Peter T Rakich

List of Publications by Year
in descending order

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123 papers	6,269 citations	101384 36 h-index	102304 66 g-index
125 all docs	125 docs citations	125 times ranked	4839 citing authors

#	Article	IF	Citations
1	Polarization-transparent microphotonic devices in the strong confinement limit. Nature Photonics, 2007, 1, 57-60.	15.6	492
2	A three-dimensional optical photonic crystal with designed point defects. Nature, 2004, 429, 538-542.	13.7	457
3	Quantum acoustics with superconducting qubits. Science, 2017, 358, 199-202.	6.0	284
4	Tailorable stimulated Brillouin scattering in nanoscale silicon waveguides. Nature Communications, 2013, 4, 1944.	5.8	269
5	Enhanced coupling to vertical radiation using a two-dimensional photonic crystal in a semiconductor light-emitting diode. Applied Physics Letters, 2001, 78, 563-565.	1.5	254
6	Sub-hertz fundamental linewidth photonic integrated Brillouin laser. Nature Photonics, 2019, 13, 60-67.	15.6	254
7	Brillouin integrated photonics. Nature Photonics, 2019, 13, 664-677.	15.6	244
8	Achieving centimetre-scale supercollimation in a large-area two-dimensional photonic crystal. Nature Materials, 2006, 5, 93-96.	13.3	222
9	Multimaterial piezoelectric fibres. Nature Materials, 2010, 9, 643-648.	13.3	218
10	Large Brillouin amplification in silicon. Nature Photonics, 2016, 10, 463-467.	15.6	200
11	Microring-resonator-based add-drop filters in SiN: fabrication and analysis. Optics Express, 2004, 12, 1437.	1.7	193
12	A silicon Brillouin laser. Science, 2018, 360, 1113-1116.	6.0	191
13	Creation and control of multi-phonon Fock states in a bulk acoustic-wave resonator. Nature, 2018, 563, 666-670.	13.7	176
14	Multistage high-order microring-resonator add-drop filters. Optics Letters, 2006, 31, 2571.	1.7	157
15	Non-reciprocal interband Brillouin modulation. Nature Photonics, 2018, 12, 613-619.	15.6	145
16	Tailoring optical forces in waveguides through radiation pressure and electrostrictive forces. Optics Express, 2010, 18, 14439.	1.7	144
17	Giant Enhancement of Stimulated Brillouin Scattering in the Subwavelength Limit. Physical Review X, 2012, 2, .	2.8	142
18	Trapping, corralling and spectral bonding of optical resonances through optically induced potentials. Nature Photonics, 2007, 1, 658-665.	15.6	139

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19	Silicon photonics for compact, energy-efficient interconnects [Invited]. Journal of Optical Networking, 2007, 6, 63.	2.5	130
20	Control of coherent information via on-chip photonicâ€“phononic emitterâ€“receivers. Nature Communications, 2015, 6, 6427.	5.8	128
21	422 Million intrinsic quality factor planar integrated all-waveguide resonator with sub-MHz linewidth. Nature Communications, 2021, 12, 934.	5.8	124
22	Fabrication of add-drop filters based on frequency-matched microring resonators. Journal of Lightwave Technology, 2006, 24, 2207-2218.	2.7	120
23	Stimulated Brillouin scattering in nanoscale silicon step-index waveguides: a general framework of selection rules and calculating SBS gain. Optics Express, 2013, 21, 31402.	1.7	108
24	On-chip inter-modal Brillouin scattering. Nature Communications, 2017, 8, 15819.	5.8	106
25	Electrically driven acousto-optics and broadband non-reciprocity in silicon photonics. Nature Photonics, 2021, 15, 43-52.	15.6	105
26	General treatment of optical forces and potentials in mechanically variable photonic systems. Optics Express, 2009, 17, 18116.	1.7	85
27	Strain-tunable silicon photonic band gap microcavities in optical waveguides. Applied Physics Letters, 2004, 84, 1242-1244.	1.5	79
28	Guiding 1.5 Î¼m light in photonic crystals based on dielectric rods. Applied Physics Letters, 2004, 85, 6110-6112.	1.5	64
29	Origin of reduction in phonon thermal conductivity of microporous solids. Applied Physics Letters, 2009, 95, .	1.5	64
30	Bulk crystalline optomechanics. Nature Physics, 2018, 14, 601-607.	6.5	61
31	Integrated wavelength-selective optical MEMS switching using ring resonator filters. IEEE Photonics Technology Letters, 2005, 17, 1190-1192.	1.3	58
32	Visible light photonic integrated Brillouin laser. Nature Communications, 2021, 12, 4685.	5.8	52
33	RF-Photonic Filters via On-Chip Photonicâ€“Phononic Emitâ€“Receive Operations. Journal of Lightwave Technology, 2018, 36, 2803-2809.	2.7	50
34	Scaling of optical forces in dielectric waveguides: rigorous connection between radiation pressure and dispersion. Optics Letters, 2011, 36, 217.	1.7	44
35	Fundamental noise dynamics in cascaded-order Brillouin lasers. Physical Review A, 2018, 98, .	1.0	41
36	Resonantly enhanced nonreciprocal silicon Brillouin amplifier. Optica, 2019, 6, 1117.	4.8	39

