Markus Aspelmeyer

List of Publications by Year in Descending Order

118 papers	16,116 citations	56 h-index	126 g-index
156 ext. papers	19,359 ext. citations	13.8 avg, IF	6.82 L-index

#	Paper	IF	Citations
118	When Zeh Meets Feynman: How to Avoid the Appearance of a Classical World in Gravity Experiments. *Fundamental Theories of Physics*, **2022**, 85-95	0.8	2
117	Levitodynamics: Levitation and control of microscopic objects in vacuum. *Science*, **2021**, 374, eabg3027	33.3	22
116	Measurement of gravitational coupling between millimetre-sized masses. *Nature*, **2021**, 591, 225-228	50.4	15
115	Real-time optimal quantum control of mechanical motion at room temperature. *Nature*, **2021**, 595, 373-377	50.4	38
114	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	7.4	7
113	Detecting Nonclassical Correlations in Levitated Cavity Optomechanics. *Physical Review Applied*, **2020**, 14,	4.3	7
112	Cooling of a levitated nanoparticle to the motional quantum ground state. *Science*, **2020**, 367, 892-895	33.3	160
111	Levitated cavity optomechanics in high vacuum. *Quantum Science and Technology*, **2020**, 5, 025006	5.5	15
110	Stationary optomechanical entanglement between a mechanical oscillator and its measurement apparatus. *Physical Review Research*, **2020**, 2,	3.9	7
109	Cavity Cooling of a Levitated Nanosphere by Coherent Scattering. *Physical Review Letters*, **2019**, 122, 123602	7.4	74
108	Analytic solutions to the Maxwell–London equations and levitation force for a superconducting sphere in a quadrupole field. *Physica Scripta*, **2019**, 94, 125508	2.6	7
107	Information content of the gravitational field of a quantum superposition. *International Journal of Modern Physics D*, **2019**, 28, 1943001	2.2	11
106	Remote quantum entanglement between two micromechanical oscillators. *Nature*, **2018**, 556, 473-477	50.4	260
105	Reduction of absorption losses in MOVPE-grown AlGaAs Bragg mirrors. *Optics Letters*, **2018**, 43, 3522-3525	3.6	2
104	Near-field coupling of a levitated nanoparticle to a photonic crystal cavity. *Optica*, **2018**, 5, 1597	8.6	24
103	Quantum superposition of massive objects and the quantization of gravity. *Physical Review D*, **2018**, 98,	4.9	55
102	Optomechanical Bell Test. *Physical Review Letters*, **2018**, 121, 220404	7.4	81

101	Hanbury Brown and Twiss interferometry of single phonons from an optomechanical resonator. *Science*, **2017**, 358, 203-206	33.3	136
100	Mid-infrared crystalline mirrors with ultralow optical losses **2017**,		1
99	Direct frequency comb measurement of OD + CO -n DOCO kinetics. *Science*, **2016**, 354, 444-448	33.3	65
98	Non-classical correlations between single photons and phonons from a mechanical oscillator. *Nature*, **2016**, 530, 313-6	50.4	253
97	High-performance near- and mid-infrared crystalline coatings. *Optica*, **2016**, 3, 647	8.6	81
96	A micromechanical proof-of-principle experiment for measuring the gravitational force of milligram masses. *Classical and Quantum Gravity*, **2016**, 33, 125031	3.3	49
95	Coherent cancellation of photothermal noise in GaAs/Al0.92Ga0.08As Bragg mirrors. *Metrologia*, **2016**, 53, 860-868	2.1	14
94	Optical trapping and control of nanoparticles inside evacuated hollow core photonic crystal fibers. *Applied Physics Letters*, **2016**, 108, 221103	3.4	32
93	Macroscopic Quantum Resonators (MAQRO): 2015 update. *EPJ Quantum Technology*, **2016**, 3,	6.9	57
92	Quantum technology: from research to application. *Applied Physics B: Lasers and Optics*, **2016**, 122, 1	1.9	21
91	Optimized SESAMs for kilowatt-level ultrafast lasers. *Optics Express*, **2016**, 24, 10512-26	3.3	24
90	Thermal performance of a radiatively cooled system for quantum optomechanical experiments in space. *Applied Thermal Engineering*, **2016**, 107, 689-699	5.8	9
89	Sensing earth's rotation with a helium-neon ring laser operating at 1.15 μm. *Optics Letters*, **2015**, 40, 1705-8	3	10
88	Observation of non-Markovian micromechanical Brownian motion. *Nature Communications*, **2015**, 6, 7606	7.4	110
87	Optimal State Estimation for Cavity Optomechanical Systems. *Physical Review Letters*, **2015**, 114, 223601	7.4	57
86	Tensile-strained $In_xGa_{1-x}P$ membranes for cavity optomechanics. *Applied Physics Letters*, **2014**, 104, 201908	3.4	17
85	Macroscopic Optomechanics from Displaced Single-Photon Entanglement. *Physical Review Letters*, **2014**, 112,	7.4	51
84	Cavity optomechanics. *Reviews of Modern Physics*, **2014**, 86, 1391-1452	40.5	2824

