

# Pavel Cheben

## List of Publications by Year in descending order

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109  
papers

5,312  
citations

117453

34  
h-index

82410

72  
g-index

109  
all docs

109  
docs citations

109  
times ranked

2606  
citing authors

#	ARTICLE	IF	CITATIONS
1	Subwavelength integrated photonics. <i>Nature</i> , 2018, 560, 565-572.	13.7	594
2	Waveguide subwavelength structures: a review of principles and applications. <i>Laser and Photonics Reviews</i> , 2015, 9, 25-49.	4.4	475
3	Refractive index engineering with subwavelength gratings for efficient microphotonic couplers and planar waveguide multiplexers. <i>Optics Letters</i> , 2010, 35, 2526.	1.7	311
4	Subwavelength grating periodic structures in silicon-on-insulator: a new type of microphotonic waveguide. <i>Optics Express</i> , 2010, 18, 20251.	1.7	278
5	Subwavelength grating crossings for silicon wire waveguides. <i>Optics Express</i> , 2010, 18, 16146.	1.7	220
6	Waveguide grating coupler with subwavelength microstructures. <i>Optics Letters</i> , 2009, 34, 1408.	1.7	190
7	Broadband polarization independent nanophotonic coupler for silicon waveguides with ultra-high efficiency. <i>Optics Express</i> , 2015, 23, 22553.	1.7	165
8	Subwavelength-Grating Metamaterial Structures for Silicon Photonic Devices. <i>Proceedings of the IEEE</i> , 2018, 106, 2144-2157.	16.4	155
9	Ultra-broadband nanophotonic beamsplitter using an anisotropic subwavelength metamaterial. <i>Laser and Photonics Reviews</i> , 2016, 10, 1039-1046.	4.4	148
10	Evanescence field waveguide sensing with subwavelength grating structures in silicon-on-insulator. <i>Optics Letters</i> , 2014, 39, 4442.	1.7	143
11	High-resolution Fourier-transform spectrometer chip with microphotonic silicon spiral waveguides. <i>Optics Letters</i> , 2013, 38, 706.	1.7	116
12	Multiaperture planar waveguide spectrometer formed by arrayed Mach-Zehnder interferometers. <i>Optics Express</i> , 2007, 15, 18176.	1.7	106
13	Subwavelength index engineered surface grating coupler with sub-decibel efficiency for 220-nm silicon-on-insulator waveguides. <i>Optics Express</i> , 2015, 23, 22628.	1.7	106
14	Mapping the global design space of nanophotonic components using machine learning pattern recognition. <i>Nature Communications</i> , 2019, 10, 4775.	5.8	105
15	Polarization splitter and rotator with subwavelength grating for enhanced fabrication tolerance. <i>Optics Letters</i> , 2014, 39, 6931.	1.7	89
16	High-directionality fiber-chip grating coupler with interleaved trenches and subwavelength index-matching structure. <i>Optics Letters</i> , 2015, 40, 4190.	1.7	89
17	Mid-Infrared Silicon-on-Insulator Fourier-Transform Spectrometer Chip. <i>IEEE Photonics Technology Letters</i> , 2016, 28, 528-531.	1.3	84
18	[INVITED] Subwavelength structures for silicon photonics biosensing. <i>Optics and Laser Technology</i> , 2019, 109, 437-448.	2.2	79

