Keren Bergman

List of Publications by Year in Descending Order

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	Optically connected memory for disaggregated data centers. *Journal of Parallel and Distributed Computing*, **2022**, 163, 300-300	4.4	0
168	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
167	FLEETFast Lanes for Expedited Execution at 10 Terabits: Program Overview. *IEEE Internet Computing*, **2021**, 25, 79-87	2.4	3
166	Ultra-Broadband Interleaver for Extreme Wavelength Scaling in Silicon Photonic Links. *IEEE Photonics Technology Letters*, **2021**, 33, 55-58	2.2	5
165	SiP-ML **2021**,		3
164	A Silicon Photonic Switching Platform for Flexible Converged Centralized-Radio Access Networking. *Journal of Lightwave Technology*, **2020**, 38, 5386-5392	4	12
163	Error-free data transmission through fast broadband all-optical modulation in graphenesilicon optoelectronics. *Applied Physics Letters*, **2020**, 116, 221106	3.4	2
162	Photonic Switched Optically Connected Memory: An Approach to Address Memory Challenges in Deep Learning. *Journal of Lightwave Technology*, **2020**, 38, 2815-2825	4	2
161	Silicon Photonics Codesign for Deep Learning. *Proceedings of the IEEE*, **2020**, 108, 1261-1282	14.3	16
160	Silicon Photonic 2.5D Multi-Chip Module Transceiver for High-Performance Data Centers. *Journal of Lightwave Technology*, **2020**, 38, 3346-3357	4	16
159	. *IEEE Journal of Selected Topics in Quantum Electronics*, **2020**, 26, 1-10	3.8	9
158	PINE: Photonic Integrated Networked Energy efficient datacenters (ENLITENED Program) [Invited]. *Journal of Optical Communications and Networking*, **2020**, 12, 443	4.1	6
157	Evolving Requirements and Trends of HPC. *Springer Handbooks*, **2020**, 725-755	1.3	0
156	Ultra-Broadband Silicon Photonic Interleaver for Massive Channel Count Frequency Combs **2020**,		2
155	Experimental Demonstration of PAM-4 Transmission through Microring Silicon Photonic Clos Switch Fabric **2020**,		2
154	Push-pull microring-assisted space-and-wavelength selective switch. *Optics Letters*, **2020**, 45, 2696-2699	3	5
153	FPGA Implementation of Deep Neural Network Based Equalizers for High-Speed PON **2020**,		2

152	Optical interconnection networks for high-performance systems **2020**, 785-825		1
151	Multi-Stage 8 □8 Silicon Photonic Switch Based on Dual-Microring Switching Elements. *Journal of Lightwave Technology*, **2020**, 38, 194-201	4	12
150	Performance Requirements for Terabit-Class Silicon Photonic Links Based on Cascaded Microring Resonators. *Journal of Lightwave Technology*, **2020**, 38, 3469-3477	4	8
149	Optically Connected Memory for Disaggregated Data Centers **2020**,		4
148	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
147	Energy Efficiency Analysis of Frequency Comb Sources for Silicon Photonic Interconnects **2019**,		3
146	. *Journal of Lightwave Technology*, **2019**, 37, 3044-3054	4	29
145	Silicon Photonics for Extreme Scale Systems. *Journal of Lightwave Technology*, **2019**, 37, 245-259	4	42
144	Behavioral Model of Silicon Photonics Microring with Unequal Ring and Bus Widths **2019**,		2
143	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
142	Ultralow-crosstalk, strictly non-blocking microring-based optical switch. *Photonics Research*, **2019**, 7, 155	6	39
141	Dual-Microring Resonator Based 8□8 Silicon Photonic Switch **2019**,		5
140	Ultra-low power consumption silicon photonic link design analysis in the AIM PDK **2019**,		3
139	Silicon photonic switch-based optical equalization for mitigating pulsewidth distortion. *Optics Express*, **2019**, 27, 19426-19435	3.3	3
138	Bandwidth steering in HPC using silicon nanophotonics **2019**,		11
137	Thermal Rectification of Integrated Microheaters for Microring Resonators in Silicon Photonics Platform. *Journal of Lightwave Technology*, **2018**, 36, 773-788	4	43
136	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
135	Photonic switching in high performance datacenters [Invited]. *Optics Express*, **2018**, 26, 16022-16043	3.3	120

