Oskar Jon Painter

List of Publications by Citations

137 papers	17,524 citations	62 h-index	132 g-index
192 ext. papers	21,233 ext. citations	10 avg, IF	6.72 L-index

#	Paper	IF	Citations
137	Two-dimensional photonic band-Gap defect mode laser. *Science*, **1999**, 284, 1819-21	33.3	1859
136	Laser cooling of a nanomechanical oscillator into its quantum ground state. *Nature*, **2011**, 478, 89-92	50.4	1500
135	Electromagnetically induced transparency and slow light with optomechanics. *Nature*, **2011**, 472, 69-73	50.4	985
134	Optomechanical crystals. *Nature*, **2009**, 462, 78-82	50.4	725
133	Observation of critical coupling in a fiber taper to a silica-microsphere whispering-gallery mode system. *Physical Review Letters*, **2000**, 85, 74-7	7.4	623
132	Nonlinear optical phenomena in silicon waveguides: modeling and applications. *Optics Express*, **2007**, 15, 16604-44	3.3	608
131	A picogram- and nanometre-scale photonic-crystal optomechanical cavity. *Nature*, **2009**, 459, 550-5	50.4	478
130	Chemically etched ultrahigh-Q wedge-resonator on a silicon chip. *Nature Photonics*, **2012**, 6, 369-373	33.9	386
129	Cavity opto-mechanics using an optically levitated nanosphere. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 1005-10	11.5	381
128	Squeezed light from a silicon micromechanical resonator. *Nature*, **2013**, 500, 185-9	50.4	372
127	Beyond the Rayleigh scattering limit in high-Q silicon microdisks: theory and experiment. *Optics Express*, **2005**, 13, 1515-30	3.3	332
126	A high-resolution microchip optomechanical accelerometer. *Nature Photonics*, **2012**, 6, 768-772	33.9	330
125	Coherent optical wavelength conversion via cavity optomechanics. *Nature Communications*, **2012**, 3, 1196	7.4	318
124	Linear and nonlinear optical spectroscopy of a strongly coupled microdisk-quantum dot system. *Nature*, **2007**, 450, 862-5	50.4	313
123	Nonlinear response of silicon photonic crystal microresonators excited via an integrated waveguide and fiber taper. *Optics Express*, **2005**, 13, 801-20	3.3	292
122	Observation of quantum motion of a nanomechanical resonator. *Physical Review Letters*, **2012**, 108, 033602	7.4	287
121	Momentum space design of high-Q photonic crystal optical cavities. *Optics Express*, **2002**, 10, 670-84	3.3	248

120	Quantum cascade surface-emitting photonic crystal laser. *Science*, **2003**, 302, 1374-7	33.3	228
119	Generalized non-reciprocity in an optomechanical circuit via synthetic magnetism and reservoir engineering. *Nature Physics*, **2017**, 13, 465-471	16.2	227
118	Proposal for an optomechanical traveling wave phonon–photon translator. *New Journal of Physics*, **2011**, 13, 013017	2.9	220
117	Enhanced quantum nonlinearities in a two-mode optomechanical system. *Physical Review Letters*, **2012**, 109, 063601	7.4	219
116	Optimized optomechanical crystal cavity with acoustic radiation shield. *Applied Physics Letters*, **2012** , 101, 081115	3.4	202
115	Coherent mixing of mechanical excitations in nano-optomechanical structures. *Nature Photonics*, **2010**, 4, 236-242	33.9	193
114	Actuation of micro-optomechanical systems via cavity-enhanced optical dipole forces. *Nature Photonics*, **2007**, 1, 416-422	33.9	163
113	Two-dimensional phononic-photonic band gap optomechanical crystal cavity. *Physical Review Letters*, **2014**, 112, 153603	7.4	154
112	First-principle derivation of gain in high-index-contrast waveguides. *Optics Express*, **2008**, 16, 16659-69	3.3	141
111	Design of optomechanical cavities and waveguides on a simultaneous bandgap phononic-photonic crystal slab. *Optics Express*, **2010**, 18, 14926-43	3.3	139
110	Self-induced optical modulation of the transmission through a high-Q silicon microdisk resonator. *Optics Express*, **2006**, 14, 817-31	3.3	136
109	A multispectral and polarization-selective surface-plasmon resonant midinfrared detector. *Applied Physics Letters*, **2009**, 95, 161101	3.4	135
108	Experimental demonstration of a high quality factor photonic crystal microcavity. *Applied Physics Letters*, **2003**, 83, 1915-1917	3.4	135
107	Mechanical oscillation and cooling actuated by the optical gradient force. *Physical Review Letters*, **2009**, 103, 103601	7.4	129
106	Ultra-low-loss optical delay line on a silicon chip. *Nature Communications*, **2012**, 3, 867	17.4	128
105	Static and dynamic wavelength routing via the gradient optical force. *Nature Photonics*, **2009**, 3, 478-483	33.9	126
104	Phonon counting and intensity interferometry of a nanomechanical resonator. *Nature*, **2015**, 520, 522-5	50.4	124
103	Efficient microwave to optical photon conversion: an electro-optical realization. *Optica*, **2016**, 3, 597	8.6	124

