

Frederic Gardes

List of Publications by Year in descending order

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121
papers

5,972
citations

126907

33
h-index

71685

76
g-index

121
all docs

121
docs citations

121
times ranked

4668
citing authors

#	ARTICLE	IF	CITATIONS
1	Silicon optical modulators. Nature Photonics, 2010, 4, 518-526.	31.4	1,942
2	50-Gb/s Silicon Optical Modulator. IEEE Photonics Technology Letters, 2012, 24, 234-236.	2.5	371
3	High contrast 40Gbit/s optical modulation in silicon. Optics Express, 2011, 19, 11507.	3.4	310
4	A sub-micron depletion-type photonic modulator in Silicon On Insulator. Optics Express, 2005, 13, 8845.	3.4	221
5	Recent breakthroughs in carrier depletion based silicon optical modulators. Nanophotonics, 2014, 3, 229-245.	6.0	178
6	High-speed modulation of a compact silicon ring resonator based on a reverse-biased pn diode. Optics Express, 2009, 17, 21986.	3.4	162
7	40 Gb/s silicon photonics modulator for TE and TM polarisations. Optics Express, 2011, 19, 11804.	3.4	157
8	The Emergence of Silicon Photonics as a Flexible Technology Platform. Proceedings of the IEEE, 2018, 106, 2101-2116.	21.3	156
9	Hybrid III-V on Silicon Lasers for Photonic Integrated Circuits on Silicon. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 158-170.	2.9	144
10	High-speed silicon modulators for the 2-µm wavelength band. Optica, 2018, 5, 1055.	9.3	119
11	Silicon photonic devices and platforms for the mid-infrared. Optical Materials Express, 2013, 3, 1205.	3.0	107
12	High speed silicon optical modulator with self aligned fabrication process. Optics Express, 2010, 18, 19064.	3.4	91
13	Surface-Grating-Coupled Low-Loss Ge-on-Si Rib Waveguides and Multimode Interferometers. IEEE Photonics Technology Letters, 2015, 27, 1040-1043.	2.5	90
14	Silicon Photonic Waveguides and Devices for Near- and Mid-IR Applications. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 407-418.	2.9	86
15	Mid-Infrared Thermo-Optic Modulators in Sol. IEEE Photonics Technology Letters, 2014, 26, 1352-1355.	2.5	83
16	Germanium Mid-Infrared Photonic Devices. Journal of Lightwave Technology, 2017, 35, 624-630.	4.6	76
17	Material and optical properties of low-temperature NH ₃ -free PECVD SiN _x layers for photonic applications. Journal Physics D: Applied Physics, 2017, 50, 025106.	2.8	71
18	Cascaded modulator architecture for WDM applications. Optics Express, 2012, 20, 27420.	3.4	70

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19	High speed silicon electro-optical modulators enhanced via slow light propagation. Optics Express, 2011, 19, 20876.	3.4	69
20	10 Gbit/s error-free DPSK modulation using a push-pull dual-drive silicon modulator. Optics Communications, 2013, 304, 107-110.	2.1	60
21	High Performance Mach-Zehnder-Based Silicon Optical Modulators. IEEE Journal of Selected Topics in Quantum Electronics, 2013, 19, 85-94.	2.9	59
22	Modulation of the absorption coefficient at 1300nm in Ge/SiGe multiple quantum well heterostructures on silicon. Optics Letters, 2011, 36, 4158.	3.3	55
23	Wavelength division multiplexing based on dispersive self-imaging. Optics Letters, 2011, 36, 4488.	3.3	55
24	Next Generation Device Grade Silicon-Germanium on Insulator. Scientific Reports, 2015, 5, 8288.	3.3	52
25	High-contrast 40Gb/s operation of a 500nm long silicon carrier-depletion slow wave modulator. Optics Letters, 2012, 37, 3504.	3.3	49
26	Device-level characterization of the flow of light in integrated photonic circuits using ultrafast photomodulation spectroscopy. Nature Photonics, 2015, 9, 54-60.	31.4	44
27	All-silicon carrier accumulation modulator based on a lateral metal-oxide-semiconductor capacitor. Photonics Research, 2018, 6, 373.	7.0	44
28	N-rich silicon nitride angled MMI for coarse wavelength division multiplexing in the O-band. Optics Letters, 2018, 43, 1251.	3.3	42
29	Silicon Nitride Photonics for the Near-Infrared. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-13.	2.9	40
30	On-chip sub-wavelength Bragg grating design based on novel low loss phase-change materials. Optics Express, 2020, 28, 16394.	3.4	39
31	Ge-on-Si modulators operating at mid-infrared wavelengths up to 800nm. Photonics Research, 2019, 7, 8280	3.3	36
32	Coarse wavelength division multiplexer using an interleaved angled multimode interferometer structure. Applied Physics Letters, 2013, 102, .	3.3	34
33	Group IV mid-infrared photonics [Invited]. Optical Materials Express, 2018, 8, 2276.	3.0	34
34	Neuromorphic Silicon Photonics and Hardware-Aware Deep Learning for High-Speed Inference. Journal of Lightwave Technology, 2022, 40, 3243-3254.	4.6	32
35	Free carrier lifetime modification for silicon waveguide based devices. Optics Express, 2008, 16, 19779.	3.4	31
36	Silicon carrier depletion modulator with 10Gbit/s driver realized in high-performance photonic BiCMOS. Laser and Photonics Reviews, 2014, 8, 180-187.	8.7	31