134	Microring-Based Si/SiN Dual-Layer Switch Fabric **2018**,		1
133	Low-Power Optical Interconnects based on Resonant Silicon Photonic Devices **2018**,		2
132	tSDX: Enabling Impairment-Aware All-Optical Inter-Domain Exchange. *Journal of Lightwave Technology*, **2018**, 36, 142-154	4	17
131	Impact of Backscattering on Microring-Based Silicon Photonic Links **2018**,		2
130	Wavelength Locking of Multicast Signals Using Photo-Conductive Effect in Silicon Photonic Platform **2018**,		2
129	Tapless and topology agnostic calibration solution for silicon photonic switches. *Optics Express*, **2018**, 26, 32662-32674	3.3	8
128	256/64-QAM Multicarrier Analog Radio-over-Fiber Modulation using a Linear Differential Drive Silicon Mach-Zehnder Modulator **2018**,		3
127	Recent advances in optical technologies for data centers: a review. *Optica*, **2018**, 5, 1354	8.6	180
126	Si/SiN Microring-Based Optical Router in Switch-and-Select Topology **2018**,		4
125	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
124	Optical interconnects for extreme scale computing systems. *Parallel Computing*, **2017**, 64, 65-80	1	37
123	Modular architecture for fully non-blocking silicon photonic switch fabric. *Microsystems and Nanoengineering*, **2017**, 3, 16071	7.7	25
122	Flexible Architecture and Autonomous Control Plane for Metro-Scale Geographically Distributed Data Centers. *Journal of Lightwave Technology*, **2017**, 35, 1188-1196	4	7
121	Energy-performance optimized design of silicon photonic interconnection networks for high-performance computing **2017**,		16
120	Highly-scalable, low-crosstalk architecture for ring-based optical space switch fabrics **2017**,		7
119	Smart Routing Tables for Integrated Photonic Switch Fabrics **2017**,		4
118	Automated Thermal Stabilization of Cascaded Silicon Photonic Ring Resonators for Reconfigurable WDM Applications **2017**,		5
117	Quality of Transmission Prediction with Machine Learning for Dynamic Operation of Optical WDM Networks **2017**,		10

116	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
115	Design Space Exploration of the Dragonfly Topology. *Lecture Notes in Computer Science*, **2017**, 57-74	0.9	3
114	Software-defined optical network for metro-scale geographically distributed data centers. *Optics Express*, **2016**, 24, 12310-20	3.3	20
113	End-to-End Modeling and Optimization of Power Consumption in HPC Interconnects **2016**,		4
112	240 Gb/s mode and wavelength division multiplexed data transmission in Si photonics **2016**,		1
111	Comprehensive Design Space Exploration of Silicon Photonic Interconnects. *Journal of Lightwave Technology*, **2016**, 34, 2975-2987	4	47
110	PhoenixSim **2016**,		6
109	Programmable Dynamically-Controlled Silicon Photonic Switch Fabric. *Journal of Lightwave Technology*, **2016**, 34, 2952-2958	4	14
108	Ar+-Implanted Si-Waveguide Photodiodes for Mid-Infrared Detection. *Photonics*, **2016**, 3, 46	2.2	3
107	Crosstalk Penalty in Microring-Based Silicon Photonic Interconnect Systems. *Journal of Lightwave Technology*, **2016**, 34, 4043-4052	4	33
106	Energy-bandwidth design exploration of silicon photonic interconnects in 65nm CMOS **2016**,		10
105	Loss and crosstalk of scalable MZI-based switch topologies in silicon photonic platform **2016**,		3
104	A software-defined optical gateway for converged inter/intra data center networks **2015**,		4
103	Optimization of microring-based filters for dense WDM silicon photonic interconnects **2015**,		14
102	Scaling silicon photonic switch fabrics for data center interconnection networks. *Optics Express*, **2015**, 23, 1159-75	3.3	86
101	Single Microring-Based $2times 2$ Silicon Photonic Crossbar Switches. *IEEE Photonics Technology Letters*, **2015**, 27, 1981-1984	2.2	27
100	High-Speed BPSK Modulation in Silicon. *IEEE Photonics Technology Letters*, **2015**, 27, 1329-1332	2.2	6
99	Silicon Photonics for Exascale Systems. *Journal of Lightwave Technology*, **2015**, 33, 547-562	4	85