83	Suspended Mirrors: From Test Masses to Micromechanics **2014**, 57-81		
82	How cold can you get in space? Quantum physics at cryogenic temperatures in space. *New Journal of Physics*, **2014**, 16, 013058	2.9	10
81	Reduction of residual amplitude modulation to 1 □10?□for frequency modulation and laser stabilization. *Optics Letters*, **2014**, 39, 1980-3	3	90
80	Silicon optomechanical crystal resonator at millikelvin temperatures. *Physical Review A*, **2014**, 90,	2.6	74
79	Tenfold reduction of Brownian noise in high-reflectivity optical coatings. *Nature Photonics*, **2013**, 7, 644-650	33.9	202
78	Cooling-by-measurement and mechanical state tomography via pulsed optomechanics. *Nature Communications*, **2013**, 4, 2295	17.4	106
77	Squeezed light from a silicon micromechanical resonator. *Nature*, **2013**, 500, 185-9	50.4	372
76	Cavity optomechanics of levitated nanodumbbells: nonequilibrium phases and self-assembly. *Physical Review Letters*, **2013**, 110, 143604	7.4	26
75	Laser noise in cavity-optomechanical cooling and thermometry. *New Journal of Physics*, **2013**, 15, 035007	2.9	55
74	Quantum state orthogonalization and a toolset for quantum optomechanical phonon control. *Physical Review Letters*, **2013**, 110, 010504	7.4	56
73	Time-continuous Bell measurements. *Physical Review Letters*, **2013**, 111, 170404	7.4	22
72	Cavity cooling of an optically levitated submicron particle. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 14180-5	11.5	216
71	Macroscopic quantum resonators (MAQRO). *Experimental Astronomy*, **2012**, 34, 123-164	1.3	60
70	Quantum optomechanics. *Physics Today*, **2012**, 65, 29-35	0.9	373
69	Strain profile and polarization enhancement in Ba0.5Sr0.5TiO3 thin films. *Physica Status Solidi (A) Applications and Materials Science*, **2012**, 209, 2255-2259	1.6	1
68	Pulsed laser cooling for cavity optomechanical resonators. *Physical Review Letters*, **2012**, 108, 153601	7.4	76
67	Ein quantenoptischer Blick auf die Planck-Skala?. *Physik in Unserer Zeit*, **2012**, 43, 163-164	0.1	
66	Probing Planck-scale physics with quantum optics. *Nature Physics*, **2012**, 8, 393-397	16.2	359

