after a Quench. Physical Review Letters, 2017, 118, 130601.	2.9	16
102	Arbitrary optical wave evolution with Fourier transforms and phase masks. Optics Express, 2021, 29, 38441.	1.7	16
103	From Kardar-Parisi-Zhang scaling to explosive desynchronization in arrays of limit-cycle oscillators. Physical Review E, 2017, 96, 012220.	0.8	15
104	Equations of motion approach to decoherence and current noise in ballistic interferometers coupled to a quantum bath. Physical Review B, 2006, 74, .	1.1	14
105	Localized Phase Structures Growing Out of Quantum Fluctuations in a Quench of Tunnel-coupled Atomic Condensates. Physical Review Letters, 2012, 109, 085304.	2.9	14
106	Gain-tunable optomechanical cooling in a laser cavity. Physical Review A, 2013, 87, .	1.0	14
107	Universal Dephasing in a Chiral 1D Interacting Fermion System. Physical Review Letters, 2009, 102, 046806.	2.9	13
108	Push towards the quantum limit. Nature Physics, 2008, 4, 513-514.	6.5	12

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109	Quantum simulation of expanding spaceâ€“time with tunnel-coupled condensates. New Journal of Physics, 2015, 17, 125007.	1.2	12
110	Machine learning and quantum devices. SciPost Physics Lecture Notes, 0, , .	0.0	12
111	Rapid Exploration of Topological Band Structures Using Deep Learning. Physical Review X, 2021, 11, .	2.8	12
112	Relaxation and Dephasing in a Many-Fermion Generalization of the Caldeira-Leggett Model. Physical Review Letters, 2004, 93, 130404.	2.9	11
113	Recent progress in open quantum systems: Nonâ€Gaussian noise and decoherence in fermionic systems. Physica Status Solidi (B): Basic Research, 2009, 246, 1018-1023.	0.7	11
114	Stroboscopic observation of quantum many-body dynamics. Physical Review A, 2012, 85, .	1.0	11
115	Dimensional crossover of the dephasing time in disordered mesoscopic rings. Physical Review B, 2009, 80, .	1.1	10
116	The quantum transverse-field Ising chain in circuit quantum electrodynamics: effects of disorder on the nonequilibrium dynamics. New Journal of Physics, 2013, 15, 035013.	1.2	10
117	Many-fermion generalization of the Caldeira-Leggett model. Physical Review A, 2005, 72, .	1.0	9
118	Observing polarization patterns in the collective motion of nanomechanical arrays. Nature Communications, 2022, 13, 2478.	5.8	9
119	Electron-plasmon scattering in chiral one-dimensional systems with nonlinear dispersion. Physical Review B, 2010, 82, .	1.1	8
120	ac conductance through an interacting quantum dot. Physical Review B, 2010, 81, .	1.1	8
121	Quench dynamics in one-dimensional optomechanical arrays. Physical Review A, 2020, 101, .	1.0	7
122	Synchronizing a single-electron shuttle to an external drive. New Journal of Physics, 2014, 16, 043009.	1.2	6
123	Basic Theory of Cavity Optomechanics. , 2014, , 5-23.		6
124	Optical signatures of the coupled spin-mechanics of a levitated magnetic microparticle. Journal of the Optical Society of America B: Optical Physics, 2021, 38, 3858.	0.9	6
125	Deep Learning of Quantum Many-Body Dynamics via Random Driving. Quantum - the Open Journal for Quantum Science, 0, 6, 714.	0.0	6
126	Perturbation theory of optical resonances of deformed dielectric spheres. Physical Review A, 2019, 100, .	1.0	5

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127	The gentle cooling touch of light. Nature, 2011, 478, 47-48.	13.7	4
128	Dynamically generated synthetic electric fields for photons. Physical Review A, 2019, 100, .	1.0	4
129	Renormalized Mutual Information for Artificial Scientific Discovery. Physical Review Letters, 2021, 126, 200601.	2.9	4
130	Phase space crystal vibrations: Chiral edge states with preserved time-reversal symmetry. Physical Review B, 2022, 105, .	1.1	4
131	Tunneling in the Brillouin zone: Theory of backscattering in valley Hall edge channels. Physical Review B, 2021, 104, .	1.1	4
132	Dephasing rate formula in the many-body context. Physical Review B, 2009, 80, .	1.1	3
133	Kinetics of many-body reservoir engineering. Physical Review Research, 2020, 2, .	1.3	2
134	Decoherence in a double-dot Aharonov-Bohm interferometer: Numerical renormalization group study. Physical Review B, 2014, 90, .	1.1	1
135	Decoherence of Fermions Subject to a Quantum Bath. , 2008, , 169-181.		1
136	Visibility of the Aharonovâ€“Bohm Effect in a Ring Coupled to a Fluctuating Magnetic Flux. Journal of Low Temperature Physics, 2002, 126, 1325-1337.	0.6	0
137	Optomechanical effects in a dispersively coupled high finesse cavity and micromechanical membrane. , 2008, , .		0
138	Optomechanics with multiple optical and vibrational modes. , 2010, , .		0
139	Nonequilibrium Quantum Dynamics in Optomechanical Systems. , 2010, , .		0
140	Observation of Brillouin Cooling. , 2012, , .		0
141	Experimental Observation of Spontaneous Brillouin Cooling. Optics and Photonics News, 2012, 23, 43.	0.4	0
142	Collective dynamics in optomechanical arrays. , 2013, , .		0
143	â€œSnowflake Crystalâ€•Traps Light and Sound. Physics Magazine, 2014, 7, .	0.1	0
144	Examples of Quantum Dynamics in Optomechanical Systems. Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, 2010, , 167-179.	0.2	0