Keren Bergman

List of Publications by Citations

169 papers	4,090 citations	30 h-index	59 g-index
212 ext. papers	5,085 ext. citations	3.2 avg, IF	5.64 L-index

#	Paper	IF	Citations
169	Photonic Networks-on-Chip for Future Generations of Chip Multiprocessors. *IEEE Transactions on Computers*, **2008**, 57, 1246-1260	2.5	625
168	Optical 4x4 hitless slicon router for optical networks-on-chip (NoC). *Optics Express*, **2008**, 16, 15915-22	3.3	288
167	Recent advances in optical technologies for data centers: a review. *Optica*, **2018**, 5, 1354	8.6	180
166	On the Design of a Photonic Network-on-Chip **2007**,		141
165	All-Optical Comb Switch for Multiwavelength Message Routing in Silicon Photonic Networks. *IEEE Photonics Technology Letters*, **2008**, 20, 767-769	2.2	139
164	Photonic switching in high performance datacenters [Invited]. *Optics Express*, **2018**, 26, 16022-16043	3.3	120
163	Resolving the thermal challenges for silicon microring resonator devices. *Nanophotonics*, **2014**, 3, 269-281	4.3	120
162	Ultrahigh-Bandwidth Silicon Photonic Nanowire Waveguides for On-Chip Networks. *IEEE Photonics Technology Letters*, **2008**, 20, 398-400	2.2	109
161	Scaling silicon photonic switch fabrics for data center interconnection networks. *Optics Express*, **2015**, 23, 1159-75	3.3	86
160	Silicon Photonics for Exascale Systems. *Journal of Lightwave Technology*, **2015**, 33, 547-562	4	85
159	Wavelength Locking and Thermally Stabilizing Microring Resonators Using Dithering Signals. *Journal of Lightwave Technology*, **2014**, 32, 505-512	4	84
158	High-Performance Modulators and Switches for Silicon Photonic Networks-on-Chip. *IEEE Journal of Selected Topics in Quantum Electronics*, **2010**, 16, 6-22	3.8	82
157	The Data Vortex Optical Packet Switched Interconnection Network. *Journal of Lightwave Technology*, **2008**, 26, 1777-1789	4	79
156	Physical-Layer Modeling and System-Level Design of Chip-Scale Photonic Interconnection Networks. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, **2011**, 30, 1507-1520	2.5	76
155	PhoenixSim: A simulator for physical-layer analysis of chip-scale photonic interconnection networks **2010**,		75
154	Broadband Operation of Nanophotonic Router for Silicon Photonic Networks-on-Chip. *IEEE Photonics Technology Letters*, **2010**, 22, 926-928	2.2	69
153	High-Speed 2$\times$2 Switch for Multiwavelength Silicon-Photonic Networks On-Chip. *Journal of Lightwave Technology*, **2009**, 27, 2900-2907	4	57