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37	Ultralow 0.034â€…dB/m loss wafer-scale integrated photonics realizing 720 million Q and 380 Î¼W threshold Brillouin lasing. Optics Letters, 2022, 47, 1855.	1.7	38
38	High-frequency cavity optomechanics using bulk acoustic phonons. Science Advances, 2019, 5, eaav0582.	4.7	37
39	Efficient mid-IR spectral generation via spontaneous fifth-order cascaded-Raman amplification in silica fibers. Optics Letters, 2008, 33, 1690.	1.7	34
40	Ultra-high-Qphononic resonators on-chip at cryogenic temperatures. APL Photonics, 2018, 3, 066101.	3.0	32
41	Tunable microwave-photonic filtering with high out-of-band rejection in silicon. APL Photonics, 2020, 5, .	3.0	31
42	Ultrawide tuning of photonic microcavities via evanescent field perturbation. Optics Letters, 2006, 31, 1241.	1.7	29
43	Phonon considerations in the reduction of thermal conductivity inÂphononic crystals. Applied Physics A: Materials Science and Processing, 2011, 103, 575-579.	1.1	28
44	Guided-wave Brillouin scattering in air. Optica, 2016, 3, 1316.	4.8	26
45	Air trench bends and splitters for dense optical integration in low index contrast. Journal of Lightwave Technology, 2005, 23, 2271-2277.	2.7	25
46	Strong THz and Infrared Optical Forces on a Suspended Single-Layer Graphene Sheet. ACS Photonics, 2014, 1, 1107-1115.	3.2	24
47	Optomechanical Cooling in a Continuous System. Physical Review X, 2018, 8, .	2.8	24
48	Quantum theory of continuum optomechanics. New Journal of Physics, 2018, 20, 045005.	1.2	22
49	Electrical control of surface acoustic waves. Nature Electronics, 2022, 5, 348-355.	13.1	22
50	Frequency-Stabilized Links for Coherent WDM Fiber Interconnects in the Datacenter. Journal of Lightwave Technology, 2020, 38, 3376-3386.	2.7	21
51	Low-loss low thermo-optic coefficient Ta2O5 on crystal quartz planar optical waveguides. APL Photonics, 2020, 5, .	3.0	20
52	Efficient low-power terahertz generation via on-chip triply-resonant nonlinear frequency mixing. Applied Physics Letters, 2010, 96, 101110.	1.5	19
53	Response theory of optical forces in two-port photonics systems: a simplified framework for examining conservative and non-conservative forces. Optics Express, 2011, 19, 22322.	1.7	19
54	Integrated reference cavity with dual-mode optical thermometry for frequency correction. Optica, 2021, 8, 1481.	4.8	19