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37	Dielectric waveguide vertically coupled to all-silicon photodiodes operating at telecommunication wavelengths. Applied Physics Letters, 2013, 102, .	3.3	28
38	Slow-Light-Enhanced Silicon Optical Modulators Under Low-Drive-Voltage Operation. IEEE Photonics Journal, 2012, 4, 1306-1315.	2.0	27
39	Analytical Model for Calculating the Nonlinear Distortion in Silicon-Based Electro-Optic Mach-Zehnder Modulators. Journal of Lightwave Technology, 2013, 31, 3603-3613.	4.6	26
40	Planar surface implanted diffractive grating couplers in SOI. Optics Express, 2014, 22, 1077.	3.4	26
41	Locally Erasable Couplers for Optical Device Testing in Silicon on Insulator. Journal of Lightwave Technology, 2014, 32, 2248-2253.	4.6	26
42	Silicon-on-insulator free-carrier injection modulators for the mid-infrared. Optics Letters, 2019, 44, 915.	3.3	26
43	Athermal waveguides for optical communication wavelengths. Optics Letters, 2011, 36, 4659.	3.3	24
44	Towards low loss non-volatile phase change materials in mid index waveguides. Neuromorphic Computing and Engineering, 2021, 1, 014004.	5.9	24
45	50 Gb/s Silicon Photonics Receiver With Low Insertion Loss. IEEE Photonics Technology Letters, 2014, 26, 714-717.	2.5	23
46	Scattering of a plasmonic nanoantenna embedded in a silicon waveguide. Optics Express, 2015, 23, 28108.	3.4	23
47	Whispering Gallery Mode Resonances from Ge Micro-Disks on Suspended Beams. Frontiers in Materials, 2015, 2, .	2.4	23
48	CORNERSTONE™s Silicon Photonics Rapid Prototyping Platforms: Current Status and Future Outlook. Applied Sciences (Switzerland), 2020, 10, 8201.	2.5	23
49	O-band N-rich silicon nitride MZI based on GST. Applied Physics Letters, 2020, 116, 093502.	3.3	23
50	Micrometer size polarization independent depletion-type photonic modulator in Silicon On Insulator. Optics Express, 2007, 15, 5879.	3.4	22
51	Towards a fully functional integrated photonic-electronic platform via a single SiGe growth step. Scientific Reports, 2016, 6, 19425.	3.3	22
52	Issues Associated With Polarization Independence in Silicon Photonics. IEEE Journal of Selected Topics in Quantum Electronics, 2006, 12, 1335-1344.	2.9	20
53	Intermodal frequency generation in silicon-rich silicon nitride waveguides. Photonics Research, 2019, 7, 615.	7.0	19
54	Ultra-sharp asymmetric Fano-like resonance spectrum on Si photonic platform. Optics Express, 2019, 27, 7365.	3.4	18