102	Cavity Q, mode volume, and lasing threshold in small diameter AlGaAs microdisks with embedded quantum dots. *Optics Express*, **2006**, 14, 1094-105	3.3	122
101	Coherent interference effects in a nano-assembled diamond NV center cavity-QED system. *Optics Express*, **2009**, 17, 8081-97	3.3	118
100	Optical transduction and routing of microwave phonons in cavity-optomechanical circuits. *Nature Photonics*, **2016**, 10, 489-496	33.9	112
99	Experimental demonstration of fiber-accessible metal nanoparticle plasmon waveguides for planar energy guiding and sensing. *Applied Physics Letters*, **2005**, 86, 071103	3.4	112
98	Room temperature photonic crystal defect lasers at near-infrared wavelengths in InGaAsP. *Journal of Lightwave Technology*, **1999**, 17, 2082-2088	4	112
97	Optical and mechanical design of a "zipper" photonic crystal optomechanical cavity. *Optics Express*, **2009**, 17, 3802-17	3.3	110
96	Rayleigh scattering, mode coupling, and optical loss in silicon microdisks. *Applied Physics Letters*, **2004**, 85, 3693-3695	3.4	104
95	Optomechanics in an ultrahigh-Q two-dimensional photonic crystal cavity. *Applied Physics Letters*, **2010**, 97, 181106	3.4	99
94	Optomechanical creation of magnetic fields for photons on a lattice. *Optica*, **2015**, 2, 635	8.6	95
93	Mode coupling and cavity□quantum-dot interactions in a fiber-coupled microdisk cavity. *Physical Review A*, **2007**, 75,	2.6	95
92	Integration of fiber-coupled high-Q SiNx microdisks with atom chips. *Applied Physics Letters*, **2006**, 89, 131108	3.4	94
91	Modal reflectivity in finite-depth two-dimensional photonic-crystal microcavities. *Journal of the Optical Society of America B: Optical Physics*, **1998**, 15, 1155	1.7	94
90	Diamond optomechanical crystals. *Optica*, **2016**, 3, 1404	8.6	87
89	An optical fiber-taper probe for wafer-scale microphotonic device characterization. *Optics Express*, **2007**, 15, 4745-52	3.3	80
88	Nanowire photonic crystal waveguides for single-atom trapping and strong light-matter interactions. *Applied Physics Letters*, **2014**, 104, 111103	3.4	79
87	Snowflake phononic topological insulator at the nanoscale. *Physical Review B*, **2018**, 97,	3.3	77
86	Efficient input and output fiber coupling to a photonic crystal waveguide. *Optics Letters*, **2004**, 29, 697-93		77
85	Silicon optomechanical crystal resonator at millikelvin temperatures. *Physical Review A*, **2014**, 90,	2.6	74