98	High-Efficiency Biwavelength Polarization Splitter-Rotator on the SOI Platform. *IEEE Photonics Technology Letters*, **2015**, 27, 518-521	2.2	19
97	Experimental demonstration of one-to-many virtual machine migration by reliable optical multicast **2015**,		2
96	Experimental demonstration of converged inter/intra data center network architecture **2015**,		2
95	Design Methodology for Optimizing Optical Interconnection Networks in High Performance Systems. *Lecture Notes in Computer Science*, **2015**, 454-471	0.9	8
94	Design and characterization of a 30-GHz bandwidth low-power silicon traveling-wave modulator. *Optics Communications*, **2014**, 321, 124-133	2	55
93	Wavelength Locking and Thermally Stabilizing Microring Resonators Using Dithering Signals. *Journal of Lightwave Technology*, **2014**, 32, 505-512	4	84
92	A 10-Gb/s Silicon Microring Resonator-Based BPSK Link. *IEEE Photonics Technology Letters*, **2014**, 26, 1805-1808	2.2	11
91	Impact of photonic switch radix on realizing optical interconnection networks for exascale systems **2014**,		5
90	Intermodulation Crosstalk Characteristics of WDM Silicon Microring Modulators. *IEEE Photonics Technology Letters*, **2014**, 26, 1478-1481	2.2	19
89	High-Speed Silicon Modulator With Slow-Wave Electrodes and Fully Independent Differential Drive. *Journal of Lightwave Technology*, **2014**, 32, 2240-2247	4	47
88	Fast wavelength locking of a microring resonator **2014**,		3
87	Real-Time Power Control for Dynamic Optical Networks: Algorithms and Experimentation. *IEEE Journal on Selected Areas in Communications*, **2014**, 32, 1615-1628	14.2	12
86	Scalability of silicon photonic microring based switch **2014**,		3
85	A Compact Low-Power 320-Gb/s WDM Transmitter Based on Silicon Microrings. *IEEE Photonics Journal*, **2014**, 6, 1-8	1.8	24
84	Fast Wavelength Locking of a Microring Resonator. *IEEE Photonics Technology Letters*, **2014**, 26, 2365-2368	2.2	10
83	Ultra-compact 320 Gb/s and 160 Gb/s WDM transmitters based on silicon microrings **2014**,		12
82	Resolving the thermal challenges for silicon microring resonator devices. *Nanophotonics*, **2014**, 3, 269-281	6.3	120
81	Reducing energy per delivered bit in silicon photonic interconnection networks **2014**,		1

80	Error-Free Operation of an All-Silicon Waveguide Photodiode at 1.9 $mu{rm m}$. *IEEE Photonics Technology Letters*, **2013**, 25, 2031-2034	2.2	12
79	Microring resonance stabilization using thermal dithering **2013**,		3
78	Ultra-low latency optical switching for short message sizes in cluster scale systems **2013**,		4
77	Silicon photonic interconnection networks for data centers **2013**,		4
76	Real-time power control for dynamic optical networks - Algorithms and experimentation **2013**,		2
75	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
74	First Demonstration of a Cross-Layer Enabled Network Node. *Journal of Lightwave Technology*, **2013**, 31, 1512-1525	4	3
73	Javanco: A software framework for optical network modelling and optimization **2013**,		2
72	Modeling and simulation environment for photonic interconnection networks in high performance computing **2013**,		1
71	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
70	Characterization of Nonlinear Optical Crosstalk in Silicon Nanowaveguides. *IEEE Photonics Technology Letters*, **2012**, 24, 185-187	2.2	9
69	First Demonstration of a 10-Gb/s RZ End-to-End Four-Wave-Mixing Based Link at 1884 nm Using Silicon Nanowaveguides. *IEEE Photonics Technology Letters*, **2012**, 24, 276-278	2.2	16
68	A Data Rate- and Modulation Format-Independent Packet-Switched Optical Network Test-Bed. *IEEE Photonics Technology Letters*, **2012**, 24, 377-379	2.2	3
67	Colorless Optical Network Unit Based on Silicon Photonic Components for WDM PON. *IEEE Photonics Technology Letters*, **2012**, 24, 1372-1374	2.2	13
66	Experimental demonstration of wavelength-reconfigurable optical packet- and circuit-switched platform for data center networks **2012**,		3
65	40-Gb/s DPSK Data Transmission Through a Silicon Microring Switch. *IEEE Photonics Technology Letters*, **2012**, 24, 473-475	2.2	25
64	Experimental characterization of the optical-power upper bound in a silicon microring modulator **2012**,		11
63	Optically interconnected data center architecture for bandwidth intensive energy efficient networking **2012**,		7

