Markus Aspelmeyer

List of Publications by Year
in descending order

151 papers	21,516 citations	17429 63 h-index	19169 118 g-index
156 all docs	156 docs citations	156 times ranked	9322 citing authors

#	Article	IF	Citations
1	When Zeh Meets Feynman: How toÂAvoid theÂAppearance ofÂaÂClassical World inÂGravity Experiments. Fundamental Theories of Physics, 2022, , 85-95.	0.1	9
2	Measurement of gravitational coupling between millimetre-sized masses. Nature, 2021, 591, 225-228.	13.7	68
3	Real-time optimal quantum control of mechanical motion at room temperature. Nature, 2021, 595, 373-377.	13.7	185
4	Large Quantum Delocalization of a Levitated Nanoparticle Using Optimal Control: Applications for Force Sensing and Entangling via Weak Forces. Physical Review Letters, 2021, 127, 023601.	2.9	48
5	Levitodynamics: Levitation and control of microscopic objects in vacuum. Science, 2021, 374, eabg3027.	6.0	142
6	Detecting Nonclassical Correlations in Levitated Cavity Optomechanics. Physical Review Applied, 2020, 14, .	1.5	15
7	Cooling of a levitated nanoparticle to the motional quantum ground state. Science, 2020, 367, 892-895.	6.0	367
8	Levitated cavity optomechanics in high vacuum. Quantum Science and Technology, 2020, 5, 025006.	2.6	31
9	Stationary optomechanical entanglement between a mechanical oscillator and its measurement apparatus. Physical Review Research, 2020, 2, .	1.3	21
10	Analytic solutions to the Maxwellâ€“London equations and levitation force for a superconducting sphere in a quadrupole field. Physica Scripta, 2019, 94, 125508.	1.2	12
11	Cavity Cooling of a Levitated Nanosphere by Coherent Scattering. Physical Review Letters, 2019, 122, 123602.	2.9	111
12	Information content of the gravitational field of a quantum superposition. International Journal of Modern Physics D, 2019, 28, 1943001.	0.9	28
13	Nanophotonic near-field levitated optomechanics. , 2019, , .		0
14	Remote quantum entanglement between two micromechanical oscillators. Nature, 2018, 556, 473-477.	13.7	408
15	Quantum superposition of massive objects and the quantization of gravity. Physical Review D, 2018, 98, .	1.6	133
16	Optomechanical Bell Test. Physical Review Letters, 2018, 121, 220404.	2.9	125
17	Reduction of absorption losses in MOVPE-grown AlGaAs Bragg mirrors. Optics Letters, 2018, 43, 3522.	1.7	6
18	Near-field coupling of a levitated nanoparticle to a photonic crystal cavity. Optica, 2018, 5, 1597.	4.8	37

#	Article	IF	Citations
19	Hanbury Brown and Twiss interferometry of single phonons from an optomechanical resonator. Science, 2017, 358, 203-206.	6.0	190
20	Peak-power scaling of femtosecond SESAM-modelocked Yb:Lu<inf>2</inf>O<inf>3</inf> thin-disk lasers. , 2017, , .		0
21	Ultrastable lasers based on low thermal noise optical resonators. , 2017, , .		0
22	Mid-infrared crystalline mirrors with ultralow optical losses. , 2017, , .		1
23	High finesse semiconductor supermirrors. , 2017, , .		0
24	Thermal Noise in Ultrastable Cavity-Referenced Lasers. , 2017, , .		0
25	Mid-infrared crystalline supermirrors with ultralow optical absorption (Conference Presentation). , 2017, , .		0
26	High-performance near- and mid-infrared crystalline coatings. Optica, 2016, 3, 647.	4.8	132
27	A micromechanical proof-of-principle experiment for measuring the gravitational force of milligram masses. Classical and Quantum Gravity, 2016, 33, 125031.	1.5	76
28	Coherent cancellation of photothermal noise in GaAs/Al_{0.92}Ga_{0.08}As Bragg mirrors. Metrologia, 2016, 53, 860-868.	0.6	29
29	Optical trapping and control of nanoparticles inside evacuated hollow core photonic crystal fibers. Applied Physics Letters, 2016, 108, .	1.5	41
30	Macroscopic Quantum Resonators (MAQRO): 2015 update. EPJ Quantum Technology, 2016, 3, .	2.9	77
31	Quantum technology: from research to application. Applied Physics B: Lasers and Optics, 2016, 122, 1.	1.1	42
32	Optimized SESAMs for kilowatt-level ultrafast lasers. Optics Express, 2016, 24, 10512.	1.7	44
33	Thermal performance of a radiatively cooled system for quantum optomechanical experiments in space. Applied Thermal Engineering, 2016, 107, 689-699.	3.0	15
34	Direct frequency comb measurement of OD + CO â†' DOCO kinetics. Science, 2016, 354, 444-448.	6.0	86
35	Low-loss crystalline coatings for the near- and mid-infrared. , 2016, , .		1
36	Non-classical correlations between single photons and phonons from a mechanical oscillator. Nature, 2016, 530, 313-316.	13.7	348