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55	Narrowband microwave-photonic notch filters using Brillouin-based signal transduction in silicon. Nature Communications, 2022, 13, 1947.	5.8	19
56	Microwave Filtering Using Forward Brillouin Scattering in Photonic-Phononic Emit-Receive Devices. Journal of Lightwave Technology, 2020, 38, 5248-5261.	2.7	16
57	Closed-form solutions and scaling laws for Kerr frequency combs. Scientific Reports, 2016, 6, 24742.	1.6	15
58	Nano-scale photonic crystal microcavity characterization with an all-fiber based 1.2 - 2.0 ?m supercontinuum. Optics Express, 2005, 13, 821.	1.7	13
59	Reconfigurable silicon photonic circuits for telecommunication applications. Proceedings of SPIE, 2008, , .	0.8	13
60	Shaping nonlinear optical response using nonlocal forward Brillouin interactions. New Journal of Physics, 2020, 22, 043017.	1.2	11
61	Multistage high-order microring-resonator filters with relaxed tolerances for high through-port extinction. , 2005, , .		8
62	Hitless-Reconfigurable and Bandwidth-Scalable Silicon Photonic Circuits for Telecom and Interconnect Applications. , 2008, , .		8
63	Backscatter-Immune Injection-Locked Brillouin Laser in Silicon. Physical Review Applied, 2020, 14, .	1.5	8
64	Experimental demonstration of loop-coupled microring resonators for optimally sharp optical filters. , 2008, , .		7
65	Engineering dissipation with phononic spectral hole burning. Nature Materials, 2017, 16, 315-321.	13.3	7
66	Optical loss in silicon microphotonic waveguides induced by metallic contamination. Applied Physics Letters, 2008, 92, 131108.	1.5	6
67	Optonanomechanical self-adaptive photonic devices based on light forces: a path to robust high-index-contrast nanophotonic circuits. , 2009, , .		4
68	Thermal and driven noise in Brillouin lasers. Physical Review A, 2022, 105, .	1.0	4
69	Strong-Confinement Microring Resonator Photonic Circuits. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	3
70	Photons that pivot and shuttle. Nature Nanotechnology, 2014, 9, 878-880.	15.6	3
71	Traveling-wave photon-phonon coupling as the basis for new signal processing technologies. , 2014, , .		2
72	Guide-wave Photonic Pulling Force Using One-way Photonic Chiral Edge States. , 2015, , .		2

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73	Narrowband microwave-photonic notch filtering using Brillouin interactions in silicon. , 2021, , .		2
74	720 Million Quality Factor Integrated All-Waveguide Photonic Resonator. , 2021, , .		2
75	Versatile micro-fabricated mirrors with finesse >700,000. , 2021, , .		2
76	Engineering optical forces in waveguides and cavities based on optical response. , 2010, , .		1
77	Narrow Linewidth Stimulated Brillouin Scattering (SBS) Lasers. , 2018, , .		1
78	Frequency Stabilized Lasers for Coherent Fiber Interconnects in the Datacenter (Invited Talk). , 2019, , .		1
79	Laser Frequency Drift Stabilization using an Integrated Dual-Mode Locking Si3N4 Waveguide Reference Cavity. , 2021, , .		1
80	Low-loss D-shape Silicon Nitride Waveguides Using a Dielectric Lift-off Fabrication Process. , 2020, , .		1
81	Broadband optical studies of 1D and 3D photonic crystals. , 2005, , .		0
82	High-index-contrast microphotonics, from concept to implementation. , 2006, , .		0
83	Ultra-widely tunable photonic microcavities through evanescent field perturbation. , 2006, , .		0
84	Metallic-Contamination-Induced Optical Loss in Silicon Microphotonic Waveguides. , 2007, , .		0
85	Strategies for successful realization of strong confinement microphotonic devices. , 2008, , .		0
86	Efficient mid-IR spectral generation via 4th order cascaded-Raman amplification. , 2008, , .		0
87	Self-aligning “smart” microcavities and picometer-scale optomechanical control through optical forces and potentials. , 2008, , .		0
88	Dynamical systems in nanophotonics: From energy efficient modulators to light forces and optomechanics. , 2009, , .		0
89	Engineering optical forces in waveguides and cavities based on optical response. , 2010, , .		0
90	Tailoring optical forces in waveguides through radiation pressure and electrostriction. , 2010, , .		0