62	4$,times,$44 Gb/s Packet-Level Switching in a Second-Order Microring Switch. *IEEE Photonics Technology Letters*, **2012**, 24, 1555-1557	2.2	16
61	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
60	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
59	Broadband Silicon Photonic Electrooptic Switch for Photonic Interconnection Networks. *IEEE Photonics Technology Letters*, **2011**, 23, 504-506	2.2	46
58	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
57	DPSK Transmission Through Silicon Microring Switch for Photonic Interconnection Networks. *IEEE Photonics Technology Letters*, **2011**, 23, 1103-1105	2.2	9
56	Demonstration of Failure Reconfiguration via Cross-Layer Enabled Optical Switching Fabrics. *IEEE Photonics Technology Letters*, **2011**, 23, 1679-1681	2.2	4
55	Intelligent highly-functional cross-layer optimized interfaces for future access/aggregation networks **2011**,		1
54	VANDAL: A tool for the design specification of nanophotonic networks **2011**,		12
53	Experimental demonstration of 10 gigabit ethernet-based optical interconnection network interface for large-scale computing systems **2011**,		3
52	PhoenixSim: A simulator for physical-layer analysis of chip-scale photonic interconnection networks **2010**,		75
51	Cross-layer communications for high-bandwidth optical networks **2010**,		2
50	Intermodulation crosstalk from silicon microring modulators in wavelength-parallel photonic networks-on-chip **2010**,		4
49	Demonstration of 8̸40-Gb/s wavelength-striped packet switching in a multi-terabit capacity optical network test-bed **2010**,		1
48	Optically interconnected high performance data centers **2010**,		9
47	Circuit-Switched Memory Access in Photonic Interconnection Networks for High-Performance Embedded Computing **2010**,		21
46	Demonstration of Asynchronous Operation of a Multiwavelength Optical Packet-Switched Fabric. *IEEE Photonics Technology Letters*, **2010**, 22, 1223-1225	2.2	5
45	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