#	Article	IF	Citations
37	New Frontiers in Quantum Optomechanics: from levitation to gravitation. , 2016, , .		0
38	Advancements in Substrate-Transferred Crystalline Coatings. , 2016, , .		0
39	Optimal State Estimation for Cavity Optomechanical Systems. Physical Review Letters, 2015, 114, 223601.	2.9	75
40	Crystalline coatings for near-IR ring laser gyroscopes. , 2015, , .		0
41	Experimental opto-mechanics with levitated nanoparticles: towards quantum control and thermodynamic cycles (Presentation Recording). , 2015, , .		0
42	Diamonds take off. Nature Photonics, 2015, 9, 633-634.	15.6	3
43	Sensing earthâ€™s rotation with a heliumâ€“neon ring laser operating at 115â€‰â€‰Î¼m. Optics Letters, 2015, 40, 1705.	1.4	18
44	Observation of non-Markovian micromechanical Brownian motion. Nature Communications, 2015, 6, 7606.	5.8	141
45	Cavity optomechanics. Reviews of Modern Physics, 2014, 86, 1391-1452.	16.4	4,064
46	Suspended Mirrors: From Test Masses to Micromechanics. , 2014, , 57-81.		0
47	How cold can you get in space? Quantum physics at cryogenic temperatures in space. New Journal of Physics, 2014, 16, 013058.	1.2	13
48	Reduction of residual amplitude modulation to 1 Ã— 10^-6 for frequency modulation and laser stabilization. Optics Letters, 2014, 39, 1980.	1.7	125
49	Silicon optomechanical crystal resonator at millikelvin temperatures. Physical Review A, 2014, 90, .	1.0	89
50	Tensile-strained InxGa1â^'xP membranes for cavity optomechanics. Applied Physics Letters, 2014, 104, .	1.5	21
51	Macroscopic Optomechanics from Displaced Single-Photon Entanglement. Physical Review Letters, 2014, 112, .	2.9	61
52	Quantum Optomechanics. , 2014, , .		0
53	Tenfold reduction of Brownian noise in high-reflectivity optical coatings. Nature Photonics, 2013, 7, 644-650.	15.6	297
54	Cooling-by-measurement and mechanical state tomography via pulsed optomechanics. Nature Communications, 2013, 4, 2295.	5.8	132