152	Design and characterization of a 30-GHz bandwidth low-power silicon traveling-wave modulator. *Optics Communications*, **2014**, 321, 124-133	2	55
151	Photonic NoC for DMA Communications in Chip Multiprocessors **2007**,		52
150	Design Space Exploration of Microring Resonators in Silicon Photonic Interconnects: Impact of the Ring Curvature. *Journal of Lightwave Technology*, **2018**, 36, 2767-2782	4	48
149	Design Exploration of Optical Interconnection Networks for Chip Multiprocessors **2008**,		48
148	Comprehensive Design Space Exploration of Silicon Photonic Interconnects. *Journal of Lightwave Technology*, **2016**, 34, 2975-2987	4	47
147	High-Speed Silicon Modulator With Slow-Wave Electrodes and Fully Independent Differential Drive. *Journal of Lightwave Technology*, **2014**, 32, 2240-2247	4	47
146	Broadband Silicon Photonic Electrooptic Switch for Photonic Interconnection Networks. *IEEE Photonics Technology Letters*, **2011**, 23, 504-506	2.2	46
145	Thermal Rectification of Integrated Microheaters for Microring Resonators in Silicon Photonics Platform. *Journal of Lightwave Technology*, **2018**, 36, 773-788	4	43
144	Silicon Photonics for Extreme Scale Systems. *Journal of Lightwave Technology*, **2019**, 37, 245-259	4	42
143	Ultralow-crosstalk, strictly non-blocking microring-based optical switch. *Photonics Research*, **2019**, 7, 155	6	39
142	Optical interconnects for extreme scale computing systems. *Parallel Computing*, **2017**, 64, 65-80	1	37
141	An Experimental Validation of a Wavelength-Striped, Packet Switched, Optical Interconnection Network. *Journal of Lightwave Technology*, **2009**, 27, 841-850	4	33
140	Crosstalk Penalty in Microring-Based Silicon Photonic Interconnect Systems. *Journal of Lightwave Technology*, **2016**, 34, 4043-4052	4	33
139	The Data Vortex, an All Optical Path Multicomputer Interconnection Network. *IEEE Transactions on Parallel and Distributed Systems*, **2007**, 18, 409-420	3.7	30
138	. *Journal of Lightwave Technology*, **2019**, 37, 3044-3054	4	29
137	Scalable Microring-Based Silicon Clos Switch Fabric With Switch-and-Select Stages. *IEEE Journal of Selected Topics in Quantum Electronics*, **2019**, 25, 1-11	3.8	28
136	Single Microring-Based 2×2 Silicon Photonic Crossbar Switches. *IEEE Photonics Technology Letters*, **2015**, 27, 1981-1984	2.2	27
135	Insertion loss analysis in a photonic interconnection network for on-chip and off-chip communications **2008**,		27

134	Modular architecture for fully non-blocking silicon photonic switch fabric. *Microsystems and Nanoengineering*, **2017**, 3, 16071	7.7	25
133	40-Gb/s DPSK Data Transmission Through a Silicon Microring Switch. *IEEE Photonics Technology Letters*, **2012**, 24, 473-475	2.2	25
132	An Energy-Efficient Optically Connected Memory Module for Hybrid Packet- and Circuit-Switched Optical Networks. *IEEE Journal of Selected Topics in Quantum Electronics*, **2013**, 19, 3700407-3700407	3.8	25
131	A Compact Low-Power 320-Gb/s WDM Transmitter Based on Silicon Microrings. *IEEE Photonics Journal*, **2014**, 6, 1-8	1.8	24
130	Characterization of a 4$,times,$ 4 Gb/s Parallel Electronic Bus to WDM Optical Link Silicon Photonic Translator. *IEEE Photonics Technology Letters*, **2007**, 19, 456-458	2.2	22
129	Software-defined control-plane for wavelength selective unicast and multicast of optical data in a silicon photonic platform. *Optics Express*, **2017**, 25, 232-242	3.3	21
128	Circuit-Switched Memory Access in Photonic Interconnection Networks for High-Performance Embedded Computing **2010**,		21
127	Software-defined optical network for metro-scale geographically distributed data centers. *Optics Express*, **2016**, 24, 12310-20	3.3	20
126	Continuous Wavelength Conversion of 40-Gb/s Data Over 100 nm Using a Dispersion-Engineered Silicon Waveguide. *IEEE Photonics Technology Letters*, **2011**, 23, 73-75	2.2	20
125	Intermodulation Crosstalk Characteristics of WDM Silicon Microring Modulators. *IEEE Photonics Technology Letters*, **2014**, 26, 1478-1481	2.2	19
124	High-Efficiency Biwavelength Polarization Splitter-Rotator on the SOI Platform. *IEEE Photonics Technology Letters*, **2015**, 27, 518-521	2.2	19
123	Nanophotonic Optical Interconnection Network Architecture for On-Chip and Off-Chip Communications **2008**,		19
122	A Modular, Scalable, Extensible, and Transparent Optical Packet Buffer. *Journal of Lightwave Technology*, **2007**, 25, 978-985	4	18
121	DOE Advanced Scientific Computing Advisory Subcommittee (ASCAC) Report: Top Ten Exascale Research Challenges		18
120	tSDX: Enabling Impairment-Aware All-Optical Inter-Domain Exchange. *Journal of Lightwave Technology*, **2018**, 36, 142-154	4	17
119	Energy-performance optimized design of silicon photonic interconnection networks for high-performance computing **2017**,		16
118	Silicon Photonics Codesign for Deep Learning. *Proceedings of the IEEE*, **2020**, 108, 1261-1282	14.3	16
117	Silicon Photonic 2.5D Multi-Chip Module Transceiver for High-Performance Data Centers. *Journal of Lightwave Technology*, **2020**, 38, 3346-3357	4	16