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91	The connection between radiation pressure and dispersion in dielectric waveguides. , 2010, , .		0
92	Giant Enhancement of Stimulated Brillouin Scattering in The Sub-Wavelength Limit. , 2012, , .		0
93	Stimulated Mach-wave phonon emission: Towards broadband phonon emitters and receivers. , 2012, , .		0
94	Slow light and broadband coherent phonon generation. , 2012, , .		0
95	Slow light through tightly coupled light waves and acoustic waves in nanoscale waveguides. Proceedings of SPIE, 2013, , .	0.8	0
96	Tailorable stimulated Brillouin scattering in silicon nanophotonics. , 2013, , .		0
97	Brillouin-Based Signal Processing in Silicon Photonics : (Invited paper). , 2019, , .		0
98	Corrections to â€œRF-Photonic Filters via On-Chip Photonic-Phononic Emitâ€“Receive Operationsâ€• Journal of Lightwave Technology, 2019, 37, 3434-3434.	2.7	0
99	Multi Pole Microwave Filtering using Brillouin Scattering in Silicon. , 2019, , .		0
100	Numerically Accelerated Development Cycle for Ultra-high Finesse Micro-fabricated Resonators. , 2021, , .		0
101	Circuit theory and microphotonic circuit design: from resonant filters to light-powered nanomachines. , 2008, , .		0
102	Generalized Treatment of Optically-Induced Forces and Potentials in Optomechanically Variable Photonic Circuits. , 2008, , .		0
103	Non-Conservative Optical Forces on Single Particle in A Single-Mode Waveguide. , 2012, , .		0
104	Traveling-Wave Phonon Emission at the Nanoscale. , 2012, , .		0
105	Stimulated Brillouin scattering in silicon nanoscale waveguides. , 2013, , .		0
106	Operation bandwidth of forward stimulated Brillouin scattering in silicon Brillouin active membrane waveguides. , 2014, , .		0
107	Control of coherent information by mixing light and sound in photonic circuits. , 2015, , .		0
108	Control of coherent information via traveling-wave photon-phonon interactions. , 2015, , .		0

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109	New Radio-Frequency Photonic Filter based on photonic-phononic emitter-receivers. , 2015, , .		0
110	Optimization of Optical Forces in Nanoscale Photonic Waveguides via Dispersion Engineering. , 2015, , .		0
111	Scaling of Optical Forces with Material Response and Nanoscale Geometry. , 2015, , .		0
112	Inter-modal Brillouin Scattering in an Integrated Waveguide. , 2017, , .		0
113	Toward large forward Brillouin net amplification in silicon. , 2017, , .		0
114	Brillouin lasers and amplifiers in silicon photonics. , 2018, , .		0
115	Optomechanical cooling in continuous waveguide systems through spontaneous inter-modal Brillouin scattering. , 2019, , .		0
116	Resonantly enhanced Brillouin amplification and nonreciprocity in a silicon photonic circuit. , 2019, , .		0
117	Brillouin-Based Nonreciprocity and Laser Cooling in Silicon Photonics. , 2019, , .		0
118	Unidirectional injection-locked Brillouin laser in silicon. , 2020, , .		0
119	Acousto-optic Interactions in Silicon Photonics. , 2020, , .		0
120	RF-photonic filters using coupled Brillouin-active waveguides in silicon. , 2020, , .		0
121	Electrically-driven Acousto-optic Modulators in Silicon Photonics. , 2020, , .		0
122	Silicon Nitride Bus-Coupled Spiral-Ring Resonator for Dual-Mode Locking Temperature Stabilization. , 2021, , .		0
123	Nonreciprocal Frequency Domain Beam Splitter. Physical Review Letters, 2021, 127, 253603.	2.9	0