#	Article	IF	Citations
55	Squeezed light from a silicon micromechanical resonator. Nature, 2013, 500, 185-189.	13.7	458
56	Cavity Optomechanics of Levitated Nanodumbbells: Nonequilibrium Phases and Self-Assembly. Physical Review Letters, 2013, 110, 143604.	2.9	33
57	Laser noise in cavity-optomechanical cooling and thermometry. New Journal of Physics, 2013, 15, 035007.	1.2	76
58	Quantum State Orthogonalization and a Toolset for Quantum Optomechanical Phonon Control. Physical Review Letters, 2013, 110, 010504.	2.9	67
59	Time-Continuous Bell Measurements. Physical Review Letters, 2013, 111, 170404.	2.9	24
60	Cavity cooling of an optically levitated submicron particle. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 14180-14185.	3.3	264
61	Optomechanical SchrÃ¶dinger cats â€“ a case for space. , 2013, , 123-132.		1
62	Crystalline coatings for ultra-low-noise optical cavities. , 2013, , .		0
63	Macroscopic quantum resonators (MAQRO). Experimental Astronomy, 2012, 34, 123-164.	1.6	74
64	Quantum optomechanics. Physics Today, 2012, 65, 29-35.	0.3	504
65	Strain profile and polarization enhancement in Ba_{0.5}Sr_{0.5}TiO₃ thin films. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 2255-2259.	0.8	1
66	Pulsed Laser Cooling for Cavity Optomechanical Resonators. Physical Review Letters, 2012, 108, 153601.	2.9	94
67	Ein quantenoptischer Blick auf die Planck-Skala?. Physik in Unserer Zeit, 2012, 43, 163-164.	0.0	0
68	Probing Planck-scale physics with quantum optics. Nature Physics, 2012, 8, 393-397.	6.5	473
69	Quantum Optomechanics: a mechanical platform for quantum foundations and quantum information. , 2012, , .		0
70	Pulsed quantum optomechanics. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 16182-16187.	3.3	231
71	Large Quantum Superpositions and Interference of Massive Nanometer-Sized Objects. Physical Review Letters, 2011, 107, 020405.	2.9	373
72	Optically levitating dielectrics in the quantum regime: Theory and protocols. Physical Review A, 2011, 83, .	1.0	187

#	Article	IF	Citations
73	Mechanical memory sees the light. Nature Nanotechnology, 2011, 6, 690-691.	15.6	13
74	Laser cooling of a nanomechanical oscillator into its quantum ground state. Nature, 2011, 478, 89-92.	13.7	1,866
75	Licht macht Druck. Physik in Unserer Zeit, 2011, 42, 276-284.	0.0	1
76	Quantum entanglement and teleportation in pulsed cavity optomechanics. Physical Review A, 2011, 84, .	1.0	199
77	Macroscopic quantum resonators in space. , 2011, , .		3
78	Phonon-tunnelling dissipation in mechanical resonators. Nature Communications, 2011, 2, 231.	5.8	147
79	Quantum opto-mechanics: Quantum optical control of massive mechanical resonators. , 2011, , .		0
80	Quantum Optomechanics: QIPC and quantum foundations with massive mechanical systems. , 2011, , .		0
81	The surf is up. Nature, 2010, 464, 685-686.	13.7	12
82	Femtosecond laser fabrication of high reflectivity micromirrors. Applied Physics Letters, 2010, 97, .	1.5	17
83	Free-standing AlxGa1â^'xAs heterostructures by gas-phase etching of germanium. Applied Physics Letters, 2010, 96, .	1.5	24
84	Single-photon opto-mechanics in the strong coupling regime. New Journal of Physics, 2010, 12, 083030.	1.2	102
85	Logical independence and quantum randomness. New Journal of Physics, 2010, 12, 013019.	1.2	7
86	Quantum optomechanicsâ€"throwing a glance [Invited]. Journal of the Optical Society of America B: Optical Physics, 2010, 27, A189.	0.9	247
87	Megahertz monocrystalline optomechanical resonators with minimal dissipation. , 2010, , .		9
88	Quantum-Opto-Mechanics in the Strong Coupling Regime. , 2010, , .		0
89	High-fidelity entanglement swapping with fully independent sources. Physical Review A, 2009, 79, .	1.0	77
90	Quantum optical control of micro-mechanical resonators. , 2009, , .		0