44	Cross-layer signal monitoring in an optical packet-switching test-bed via real-time burst sampling **2010**,		4
43	Broadband Operation of Nanophotonic Router for Silicon Photonic Networks-on-Chip. *IEEE Photonics Technology Letters*, **2010**, 22, 926-928	2.2	69
42	On-chip optical interconnection network performance evaluation using power penalty metrics from silicon photonic modulators **2010**,		4
41	Demonstration of 1.28-Tb/s transmission in next-generation nanowires for photonic networks-on-chip **2010**,		2
40	Chip scale photonic interconnects for energy-performance optimized computing **2010**,		1
39	Broadband CMOS-Compatible Silicon Photonic Electro-Optic Switch for Photonic Networks-on-Chip **2010**,		8
38	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
37	Nanophotonic interconnection networks in multicore embedded computing **2009**,		1
36	An Experimental Validation of a Wavelength-Striped, Packet Switched, Optical Interconnection Network. *Journal of Lightwave Technology*, **2009**, 27, 841-850	4	33
35	High-Speed 2$, times ,$2 Switch for Multiwavelength Silicon-Photonic Networks□n-Chip. *Journal of Lightwave Technology*, **2009**, 27, 2900-2907	4	57
34	Ultrahigh-Bandwidth Silicon Photonic Nanowire Waveguides for On-Chip Networks. *IEEE Photonics Technology Letters*, **2008**, 20, 398-400	2.2	109
33	All-Optical Comb Switch for Multiwavelength Message Routing in Silicon Photonic Networks. *IEEE Photonics Technology Letters*, **2008**, 20, 767-769	2.2	139
32	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
31	The Data Vortex Optical Packet Switched Interconnection Network. *Journal of Lightwave Technology*, **2008**, 26, 1777-1789	4	79
30	Optical 4x4 hitless slicon router for optical networks-on-chip (NoC). *Optics Express*, **2008**, 16, 15915-22	3.3	288
29	Photonic Networks-on-Chip for Future Generations of Chip Multiprocessors. *IEEE Transactions on Computers*, **2008**, 57, 1246-1260	2.5	625
28	Nanophotonic Optical Interconnection Network Architecture for On-Chip and Off-Chip Communications **2008**,		19
27	High-Speed 2□ switch for multi-wavelength message routing in on-chip silicon photonic networks **2008**,		3

26	Design Exploration of Optical Interconnection Networks for Chip Multiprocessors **2008**,		48
25	Thermally active 4⍰4 non-blocking switch for networks-on-chip **2008**,		4
24	Priority encoding scheme for contention resolution in optical packet-switched networks **2008**,		1
23	250 Gb/s multi-wavelength operation of microring resonator-based broadband comb switch for silicon photonic networks-on-chip **2008**,		3
22	Interface Optical Buffer and Packet-Switched Network Cross-Layer Signaling Demonstration **2008**,		1
21	Insertion loss analysis in a photonic interconnection network for on-chip and off-chip communications **2008**,		27
20	Demonstration of All-Optical Multi-Wavelength Message Routing for Silicon Photonic Networks **2008**,		14
19	An All-Optical PCI-Express Network Interface for Optical Packet Switched Networks **2007**,		1
18	The Data Vortex, an All Optical Path Multicomputer Interconnection Network. *IEEE Transactions on Parallel and Distributed Systems*, **2007**, 18, 409-420	3.7	30
17	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
16	Optimization of a Switching Node for Optical Multistage Interconnection Networks. *IEEE Photonics Technology Letters*, **2007**, 19, 1658-1660	2.2	8
15	Silicon Microring Resonator-Based Broadband Comb Switch for Wavelength-Parallel Message Routing. *Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS*, **2007**,		8
14	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
13	Demonstrated 4⍰ Gbps Silicon Photonic Integrated Parallel Electronic to WDM Interface **2007**,		1
12	Experimental Demonstration of a Complete SPINet Optical Packet Switched Interconnection Network **2007**,		4
11	Photonic NoC for DMA Communications in Chip Multiprocessors **2007**,		52
10	A Modular, Scalable, Extensible, and Transparent Optical Packet Buffer. *Journal of Lightwave Technology*, **2007**, 25, 978-985	4	18
9	On the Design of a Photonic Network-on-Chip **2007**,		141

List of Publications

8	Signal Degradation through a 12 □12 Optical Packet Switching Network **2006**,		2
7	Bistable Switching Node for Optical Packet Switched Networks **2006**,		2
6	A Novel Optical Buffer Architecture for Optical Packet Switching Routers **2006**,		3
5	Empirical Method for Determining SOA Gain Based on ASE Characterization. *IEEE Photonics Technology Letters*, **2006**, 18, 2224-2226	2.2	1
4	Polarization-Dependent Gain in SOA-Based Optical Multistage Interconnection Networks. *Journal of Lightwave Technology*, **2006**, 24, 3959-3967	4	15
3	Photonic Networks for Intra-Chip, Inter-Chip, and Box Interconnects in High-Performance Computing **2006**,		6
2	Photonic NoC for DMA Communications in Chip Multiprocessors		7
1	DOE Advanced Scientific Computing Advisory Subcommittee (ASCAC) Report: Top Ten Exascale Research Challenges		18