65	Optically levitating dielectrics in the quantum regime: Theory and protocols. *Physical Review A*, **2011**, 83,	2.6	155
64	Cavity optomechanics: Mechanical memory sees the light. *Nature Nanotechnology*, **2011**, 6, 690-1	28.7	9
63	Laser cooling of a nanomechanical oscillator into its quantum ground state. *Nature*, **2011**, 478, 89-92	50.4	1500
62	Licht macht Druck. *Physik in Unserer Zeit*, **2011**, 42, 276-284	0.1	1
61	Pulsed quantum optomechanics. *Proceedings of the National Academy of Sciences of the United States of America*, **2011**, 108, 16182-7	11.5	199
60	Large quantum superpositions and interference of massive nanometer-sized objects. *Physical Review Letters*, **2011**, 107, 020405	7.4	305
59	Quantum entanglement and teleportation in pulsed cavity optomechanics. *Physical Review A*, **2011**, 84,	2.6	161
58	Macroscopic quantum resonators in space **2011**,		3
57	Phonon-tunnelling dissipation in mechanical resonators. *Nature Communications*, **2011**, 2, 231	17.4	118
56	Femtosecond laser fabrication of high reflectivity micromirrors. *Applied Physics Letters*, **2010**, 97, 041104	3.4	13
55	Free-standing AlxGa1−xAs heterostructures by gas-phase etching of germanium. *Applied Physics Letters*, **2010**, 96, 261102	3.4	19
54	Single-photon opto-mechanics in the strong coupling regime. *New Journal of Physics*, **2010**, 12, 083030	2.9	94
53	Logical independence and quantum randomness. *New Journal of Physics*, **2010**, 12, 013019	2.9	4
52	Quantum optomechanics—throwing a glance [Invited]. *Journal of the Optical Society of America B: Optical Physics*, **2010**, 27, A189	1.7	221
51	MEGAHERTZ MONOCRYSTALLINE OPTOMECHANICAL RESONATORS WITH MINIMAL DISSIPATION **2010**,		5
50	High-fidelity entanglement swapping with fully independent sources. *Physical Review A*, **2009**, 79,	2.6	57
49	Performing high-quality multi-photon experiments with parametric down-conversion. *Journal of Physics B: Atomic, Molecular and Optical Physics*, **2009**, 42, 114008	1.3	7
48	Anti-symmetrization reveals hidden entanglement. *New Journal of Physics*, **2009**, 11, 103052	2.9	43

47	How to extend quantum experiments. *Fortschritte Der Physik*, **2009**, 57, 1153-1162	5.7	5
46	Observation of strong coupling between a micromechanical resonator and an optical cavity field. *Nature*, **2009**, 460, 724-7	50.4	709
45	Demonstration of an ultracold micro-optomechanical oscillator in a cryogenic cavity. *Nature Physics*, **2009**, 5, 485-488	16.2	257
44	Establishing Einstein-Poldosky-Rosen channels between nanomechanics and atomic ensembles. *Physical Review Letters*, **2009**, 102, 020501	7.4	138
43	Phase-noise induced limitations on cooling and coherent evolution in optomechanical systems. *Physical Review A*, **2009**, 80,	2.6	70
42	Space-quest, experiments with quantum entanglement in space. *Europhysics News*, **2009**, 40, 26-29	0.2	60
41	Experimental verification of the feasibility of a quantum channel between space and Earth. *New Journal of Physics*, **2008**, 10, 033038	2.9	140
40	Ground-state cooling of a micromechanical oscillator: Comparing cold damping and cavity-assisted cooling schemes. *Physical Review A*, **2008**, 77,	2.6	397
39	Monocrystalline AlxGa1As heterostructures for high-reflectivity high-Q micromechanical resonators in the megahertz regime. *Applied Physics Letters*, **2008**, 92, 261108	3.4	58
38	Radiation-pressure self-cooling of a micromirror in a cryogenic environment. *Europhysics Letters*, **2008**, 81, 54003	1.6	45
37	A quantum renaissance. *Physics World*, **2008**, 21, 22-28	0.5	19
36	Quantum communications at ESA: Towards a space experiment on the ISS. *Acta Astronautica*, **2008**, 63, 165-178	2.9	48
35	Creating and probing multipartite macroscopic entanglement with light. *Physical Review Letters*, **2007**, 99, 250401	7.4	228
34	An experimental test of non-local realism. *Nature*, **2007**, 446, 871-5	50.4	235
33	Heralded generation of multiphoton entanglement. *Physical Review A*, **2007**, 75,	2.6	28
32	Experimental test of nonlocal realistic theories without the rotational symmetry assumption. *Physical Review Letters*, **2007**, 99, 210406	7.4	71
31	Photonic entanglement as a resource in quantum computation and quantum communication. *Journal of the Optical Society of America B: Optical Physics*, **2007**, 24, 241	1.7	17
30	Optomechanical entanglement between a movable mirror and a cavity field. *Physical Review Letters* , **2007**, 98, 030405	7.4	666