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19	L-shaped fiber-chip grating couplers with high directionality and low reflectivity fabricated with deep-UV lithography. Optics Letters, 2017, 42, 3439.	1.7	77
20	Design of narrowband Bragg spectral filters in subwavelength grating metamaterial waveguides. Optics Express, 2018, 26, 179.	1.7	74
21	A review of silicon subwavelength gratings: building break-through devices with anisotropic metamaterials. Nanophotonics, 2021, 10, 2765-2797.	2.9	70
22	Demonstration of a compressive-sensing Fourier-transform on-chip spectrometer. Optics Letters, 2017, 42, 1440.	1.7	69
23	Fabrication tolerant and broadband polarization splitter and rotator based on a taper-etched directional coupler. Optics Express, 2014, 22, 17458.	1.7	68
24	High-efficiency single etch step apodized surface grating coupler using subwavelength structure. Laser and Photonics Reviews, 2014, 8, L93.	4.4	68
25	Ultra-Broadband Mode Converter and Multiplexer Based on Sub-Wavelength Structures. IEEE Photonics Journal, 2018, 10, 1-10.	1.0	65
26	Controlling leakage losses in subwavelength grating silicon metamaterial waveguides. Optics Letters, 2016, 41, 3443.	1.7	60
27	Tilted subwavelength gratings: controlling anisotropy in metamaterial nanophotonic waveguides. Optics Letters, 2018, 43, 4691.	1.7	60
28	Wavelength-dispersive device based on a Fourier-transform Michelson-type arrayed waveguide grating. Optics Letters, 2005, 30, 1824.	1.7	54
29	An Ultracompact GRIN-Lens-Based Spot Size Converter using Subwavelength Grating Metamaterials. Laser and Photonics Reviews, 2019, 13, 1900172.	4.4	47
30	Broadband fiber-chip zero-order surface grating coupler with 04% efficiency. Optics Letters, 2016, 41, 3013.	1.7	46
31	Bragg filter bandwidth engineering in subwavelength grating metamaterial waveguides. Optics Letters, 2019, 44, 1043.	1.7	41
32	Single-etch subwavelength engineered fiber-chip grating couplers for 13 Åµm datacom wavelength band. Optics Express, 2016, 24, 12893.	1.7	38
33	Sub-decibel silicon grating couplers based on L-shaped waveguides and engineered subwavelength metamaterials. Optics Express, 2019, 27, 26239.	1.7	38
34	Archimedean spiral cavity ring resonators in silicon as ultra-compact optical comb filters. Optics Express, 2010, 18, 1937.	1.7	37
35	Subwavelength grating Fourier-transform interferometer array in silicon-insulator. Laser and Photonics Reviews, 2013, 7, L67.	4.4	34
36	Design of a Broadband Polarization Splitter Based on Anisotropy-Engineered Tilted Subwavelength Gratings. IEEE Photonics Journal, 2019, 11, 1-8.	1.0	34

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37	Perfectly vertical surface grating couplers using subwavelength engineering for increased feature sizes. Optics Letters, 2020, 45, 3701.	1.7	34
38	Athermal silicon waveguides with bridged subwavelength gratings for TE and TM polarizations. Optics Express, 2012, 20, 18356.	1.7	32
39	Temperature dependence mitigation in stationary Fourier-transform on-chip spectrometers. Optics Letters, 2017, 42, 2239.	1.7	32
40	Disorder effects in subwavelength grating metamaterial waveguides. Optics Express, 2017, 25, 12222.	1.7	31
41	Experimental demonstration of metamaterial anisotropy engineering for broadband on-chip polarization beam splitting. Optics Express, 2020, 28, 16385.	1.7	31
42	Demonstration of a curved sidewall grating demultiplexer on silicon. Optics Express, 2012, 20, 19882.	1.7	30
43	Ultra-broadband nanophotonic phase shifter based on subwavelength metamaterial waveguides. Photonics Research, 2020, 8, 359.	3.4	28
44	Sub-wavelength grating mode transformers in silicon slab waveguides. Optics Express, 2009, 17, 19120.	1.7	27
45	Demultiplexer with blazed waveguide sidewall grating and sub-wavelength grating structure. Optics Express, 2008, 16, 17616.	1.7	26
46	Polarization splitting directional coupler using tilted subwavelength gratings. Optics Letters, 2020, 45, 3398.	1.7	26
47	Polarization- and wavelength-agnostic nanophotonic beam splitter. Scientific Reports, 2019, 9, 3604.	1.6	25
48	Design of Compact and Efficient Silicon Photonic Micro Antennas With Perfectly Vertical Emission. IEEE Journal of Selected Topics in Quantum Electronics, 2021, 27, 1-10.	1.9	24
49	Compact and highly-efficient broadband surface grating antenna on a silicon platform. Optics Express, 2021, 29, 7003.	1.7	24
50	Highly efficient optical antenna with small beam divergence in silicon waveguides. Optics Letters, 2020, 45, 5668.	1.7	24
51	Compact and Low Crosstalk Echelle Grating Demultiplexer on Silicon-On-Insulator Technology. Electronics (Switzerland), 2019, 8, 687.	1.8	23
52	Narrowband Bragg filters based on subwavelength grating waveguides for silicon photonic sensing. Optics Express, 2020, 28, 37971.	1.7	22
53	Mid-infrared suspended waveguide platform and building blocks. IET Optoelectronics, 2019, 13, 55-61.	1.8	21
54	Suspended germanium waveguides with subwavelength-grating metamaterial cladding for the mid-infrared band. Optics Express, 2021, 29, 16867.	1.7	21