84	Cavity quantum electrodynamics with atom-like mirrors. *Nature*, **2019**, 569, 692-697	50.4	71
83	Optical-fiber-based measurement of an ultrasmall volume high-Q photonic crystal microcavity. *Physical Review B*, **2004**, 70,	3.3	71
82	Finite-difference time-domain calculation of the spontaneous emission coupling factor in optical microcavities. *IEEE Journal of Quantum Electronics*, **1999**, 35, 1168-1175	2	71
81	Pseudomagnetic fields for sound at the nanoscale. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, E3390-E3395	11.5	69
80	Superconducting qubit to optical photon transduction. *Nature*, **2020**, 588, 599-603	50.4	68
79	Pulsed Excitation Dynamics of an Optomechanical Crystal Resonator near Its Quantum Ground State of Motion. *Physical Review X*, **2015**, 5,	9.1	67
78	Nanoscale quantum dot infrared sensors with photonic crystal cavity. *Applied Physics Letters*, **2006**, 88, 151104	3.4	66
77	Measuring the role of surface chemistry in silicon microphotonics. *Applied Physics Letters*, **2006**, 88, 131114	3.4	65
76	Modeling dispersive coupling and losses of localized optical and mechanical modes in optomechanical crystals. *Optics Express*, **2009**, 17, 20078-98	3.3	63
75	High-Q double-disk microcavities for cavity optomechanics. *Optics Express*, **2009**, 17, 20911-9	3.3	62
74	Optical loss and lasing characteristics of high-quality-factor AlGaAs microdisk resonators with embedded quantum dots. *Applied Physics Letters*, **2005**, 86, 151106	3.4	61
73	Position-Squared Coupling in a Tunable Photonic Crystal Optomechanical Cavity. *Physical Review X*, **2015**, 5,	9.1	60
72	Quasi-two-dimensional optomechanical crystals with a complete phononic bandgap. *Optics Express*, **2011**, 19, 5658-69	3.3	58
71	Low-loss fiber accessible plasmon waveguide for planar energy guiding and sensing. *Applied Physics Letters*, **2004**, 84, 3990-3992	3.4	57
70	Laser noise in cavity-optomechanical cooling and thermometry. *New Journal of Physics*, **2013**, 15, 035007	2.9	55
69	Highly efficient coupling from an optical fiber to a nanoscale silicon optomechanical cavity. *Applied Physics Letters*, **2013**, 103, 181104	3.4	55
68	Design of photonic crystal waveguides for evanescent coupling to optical fiber tapers and integration with high-Q cavities. *Journal of the Optical Society of America B: Optical Physics*, **2003**, 20, 2274	1.7	55
67	Silicon-chip source of bright photon pairs. *Optics Express*, **2015**, 23, 20884-904	3.3	53

66	Nano-acoustic resonator with ultralong phonon lifetime. *Science*, **2020**, 370, 840-843	33.3	53
65	Design of mid-IR and THz quantum cascade laser cavities with complete TM photonic bandgap. *Optics Express*, **2007**, 15, 5948-65	3.3	52
64	Optical fiber taper coupling and high-resolution wavelength tuning of microdisk resonators at cryogenic temperatures. *Applied Physics Letters*, **2007**, 90, 031114	3.4	51
63	Superconducting metamaterials for waveguide quantum electrodynamics. *Nature Communications*, **2018**, 9, 3706	17.4	51
62	Enhancement of mechanical Q factors by optical trapping. *Physical Review Letters*, **2012**, 108, 214302	7.4	50
61	Lithographic tuning of a two-dimensional photonic crystal laser array. *IEEE Photonics Technology Letters*, **2000**, 12, 1126-1128	2.2	50
60	Subradiant states of quantum bits coupled to a one-dimensional waveguide. *New Journal of Physics*, **2019**, 21, 025003	2.9	49
59	On-chip two-octave supercontinuum generation by enhancing self-steepening of optical pulses. *Optics Express*, **2011**, 19, 11584-90	3.3	49
58	Growth, processing, and optical properties of epitaxial Er2O3 on silicon. *Optics Express*, **2008**, 16, 19649-66	3.3	49
57	Probing the dispersive and spatial properties of photonic crystal waveguides via highly efficient coupling from fiber tapers. *Applied Physics Letters*, **2004**, 85, 4-6	3.4	48
56	Photonic microstructures as laser mirrors. *Optical Engineering*, **1998**, 37, 1143	1.1	48
55	Surface-plasmon mode hybridization in subwavelength microdisk lasers. *Applied Physics Letters*, **2009**, 95, 201114	3.4	47
54	Feasibility of detecting single atoms using photonic bandgap cavities. *Nanotechnology*, **2004**, 15, S556-S561	3.4	47
53	Fourier space design of high-Q cavities in standard and compressed hexagonal lattice photonic crystals. *Optics Express*, **2003**, 11, 579-93	3.3	45
52	Photonic crystals for confining, guiding, and emitting light. *IEEE Nanotechnology Magazine*, **2002**, 1, 4-11	2.6	44
51	Quantum back-action in measurements of zero-point mechanical oscillations. *Physical Review A*, **2012**, 86,	2.6	43
50	Nonlinear Radiation Pressure Dynamics in an Optomechanical Crystal. *Physical Review Letters*, **2015**, 115, 233601	7.4	42
49	Electrostatically tunable optomechanical "zipper" cavity laser. *Applied Physics Letters*, **2010**, 97, 191112	3.4	42