#	Article	IF	Citations
91	Performing high-quality multi-photon experiments with parametric down-conversion. Journal of Physics B: Atomic, Molecular and Optical Physics, 2009, 42, 114008.	0.6	8
92	Anti-symmetrization reveals hidden entanglement. New Journal of Physics, 2009, 11, 103052.	1.2	64
93	How to extend quantum experiments. Fortschritte Der Physik, 2009, 57, 1153-1162.	1.5	7
94	Observation of strong coupling between a micromechanical resonator and an optical cavity field. Nature, 2009, 460, 724-727.	13.7	848
95	Measured measurement. Nature Physics, 2009, 5, 11-12.	6.5	9
96	Demonstration of an ultracold micro-optomechanical oscillator in a cryogenic cavity. Nature Physics, 2009, 5, 485-488.	6.5	304
97	Establishing Einstein-Poldosky-Rosen Channels between Nanomechanics and Atomic Ensembles. Physical Review Letters, 2009, 102, 020501.	2.9	155
98	Phase-noise induced limitations on cooling and coherent evolution in optomechanical systems. Physical Review A, 2009, 80, .	1.0	84
99	Space-quest, experiments with quantum entanglement in space. Europhysics News, 2009, 40, 26-29.	0.1	77
100	Quantum communications at ESA: Towards a space experiment on the ISS. Acta Astronautica, 2008, 63, 165-178.	1.7	63
101	Entangled families. Nature, 2008, 455, 180-181.	13.7	14
102	Experimental verification of the feasibility of a quantum channel between space and Earth. New Journal of Physics, 2008, 10, 033038.	1.2	177
103	Ground-state cooling of a micromechanical oscillator: Comparing cold damping and cavity-assisted cooling schemes. Physical Review A, 2008, 77, .	1.0	475
104	Monocrystalline AlxGa1â^'xAs heterostructures for high-reflectivity high-Q micromechanical resonators in the megahertz regime. Applied Physics Letters, 2008, 92, .	1.5	65
105	Radiation-pressure self-cooling of a micromirror in a cryogenic environment. Europhysics Letters, 2008, 81, 54003.	0.7	52
106	Focus on Mechanical Systems at the Quantum Limit. New Journal of Physics, 2008, 10, 095001.	1.2	85
107	A quantum renaissance. Physics World, 2008, 21, 22-28.	0.0	24
108	Quantum-Optical Control of Micromechanics. , 2008, , .		0

#	Article	IF	Citations
109	Space-to-Ground Single-Photon Link for the Realization of a Space Quantum Channel. , 2008, , .		0
110	Heralded generation of multiphoton entanglement. Physical Review A, 2007, 75, .	1.0	33
111	Experimental Test of Nonlocal Realistic Theories Without the Rotational Symmetry Assumption. Physical Review Letters, 2007, 99, 210406.	2.9	84
112	Photonic entanglement as a resource in quantum computation and quantum communication. Journal of the Optical Society of America B: Optical Physics, 2007, 24, 241.	0.9	20
113	Optomechanical Entanglement between a Movable Mirror and a Cavity Field. Physical Review Letters, 2007, 98, 030405.	2.9	888
114	Creating and Probing Multipartite Macroscopic Entanglement with Light. Physical Review Letters, 2007, 99, 250401.	2.9	267
115	Enlightened chips. Nature Photonics, 2007, 1, 94-95.	15.6	2
116	An experimental test of non-local realism. Nature, 2007, 446, 871-875.	13.7	305
117	High reflectivity high-Q micromechanical Bragg mirror. Applied Physics Letters, 2006, 89, 223101.	1.5	31
118	Experimental Interference of Independent Photons. Physical Review Letters, 2006, 96, 240502.	2.9	171
119	Influence of satellite motion on polarization qubits in a Space-Earth quantum communication link. Optics Express, 2006, 14, 10050.	1.7	49
120	Self-cooling of a micromirror by radiation pressure. Nature, 2006, 444, 67-70.	13.7	819
121	Reconstructing the dynamics of a movable mirror in a detuned optical cavity. New Journal of Physics, 2006, 8, 107-107.	1.2	105
122	Happy centenary, photon. Nature, 2005, 433, 230-238.	13.7	116
123	Experimental one-way quantum computing. Nature, 2005, 434, 169-176.	13.7	1,027
124	Complementarity and Information in â€œDelayed-choice for Entanglement Swappingâ€• Foundations of Physics, 2005, 35, 1909-1919.	0.6	20
125	Experimental Violation of a Cluster State Bell Inequality. Physical Review Letters, 2005, 95, 020403.	2.9	108
126	Nonlocality of cluster states of qubits. Physical Review A, 2005, 71, .	1.0	148