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55	On-chip Fourier-transform spectrometers and machine learning: a new route to smart photonic sensors. <i>Optics Letters</i> , 2019, 44, 5840.	1.7	21
56	Complex spectral filters in silicon waveguides based on cladding-modulated Bragg gratings. <i>Optics Express</i> , 2021, 29, 15867.	1.7	20
57	Dual-Band Polarization-Independent Subwavelength Grating Coupler for Wavelength Demultiplexing. <i>IEEE Photonics Technology Letters</i> , 2020, 32, 1163-1166.	1.3	19
58	Bricked Subwavelength Gratings: A Tailorable On-Chip Metamaterial Topology. <i>Laser and Photonics Reviews</i> , 2021, 15, 2000478.	4.4	18
59	Empirical model for the temperature dependence of silicon refractive index from O to C band based on waveguide measurements. <i>Optics Express</i> , 2019, 27, 27229.	1.7	18
60	Development of a Fourier-transform waveguide spectrometer for space applications. <i>Optical and Quantum Electronics</i> , 2012, 44, 549-556.	1.5	17
61	Millimeter-long metamaterial surface-emitting antenna in the silicon photonics platform. <i>Optics Letters</i> , 2021, 46, 3733.	1.7	17
62	Distributed Bragg deflector coupler for on-chip shaping of optical beams. <i>Optics Express</i> , 2019, 27, 33180.	1.7	17
63	High-Performance On-Chip Silicon Beamsplitter Based on Subwavelength Metamaterials for Enhanced Fabrication Tolerance. <i>Nanomaterials</i> , 2021, 11, 1304.	1.9	16
64	Breaking the Coupling Efficiency-Bandwidth Trade-Off in Surface Grating Couplers Using Zero-Order Radiation. <i>Laser and Photonics Reviews</i> , 2021, 15, 2000542.	4.4	15
65	Zero-Birefringence Silicon Waveguides Based on Tilted Subwavelength Metamaterials. <i>IEEE Photonics Journal</i> , 2019, 11, 1-8.	1.0	14
66	Broadband Fourier-transform silicon nitride spectrometer with wide-area multiaperture input. <i>Optics Letters</i> , 2021, 46, 4021.	1.7	14
67	Athermal echelle grating filter in silicon-on-insulator using a temperature-synchronized input. <i>Optics Express</i> , 2018, 26, 28651.	1.7	14
68	Group-index birefringence and loss measurements in silicon-on-insulator photonic wire waveguides. <i>Optical Engineering</i> , 2007, 46, 104602.	0.5	12
69	Dual-band fiber-chip grating coupler in a 300 nm silicon-on-insulator platform and 193 nm deep-UV lithography. <i>Optics Letters</i> , 2021, 46, 617.	1.7	12
70	Polarization-independent multimode interference coupler with anisotropy-engineered bricked metamaterial. <i>Photonics Research</i> , 2022, 10, A57.	3.4	11
71	Wideband Ge-Rich SiGe Polarization-Insensitive Waveguides for Mid-Infrared Free-Space Communications. <i>Applied Sciences (Switzerland)</i> , 2018, 8, 1154.	1.3	10
72	Diffraction-less propagation beyond the sub-wavelength regime: a new type of nanophotonic waveguide. <i>Scientific Reports</i> , 2019, 9, 5347.	1.6	10