98	Energy-bandwidth design exploration of silicon photonic interconnects in 65nm CMOS **2016**,		10
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96	Characterization of Nonlinear Optical Crosstalk in Silicon Nanowaveguides. *IEEE Photonics Technology Letters*, **2012**, 24, 185-187	2.2	9
95	Optically interconnected high performance data centers **2010**,		9
94	DPSK Transmission Through Silicon Microring Switch for Photonic Interconnection Networks. *IEEE Photonics Technology Letters*, **2011**, 23, 1103-1105	2.2	9
93	Energy Efficiency Analysis of Comb Source Carrier-Injection Ring-Based Silicon Photonic Link. *IEEE Journal of Selected Topics in Quantum Electronics*, **2020**, 26, 1-13	3.8	9
92	Broadband CMOS-Compatible Silicon Photonic Electro-Optic Switch for Photonic Networks-on-Chip **2010**,		8
91	Optimization of a Switching Node for Optical Multistage Interconnection Networks. *IEEE Photonics Technology Letters*, **2007**, 19, 1658-1660	2.2	8
90	Silicon Microring Resonator-Based Broadband Comb Switch for Wavelength-Parallel Message Routing. *Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS*, **2007**,		8
89	Tapless and topology agnostic calibration solution for silicon photonic switches. *Optics Express*, **2018**, 26, 32662-32674	3.3	8
88	Design Methodology for Optimizing Optical Interconnection Networks in High Performance Systems. *Lecture Notes in Computer Science*, **2015**, 454-471	0.9	8
87	Performance Requirements for Terabit-Class Silicon Photonic Links Based on Cascaded Microring Resonators. *Journal of Lightwave Technology*, **2020**, 38, 3469-3477	4	8
86	WDM Source Based on High-Power, Efficient 1280-nm DFB Lasers for Terabit Interconnect Technologies. *IEEE Photonics Technology Letters*, **2018**, 30, 1929-1932	2.2	8
85	Flexible Architecture and Autonomous Control Plane for Metro-Scale Geographically Distributed Data Centers. *Journal of Lightwave Technology*, **2017**, 35, 1188-1196	4	7
84	Highly-scalable, low-crosstalk architecture for ring-based optical space switch fabrics **2017**,		7
83	Optically interconnected data center architecture for bandwidth intensive energy efficient networking **2012**,		7
82	Photonic NoC for DMA Communications in Chip Multiprocessors		7
81	High-Speed BPSK Modulation in Silicon. *IEEE Photonics Technology Letters*, **2015**, 27, 1329-1332	2.2	6

80	PhoenixSim **2016**,		6
79	Photonic Networks for Intra-Chip, Inter-Chip, and Box Interconnects in High-Performance Computing **2006**,		6
78	PINE: Photonic Integrated Networked Energy efficient datacenters (ENLITENED Program) [Invited]. *Journal of Optical Communications and Networking*, **2020**, 12, 443	4.1	6
77	Impact of photonic switch radix on realizing optical interconnection networks for exascale systems **2014**,		5
76	Automated Thermal Stabilization of Cascaded Silicon Photonic Ring Resonators for Reconfigurable WDM Applications **2017**,		5
75	Demonstration of Asynchronous Operation of a Multiwavelength Optical Packet-Switched Fabric. *IEEE Photonics Technology Letters*, **2010**, 22, 1223-1225	2.2	5
74	Dual-Microring Resonator Based 8×8 Silicon Photonic Switch **2019**,		5
73	Push-pull microring-assisted space-and-wavelength selective switch. *Optics Letters*, **2020**, 45, 2696-2699	3	5
72	Ultra-Broadband Interleaver for Extreme Wavelength Scaling in Silicon Photonic Links. *IEEE Photonics Technology Letters*, **2021**, 33, 55-58	2.2	5
71	A software-defined optical gateway for converged inter/intra data center networks **2015**,		4
70	End-to-End Modeling and Optimization of Power Consumption in HPC Interconnects **2016**,		4
69	Ultra-low latency optical switching for short message sizes in cluster scale systems **2013**,		4
68	Silicon photonic interconnection networks for data centers **2013**,		4
67	Smart Routing Tables for Integrated Photonic Switch Fabrics **2017**,		4
66	Intermodulation crosstalk from silicon microring modulators in wavelength-parallel photonic networks-on-chip **2010**,		4
65	Cross-layer signal monitoring in an optical packet-switching test-bed via real-time burst sampling **2010**,		4
64	On-chip optical interconnection network performance evaluation using power penalty metrics from silicon photonic modulators **2010**,		4
63	Demonstration of Failure Reconfiguration via Cross-Layer Enabled Optical Switching Fabrics. *IEEE Photonics Technology Letters*, **2011**, 23, 1679-1681	2.2	4