48	Strong opto-electro-mechanical coupling in a silicon photonic crystal cavity. *Optics Express*, **2015**, 23, 3196-208	3.3	40
47	A proposal for highly tunable optical parametric oscillation in silicon micro-resonators. *Optics Express*, **2008**, 16, 10596-610	3.3	39
46	Fabrication-tolerant high quality factor photonic crystal microcavities. *Optics Express*, **2004**, 12, 1458-63	3.3	38
45	Measurement of spontaneous emission from a two-dimensional photonic band gap defined microcavity at near-infrared wavelengths. *Applied Physics Letters*, **1999**, 74, 1522-1524	3.4	38
44	Optical coupling to nanoscale optomechanical cavities for near quantum-limited motion transduction. *Optics Express*, **2013**, 21, 11227-36	3.3	37
43	Design of plasmonic photonic crystal resonant cavities for polarization sensitive infrared photodetectors. *Optics Express*, **2010**, 18, 3672-86	3.3	37
42	Slot-mode-coupled optomechanical crystals. *Optics Express*, **2012**, 20, 24394-410	3.3	35
41	Emission properties of a defect cavity in a two-dimensional photonic bandgap crystal slab. *Journal of the Optical Society of America B: Optical Physics*, **2000**, 17, 629	1.7	31
40	Polarization properties of dipolelike defect modes in photonic crystal nanocavities. *Optics Letters*, **2002**, 27, 339-41	3	28
39	Accurate measurement of scattering and absorption loss in microphotonic devices. *Optics Letters*, **2007**, 32, 2954-6	3	27
38	Two-dimensional optomechanical crystal cavity with high quantum cooperativity. *Nature Communications*, **2020**, 11, 3373	17.4	25
37	Photonic bandgap disk laser. *Electronics Letters*, **1999**, 35, 569	1.1	24
36	Design of a quasi-2D photonic crystal optomechanical cavity with tunable, large x2-coupling. *Optics Express*, **2016**, 24, 21308-28	3.3	24
35	Tailoring of the resonant mode properties of optical nanocavities in two-dimensional photonic crystal slab waveguides. *Journal of Optics*, **2001**, 3, S161-S170		23
34	Localized defect states in two-dimensional photonic crystal slab waveguides: A simple model based upon symmetry analysis. *Physical Review B*, **2003**, 68,	3.3	22
33	Telecom-Band Quantum Optics with Ytterbium Atoms and Silicon Nanophotonics. *Physical Review Applied*, **2019**, 11,	4.3	21
32	Single quantum dot spectroscopy using a fiber taper waveguide near-field optic. *Applied Physics Letters*, **2007**, 91, 091102	3.4	21
31	Experimental demonstration of evanescent coupling from optical fibre tapers to photonic crystal waveguides. *Electronics Letters*, **2003**, 39, 842	1.1	21