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55	High-speed carrier-depletion silicon Mach-Zehnder optical modulators with lateral PN junctions. <i>Frontiers in Physics</i> , 2014, 2, .	2.1	17
56	High Bandwidth Capacitance Efficient Silicon MOS Modulator. <i>Journal of Lightwave Technology</i> , 2021, 39, 201-207.	4.6	17
57	Photonic crystal waveguides on silicon rich nitride platform. <i>Optics Express</i> , 2017, 25, 3214.	3.4	16
58	Performance characteristics of phase-change integrated silicon nitride photonic devices in the O and C telecommunications bands. <i>Optical Materials Express</i> , 2020, 10, 1778.	3.0	16
59	A Review of Capabilities and Scope for Hybrid Integration Offered by Silicon-Nitride-Based Photonic Integrated Circuits. <i>Sensors</i> , 2022, 22, 4227.	3.8	15
60	Tensile strain engineering of germanium micro-disks on free-standing SiO ₂ beams. <i>Japanese Journal of Applied Physics</i> , 2016, 55, 04EH02.	1.5	14
61	Channel response-aware photonic neural network accelerators for high-speed inference through bandwidth-limited optics. <i>Optics Express</i> , 2022, 30, 10664.	3.4	14
62	Laser trimming of the operating wavelength of silicon nitride racetrack resonators. <i>Photonics Research</i> , 2020, 8, 677.	7.0	13
63	Designs of Silicon Nitride Slot Waveguide Modulators With Electro-Optic Polymer and the Effect of Induced Charges in Si-Substrate on Their Performance. <i>IEEE Photonics Journal</i> , 2021, 13, 1-15.	2.0	12
64	Using SiO_2 Carrier Confinement in Total Internal Reflection Optical Switches to Restrict Carrier Diffusion in the Guiding Layer. <i>Journal of Lightwave Technology</i> , 2008, 26, 1288-1294.	4.6	10
65	Enhanced light emission from improved homogeneity in biaxially suspended Germanium membranes from curvature optimization. <i>Optics Express</i> , 2017, 25, 22911.	3.4	10
66	Germanium vertically light-emitting micro-gears generating orbital angular momentum. <i>Optics Express</i> , 2018, 26, 34675.	3.4	10
67	Raman Mapping Analysis of Graphene-Integrated Silicon Micro-Ring Resonators. <i>Nanoscale Research Letters</i> , 2017, 12, 600.	5.7	9
68	High-speed silicon Michelson interferometer modulator and streamlined IMDD PAM-4 transmission of Mach-Zehnder modulators for the 2 μ m wavelength band. <i>Optics Express</i> , 2021, 29, 14438.	3.4	9
69	Silicon slow-light-based photonic mixer for microwave-frequency conversion applications. <i>Optics Letters</i> , 2012, 37, 1721.	3.3	8
70	Determination of the quasi-TE mode (in-plane) graphene linear absorption coefficient via integration with silicon-on-insulator racetrack cavity resonators. <i>Optics Express</i> , 2014, 22, 18625.	3.4	8
71	Spin-on doping of germanium-on-insulator wafers for monolithic light sources on silicon. <i>Japanese Journal of Applied Physics</i> , 2015, 54, 052101.	1.5	8
72	Tuning silicon-rich nitride microring resonances with graphene capacitors for high-performance computing applications. <i>Optics Express</i> , 2019, 27, 35129.	3.4	8

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73	Optical absorption in highly strained Ge/SiGe quantum wells: The role of $\hat{\sigma}$ scattering. Journal of Applied Physics, 2012, 112, 123105.	2.5	7
74	Si photonic waveguides with broken symmetries: applications from modulators to quantum simulations. Japanese Journal of Applied Physics, 2020, 59, SO0801.	1.5	7
75	Graphene microheater for phase change chalcogenides based integrated photonic components [Invited]. Optical Materials Express, 2022, 12, 1991.	3.0	7
76	Silicon Photonics: Are Smaller Devices Always Better?. Japanese Journal of Applied Physics, 2006, 45, 6609-6615.	1.5	6
77	Si-rich Si nitride waveguides for optical transmissions and toward wavelength conversion around 2 μ m. Applied Optics, 2019, 58, 5165.	1.8	6
78	A Photonic Microwave Filter Based on an Asymmetric Silicon Mach-Zehnder Modulator. IEEE Photonics Journal, 2013, 5, 5501006-5501006.	2.0	5
79	10Gb/s 5Vpp AND 5.6Vpp drivers implemented together with a monolithically integrated silicon modulator in 0.25 μ m SiGe:C BiCMOS. Optics Communications, 2015, 336, 224-234.	2.1	5
80	Comparison of uniaxial and polyaxial suspended germanium bridges in terms of mechanical stress and thermal management towards a CMOS compatible light source. Optics Express, 2019, 27, 37846.	3.4	5
81	Mid-infrared silicon-on-insulator waveguides with single-mode propagation over an octave of frequency. Optics Express, 2022, 30, 8560.	3.4	5
82	Enhanced polarization-independent optical ring resonators on silicon-on-insulator. , 2005, 5730, 195.		4
83	Athermal and low loss ridge silicon waveguides. Proceedings of SPIE, 2010, , .	0.8	4
84	Angled multimode interferometer for bidirectional wavelength division (de)multiplexing. Royal Society Open Science, 2015, 2, 150270.	2.4	4
85	Tailoring the response and temperature characteristics of multiple serial-coupled resonators in silicon on insulator. , 2007, , .		3
86	Total Internal Reflection Optical Switch in SOI With Defect Engineered Barrier Region. Journal of Lightwave Technology, 2010, 28, 2483-2491.	4.6	3
87	Characterization of the Chirp of Silicon Optical Modulators. , 2012, , .		3
88	Carrier depletion based silicon optical modulators. , 2010, , .		2
89	Localised Tuneable Composition Single Crystal Silicon-Germanium-on-Insulator for Low Cost Devices. Advances in Materials Science and Engineering, 2016, 2016, 1-11.	1.8	2
90	Mid-infrared Ge-on-Si electro-absorption modulator. , 2017, , .		2