62	Thermally active 4⨯4 non-blocking switch for networks-on-chip **2008**,		4
61	Experimental Demonstration of a Complete SPINet Optical Packet Switched Interconnection Network **2007**,		4
60	Optically Connected Memory for Disaggregated Data Centers **2020**,		4
59	Si/SiN Microring-Based Optical Router in Switch-and-Select Topology **2018**,		4
58	Energy Efficiency Analysis of Frequency Comb Sources for Silicon Photonic Interconnects **2019**,		3
57	Fast wavelength locking of a microring resonator **2014**,		3
56	Scalability of silicon photonic microring based switch **2014**,		3
55	Microring resonance stabilization using thermal dithering **2013**,		3
54	A Data Rate- and Modulation Format-Independent Packet-Switched Optical Network Test-Bed. *IEEE Photonics Technology Letters*, **2012**, 24, 377-379	2.2	3
53	Experimental demonstration of wavelength-reconfigurable optical packet- and circuit-switched platform for data center networks **2012**,		3
52	First Demonstration of a Cross-Layer Enabled Network Node. *Journal of Lightwave Technology*, **2013**, 31, 1512-1525	4	3
51	Experimental demonstration of 10 gigabit ethernet-based optical interconnection network interface for large-scale computing systems **2011**,		3
50	Cross-Layer Communication With an Optical Packet Switched Network via a Message Injection Control Interface. *IEEE Photonics Technology Letters*, **2008**, 20, 967-969	2.2	3
49	High-Speed 2⨯2 switch for multi-wavelength message routing in on-chip silicon photonic networks **2008**,		3
48	250 Gb/s multi-wavelength operation of microring resonator-based broadband comb switch for silicon photonic networks-on-chip **2008**,		3
47	A Novel Optical Buffer Architecture for Optical Packet Switching Routers **2006**,		3
46	Ultra-low power consumption silicon photonic link design analysis in the AIM PDK **2019**,		3
45	Silicon photonic switch-based optical equalization for mitigating pulsewidth distortion. *Optics Express*, **2019**, 27, 19426-19435	3.3	3

44	Design Space Exploration of the Dragonfly Topology. *Lecture Notes in Computer Science*, **2017**, 57-74	0.9	3
43	FLEET—Fast Lanes for Expedited Execution at 10 Terabits: Program Overview. *IEEE Internet Computing*, **2021**, 25, 79-87	2.4	3
42	Ar+-Implanted Si-Waveguide Photodiodes for Mid-Infrared Detection. *Photonics*, **2016**, 3, 46	2.2	3
41	Loss and crosstalk of scalable MZI-based switch topologies in silicon photonic platform **2016**,		3
40	256/64-QAM Multicarrier Analog Radio-over-Fiber Modulation using a Linear Differential Drive Silicon Mach-Zehnder Modulator **2018**,		3
39	SiP-ML **2021**,		3
38	Error-free data transmission through fast broadband all-optical modulation in graphene–silicon optoelectronics. *Applied Physics Letters*, **2020**, 116, 221106	3.4	2
37	Photonic Switched Optically Connected Memory: An Approach to Address Memory Challenges in Deep Learning. *Journal of Lightwave Technology*, **2020**, 38, 2815-2825	4	2
36	Low-Power Optical Interconnects based on Resonant Silicon Photonic Devices **2018**,		2
35	Impact of Backscattering on Microring-Based Silicon Photonic Links **2018**,		2
34	Wavelength Locking of Multicast Signals Using Photo-Conductive Effect in Silicon Photonic Platform **2018**,		2
33	Behavioral Model of Silicon Photonics Microring with Unequal Ring and Bus Widths **2019**,		2
32	Real-time power control for dynamic optical networks - Algorithms and experimentation **2013**,		2
31	Experimental demonstration of one-to-many virtual machine migration by reliable optical multicast **2015**,		2
30	Experimental demonstration of converged inter/intra data center network architecture **2015**,		2
29	Javanco: A software framework for optical network modelling and optimization **2013**,		2
28	Cross-layer communications for high-bandwidth optical networks **2010**,		2
27	Demonstration of 1.28-Tb/s transmission in next-generation nanowires for photonic networks-on-chip **2010**,		2