29	Reconstructing the dynamics of a movable mirror in a detuned optical cavity. *New Journal of Physics* , **2006**, 8, 107-107	2.9	97
28	High reflectivity high-Q micromechanical Bragg mirror. *Applied Physics Letters*, **2006**, 89, 223101	3.4	25
27	Experimental interference of independent photons. *Physical Review Letters*, **2006**, 96, 240502	7.4	138
26	Influence of satellite motion on polarization qubits in a Space-Earth quantum communication link. *Optics Express*, **2006**, 14, 10050-9	3.3	37
25	Self-cooling of a micromirror by radiation pressure. *Nature*, **2006**, 444, 67-70	50.4	695
24	Nonlocality of cluster states of qubits. *Physical Review A*, **2005**, 71,	2.6	137
23	Satellite-based quantum communication terminal employing state-of-the-art technology. *Journal of Optical Networking*, **2005**, 4, 549		40
22	Happy centenary, photon. *Nature*, **2005**, 433, 230-8	50.4	80
21	Experimental one-way quantum computing. *Nature*, **2005**, 434, 169-76	50.4	820
20	Complementarity and Information in Delayed-choice for Entanglement Swapping *Foundations of Physics*, **2005**, 35, 1909-1919	1.2	14
19	Experimental violation of a cluster state bell inequality. *Physical Review Letters*, **2005**, 95, 020403	7.4	100
18	Advanced Quantum Communications Experiments with Entangled Photons. *Optical Science and Engineering*, **2005**, 45-81		1
17	Entangled Photons and Quantum Communication. *Les Houches Summer School Proceedings*, **2004**, 79, 337-355		
16	Proof-of-concept experiments for quantum physics in space **2004**, 5161, 252		13
15	Space-to-ground quantum communication using an optical ground station: a feasibility study **2004**, 5551, 113		11
14	De Broglie wavelength of a non-local four-photon state. *Nature*, **2004**, 429, 158-61	50.4	372
13	Communications: quantum teleportation across the Danube. *Nature*, **2004**, 430, 849	50.4	196
12	Long-distance quantum communication with entangled photons using satellites. *IEEE Journal of Selected Topics in Quantum Electronics*, **2003**, 9, 1541-1551	3.8	126

11	Experimental realization of freely propagating teleported qubits. *Nature*, **2003**, 421, 721-5	50.4	81
10	Long-distance free-space distribution of quantum entanglement. *Science*, **2003**, 301, 621-3	33.3	143
9	Solid-liquid interface of a 2-propanol-perfluoromethylcyclohexane mixture: from adsorption to wetting. *Physical Review E*, **2002**, 65, 061604	2.4	9
8	An experimental method to investigate the structure and kinetics of patterned surfaces using laser light diffraction. *Review of Scientific Instruments*, **2002**, 73, 108-113	1.7	1
7	Action from tunable periodic structures. II. Experimental observation of electric field-induced diffraction peaks. *Applied Optics*, **2002**, 41, 5845-50	1.7	6
6	High-resolution x-ray reflectivity study of thin layered Pt-electrodes for integrated ferroelectric devices. *Journal Physics D: Applied Physics*, **2001**, 34, A173-A178	3	17
5	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	5.3	4
4	Time-Dependent Aspects of the Athermal Martensitic Transformation: First Observation of Incubation Time in Ni□Al. *Physica Status Solidi A*, **1999**, 174, R9-R10		10
3	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		3
2	Quantum optomechanics259-279		0
1	Optomechanical Schr□dinger cats □a case for space123-132		1