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73	Silicon photonic on-chip spatial heterodyne Fourier transform spectrometer exploiting the Jacquinot's advantage. Optics Letters, 2021, 46, 1341.	1.7	10
74	Subwavelength grating metamaterial waveguides functionalized with tellurium oxide cladding. Optics Express, 2020, 28, 18538.	1.7	10
75	Subwavelength grating structures in planar waveguide facets for modified reflectivity. , 2007, , .		9
76	Metamaterial engineered silicon photonic coupler for whispering gallery mode microsphere and disk resonators. Optica, 2021, 8, 1511.	4.8	9
77	Metamaterial-Engineered Silicon Beam Splitter Fabricated with Deep UV Immersion Lithography. Nanomaterials, 2021, 11, 2949.	1.9	9
78	Mid-infrared Fourier-transform spectrometer based on metamaterial lateral cladding suspended silicon waveguides. Optics Letters, 2022, 47, 810.	1.7	9
79	High-efficiency conversion from waveguide mode to an on-chip beam using a metamaterial engineered Bragg deflector. Optics Letters, 2021, 46, 2409.	1.7	8
80	Spectrum-free integrated photonic remote molecular identification and sensing. Optics Express, 2020, 28, 27951.	1.7	8
81	Mode Converter and Multiplexer With a Subwavelength Phase Shifter for Extended Broadband Operation. IEEE Photonics Technology Letters, 2021, 33, 1262-1265.	1.3	7
82	Circular Optical Phased Arrays with Radial Nano-Antennas. Nanomaterials, 2022, 12, 1938.	1.9	7
83	Ultra-wideband dual-polarization silicon nitride power splitter based on modal engineered slot waveguides. Optics Letters, 2020, 45, 527.	1.7	6
84	Photonic temperature and wavelength metrology by spectral pattern recognition. Optics Express, 2020, 28, 17409.	1.7	5
85	Anti-reflection subwavelength gratings for InP-based waveguide facets. Optics Letters, 2021, 46, 3701.	1.7	4
86	On-Chip Metamaterial Antenna Array with Distributed Bragg Deflector for Generation of Collimated Steerable Beams. Laser and Photonics Reviews, 2022, 16, .	4.4	4
87	Low-loss off-axis curved waveguide grating demultiplexer. Optics Letters, 2021, 46, 4821.	1.7	3
88	Echelle and Arrayed Waveguide Gratings for WDM and Spectral Analysis. , 0, , 599-632.		3
89	Fiber Fabry-Perot astrophotonic correlation spectroscopy for remote gas identification and radial velocity measurements. Applied Optics, 2021, 60, 10252.	0.9	3
90	Athermal echelle grating and tunable echelle grating demultiplexers using a Mach-Zehnder interferometer launch structure. Optics Express, 2022, 30, 14202.	1.7	3

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91	Design of compact silicon antennas based on high directionality gratings. , 2020, , .		1
92	Dispersion-engineered nanophotonic devices based on subwavelength metamaterial waveguides. , 2020, , .		1
93	Efficient Bloch mode calculation of periodic systems with arbitrary geometry and open boundary conditions in the complex wavevector domain. Optics Express, 2021, 29, 26233.	1.7	1
94	Subwavelength-engineered metamaterial devices for integrated photonics. , 2022, , .		1
95	UV-written silicon nitride integrated optical phased arrays. , 2022, , .		1
96	Integrated metamaterial surface-emitting antenna for beam steering applications. , 2021, , .		1
97	Machine learning design of subwavelength integrated photonic devices. , 2019, , .		0
98	Machine learning pattern recognition in integrated silicon photonics design. , 2020, , .		0
99	Metamaterial engineered C+L band 90° hybrid with 150 nm feature size. , 2020, , .		0
100	Integrated Photonic Ring Resonator Correlation Filters For Remote HCN Sensing. , 2020, , .		0
101	Astrophotonic Absorption Correlation Spectroscopy using Silicon Microring Resonators. , 2021, , .		0
102	Dimensionality reduction for the on-chip integration of advanced photonic devices and functionalities. , 2021, , .		0
103	Integrated circular optical phased array. EPJ Web of Conferences, 2021, 255, 01004.	0.1	0
104	Building high-performance integrated optical devices using subwavelength grating metamaterials -INVITED. EPJ Web of Conferences, 2021, 255, 01001.	0.1	0
105	Y-junction power splitter engineered through subwavelength metamaterials. , 2020, , .		0
106	Combining micro-optics and integrated optics: a case study on bulk resonators. , 2022, , .		0
107	Deep-learning algorithms for imperfection-resilient Fourier-transform spectroscopy in silicon. , 2021, , .		0
108	Silicon nitride on-chip spatial heterodyne Fourier-transform spectrometer with high Å©tendue and broadband operation. , 2021, , .		0

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109	Bricked patterning: a new concept to enhance the capabilities of subwavelength grating waveguides. , 2021, , .		0