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91	Temperature insensitive racetrack resonators for near infrared applications. , 2012, , .		2
92	Performance characteristics of phase-change integrated silicon nitride photonic devices in the O and C telecommunications bands. Optical Materials Express, 2020, 10, 1778.	3.0	2
93	Chiral germanium micro-gears for tuning orbital angular momentum. Scientific Reports, 2022, 12, 7465.	3.3	2
94	Optically Switched Arrayed Waveguide Gratings Using Phase Modulation. IEEE Journal of Selected Topics in Quantum Electronics, 2006, 12, 1461-1468.	2.9	1
95	Design of SOI wavelength filter based on multiple MMIs structures. , 2011, , .		1
96	Low insertion loss modulator based on a vertically coupled photonic crystal resonator. , 2012, , .		1
97	Scalable optical transmitter and receiver based on cascaded nanoresonator modulators and multiwavelength laser. , 2013, , .		1
98	A monolithically integrated silicon modulator with a 10 Gb/s 5 Vpp or 5.6 Vpp driver in 0.25 Å¼m SiGe:C BiCMOS. Frontiers in Physics, 2014, 2, .	2.1	1
99	Fabrication error tolerant SOI WDM device using bidirectional angled multimode interferometers. Proceedings of SPIE, 2015, , .	0.8	1
100	Fabrication of Ge micro-disks on free-standing SiO2 beams for monolithic light emission. , 2015, , .		1
101	25 Gbit/s silicon based modulators for the 2 Å¼m wavelength band. , 2020, , .		1
102	UV-written silicon nitride integrated optical phased arrays. , 2022, , .		1
103	Silicon Photonic Devices and Polarisation Independence. Materials Research Society Symposia Proceedings, 2006, 958, 1.	0.1	0
104	Future prospects for silicon photonics. Proceedings of SPIE, 2007, , .	0.8	0
105	SOI ring resonators with controllable MMI coupler sections. , 2011, , .		0
106	Silicon-germanium composition engineering for next generation multilayer devices and systems. , 2014, , .		0
107	Silicon photonic crystals: light emission, modulation and detection. , 2014, , .		0
108	Silicon photonics for optical interconnects. , 2014, , .		0

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109	Wavelength division demultiplexer and integrated III-V semiconductor lasers on a silicon photonics platform with microbubble manipulation. , 2015, , .		0
110	Analysis of Silicon Germanium Standards for the Quantification of SiGe Microelectronic Devices Using AES. Surface Science Spectra, 2015, 22, 32-46.	1.3	0
111	Single crystal silicon-germanium-on-insulator for high density optical interconnects. , 2016, , .		0
112	Silicon Optical Modulators for Data Transmission in Different Wavelength Bands. , 2019, , .		0
113	Post Fabrication Permanent Laser Trimming of Silicon Nitride Photonic Devices. , 2019, , .		0
114	High Speed Silicon Capacitor Modulators for TM Polarisation. , 2019, , .		0
115	Multi Composition GeSi Tuneable Concentration Silicon-Germanium Wire Structures for CMOS Photonics. , 2019, , .		0
116	High Performance Silicon Optical Modulators. , 2020, , .		0
117	Silicon on insulator modulator structures for data rates of 40 Gb/s and above. , 2012, , .		0
118	2D Photonic Crystal Structures in Silicon Rich Nitride Platform. , 2017, , .		0
119	Group IV mid-infrared devices and circuits. , 2018, , .		0
120	56 Gbps Si/GeSi integrated EAM. , 2018, , .		0
121	Novel Si Photonic Waveguides and Applications to Optical Modulators. , 2019, , .		0