30	Quantum electromechanics of a hypersonic crystal. *Nature Nanotechnology*, **2019**, 14, 334-339	28.7	21
29	Quantum Electrodynamics in a Topological Waveguide. *Physical Review X*, **2021**, 11,	9.1	21
28	Characterization of radiation pressure and thermal effects in a nanoscale optomechanical cavity. *Optics Express*, **2009**, 17, 15726-35	3.3	20
27	Wannier-like equation for the resonant cavity modes of locally perturbed photonic crystals. *Physical Review B*, **2003**, 68,	3.3	19
26	Photoluminescence measurements of quantum-dot-containing semiconductor microdisk resonators using optical fiber taper waveguides. *Physical Review B*, **2005**, 72,	3.3	19
25	Optomechanical zipper cavity lasers: theoretical analysis of tuning range and stability. *Optics Express*, **2010**, 18, 7872-85	3.3	18
24	Investigations of a coherently driven semiconductor optical cavity QED system. *Physical Review A*, **2008**, 78,	2.6	17
23	Surface encapsulation for low-loss silicon photonics. *Applied Physics Letters*, **2007**, 91, 131117	3.4	16
22	Multispectral Quantum Dots-in-a-Well Infrared Detectors Using Plasmon Assisted Cavities. *IEEE Journal of Quantum Electronics*, **2010**, 46, 1051-1057	2	15
21	Adiabatic self-tuning in a silicon microdisk optical resonator. *Optics Express*, **2008**, 16, 14801-11	3.3	15
20	Design of tunable GHz-frequency optomechanical crystal resonators. *Optics Express*, **2016**, 24, 11407-19	3.3	14
19	Al transmon qubits on silicon-on-insulator for quantum device integration. *Applied Physics Letters*, **2017**, 111, 042603	3.4	14
18	Superconducting Cavity Electromechanics on a Silicon-on-Insulator Platform. *Physical Review Applied*, **2016**, 6,	4.3	14
17	Demonstration of air-guided quantum cascade lasers without top claddings. *Optics Express*, **2007**, 15, 14861-9	3.3	11
16	An optical-fiber-based probe for photonic crystal microcavities. *IEEE Journal on Selected Areas in Communications*, **2005**, 23, 1321-1329	14.2	10
15	Lasing mode pattern of a quantum cascade photonic crystal surface-emitting microcavity laser. *Applied Physics Letters*, **2004**, 84, 4164-4166	3.4	10
14	Fabrication technologies for quantum cascade photonic-crystal microlasers. *Nanotechnology*, **2004**, 15, 675-681	3.4	8
13	High temperature cavity polaritons in epitaxial Er2O3 on silicon. *Applied Physics Letters*, **2009**, 94, 131103	3.4	7

List of Publications

12	Fabrication of high-quality-factor photonic crystal microcavities in InAsP/InGaAsP membranes. *Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena*, **2004**, 22, 875		6
11	Building a Fault-Tolerant Quantum Computer Using Concatenated Cat Codes. *PRX Quantum*, **2022**, 3,	6.1	6
10	Proof-of-principle of surface detection with air-guided quantum cascade lasers. *Optics Express*, **2008**, 16, 6387-96	3.3	5
9	Optomechanical Crystal Devices **2014**, 195-231		3
8	Photonic crystal microcavities for chip-based cavity QED. *Physica Status Solidi (B): Basic Research*, **2005**, 242, 1187-1191	1.3	2
7	Passive Modification of Free Carrier Lifetime in High-Q Silicon-on-Insulator Optics **2009**,		2
6	Trapped atoms in one-dimensional photonic crystals **2013**,		1
5	Mechanical Trapping in a Quadratically Coupled Optomechanical Double Disk **2011**,		1
4	Optomechanics of strongly-coupled stacked monolithic microdisks **2008**,		1
3	Quantum dot photonic crystal detectors **2006**,		1
2	Sensitive Phonon Detection in a Spiderweb Optomechanical Resonator **2010**,		1
1	Guest Editorial Nanotechnologies for Communications. *IEEE Journal on Selected Areas in Communications*, **2005**, 23, 1305-1307	14.2	