#	Article	IF	Citations
127	Satellite-based quantum communication terminal employing state-of-the-art technology. Journal of Optical Networking, 2005, 4, 549.	2.5	54
128	Advanced Quantum Communications Experiments with Entangled Photons. Optical Science and Engineering, 2005, , 45-81.	0.1	1
129	Course 9 Entangled photons and quantum communication. Les Houches Summer School Proceedings, 2004, 79, 337-355.	0.2	1
130	Proof-of-concept experiments for quantum physics in space. , 2004, 5161, 252.		18
131	Space-to-ground quantum communication using an optical ground station: a feasibility study. , 2004, 5551, 113.		16
132	Nonlocal photon number states for quantum metrology. , 2004, , .		0
133	De Broglie wavelength of a non-local four-photon state. Nature, 2004, 429, 158-161.	13.7	463
134	Quantum teleportation across the Danube. Nature, 2004, 430, 849-849.	13.7	261
135	Long-distance quantum communication with entangled photons using satellites. IEEE Journal of Selected Topics in Quantum Electronics, 2003, 9, 1541-1551.	1.9	184
136	Experimental realization of freely propagating teleported qubits. Nature, 2003, 421, 721-725.	13.7	90
137	Measurement and active compensation of polarization drifts in a fiber quantum channel used for teleportation. , 2003, , .		1
138	Long-Distance Free-Space Distribution of Quantum Entanglement. Science, 2003, 301, 621-623.	6.0	177
139	Phonon anomalies in displacive phase transitions by surface X-ray scattering. European Physical Journal Special Topics, 2003, 112, 123-127.	0.2	1
140	Growth kinetics of an athermal martensitic transformation by time-resolved optical diffraction from a Ni63Al37(001) surface. European Physical Journal Special Topics, 2003, 112, 151-157.	0.2	0
141	Solid-liquid interface of a 2-propanolâ€“perfluoromethylcyclohexane mixture: From adsorption to wetting. Physical Review E, 2002, 65, 061604.	0.8	10
142	An experimental method to investigate the structure and kinetics of patterned surfaces using laser light diffraction. Review of Scientific Instruments, 2002, 73, 108-113.	0.6	1
143	Diffraction from tunable periodic structures II Experimental observation of electric fieldâ€“induced diffraction peaks. Applied Optics, 2002, 41, 5845.	2.1	8
144	High-resolution x-ray reflectivity study of thin layered Pt-electrodes for integrated ferroelectric devices. Journal Physics D: Applied Physics, 2001, 34, A173-A178.	1.3	18

#	Article	IF	Citations
145	Martensitic relief formation on an electropolished Ni-37 at.% Al (001) surface by diffuse X-ray scattering under grazing angles. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1999, 273-275, 286-290.	2.6	5
146	Time-Dependent Aspects of the Athermal Martensitic Transformation: First Observation of Incubation Time in Niâ€“Al. Physica Status Solidi A, 1999, 174, R9-R10.	1.7	11
147	Premonitory Martensitic Surface Relief Via Novel X-Ray Diffuse and Laser Light Reflectivity from The (001)-Surface of A Ni63Al37Single Crystal. Materials Research Society Symposia Proceedings, 1999, 580, 293.	0.1	3
148	Non-postselected teleportation of single qubits. , 0, , .		0
149	Active switching in long distance quantum state teleportation. , 0, , .		0
150	Quantum optomechanics. , 0, , 259-279.		1
151	Quantum mechanics: The surf is up. Nature, 0, , .	13.7	0