26	10-Gb/s Access Network Architecture Based on Micro-Ring Modulators With Colorless ONU and Mitigated Rayleigh Backscattering. *IEEE Photonics Technology Letters*, **2011**, 23, 914-916	2.2	2
25	Signal Degradation through a 12 ×12 Optical Packet Switching Network **2006**,		2
24	Bistable Switching Node for Optical Packet Switched Networks **2006**,		2
23	Experimental Demonstration of Network Congestion Control with a Programmable Optical Packet Injection Buffer. *Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS*, **2007**,		2
22	Ultra-Broadband Silicon Photonic Interleaver for Massive Channel Count Frequency Combs **2020**,		2
21	Experimental Demonstration of PAM-4 Transmission through Microring Silicon Photonic Clos Switch Fabric **2020**,		2
20	FPGA Implementation of Deep Neural Network Based Equalizers for High-Speed PON **2020**,		2
19	240 Gb/s mode and wavelength division multiplexed data transmission in Si photonics **2016**,		1
18	Microring-Based Si/SiN Dual-Layer Switch Fabric **2018**,		1
17	Reducing energy per delivered bit in silicon photonic interconnection networks **2014**,		1
16	Modeling and simulation environment for photonic interconnection networks in high performance computing **2013**,		1
15	Introduction to the Issue on Optical Interconnects for Data Centers. *IEEE Journal of Selected Topics in Quantum Electronics*, **2013**, 19, 0200302-0200302	3.8	1
14	Demonstration of 8×40-Gb/s wavelength-striped packet switching in a multi-terabit capacity optical network test-bed **2010**,		1
13	Implementing an Optical QoS Encoding Scheme in an Optical Packet Switching Fabric Test-Bed. *IEEE Photonics Technology Letters*, **2010**, 22, 1518-1520	2.2	1
12	Chip scale photonic interconnects for energy-performance optimized computing **2010**,		1
11	Nanophotonic interconnection networks in multicore embedded computing **2009**,		1
10	Intelligent highly-functional cross-layer optimized interfaces for future access/aggregation networks **2011**,		1
9	Priority encoding scheme for contention resolution in optical packet-switched networks **2008**,		1

LIST OF PUBLICATIONS

8	Interface Optical Buffer and Packet-Switched Network Cross-Layer Signaling Demonstration **2008**,		1
7	An All-Optical PCI-Express Network Interface for Optical Packet Switched Networks **2007**,		1
6	Demonstrated 4Ø Gbps Silicon Photonic Integrated Parallel Electronic to WDM Interface **2007**,		1
5	Empirical Method for Determining SOA Gain Based on ASE Characterization. *IEEE Photonics Technology Letters*, **2006**, 18, 2224-2226	2.2	1
4	Optical interconnection networks for high-performance systems **2020**, 785-825		1
3	Optically connected memory for disaggregated data centers. *Journal of Parallel and Distributed Computing*, **2022**, 163, 300-300	4.4	0
2	Evolving Requirements and Trends of HPC. *Springer Handbooks*, **2020**, 725-755	1.3	0
1	Fixed-Point Analysis and FPGA Implementation of Deep Neural Network Based Equalizers for High-Speed PON. *Journal of Lightwave Technology*, **2021**, 1-1	4	0