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### *Appointments*

2016- Present	- AIM Photonics Institute, Leadership Council
2014- Present	- Founder and Faculty Director, Columbia Nano Initiative
2011- 2017	- Chair, Department of Electrical Engineering, Columbia University
2011- Present	- Charles Batchelor Professor of Electrical Engineering
2006-2010	- Professor of Electrical Engineering, Columbia University
2002-Present	- Director, Lightwave Research Laboratory, Columbia University
2007-2008	- Visiting Research Fellow IBM T. J. Watson Research Labs
1998-2007	- Senior Technical Advisor, National Security Agency
2001-2006	- Associate Professor of Electrical Engineering, Columbia University
2000-2001	- Senior Member of Technical Staff, Tellium, Inc.
1994-2000	- Assistant Professor of Electrical Engineering, Princeton University
1995-2000	- Technical Consultant, Bell Laboratories, Lucent Technologies

### *Education*

- **Massachusetts Institute of Technology**, Ph.D. in Electrical Engineering, June 1994.
- **Massachusetts Institute of Technology**, M.S. in Electrical Engineering, February 1991.
- **Bucknell University**, B.S. in Electrical Engineering, June 1988. Summa Cum Laud.

### *Honors and Awards*

- IEEE Photonics Engineering Award 2016
- 2016 Herman Haus Distinguished Lecture, MIT
- Charles Batchelor Professor of Electrical Engineering 2011
- IEEE Fellow 2009
- IBM Faculty Award 2008
- Optical Society of America (OSA) Fellow 2003
- CalTech President's Award 1997
- Wentz Award for Teaching and Scholarship 1996
- Office of Naval Research Young Investigator 1996-1999
- National Science Foundation CAREER Program Investigator 1995-1998
- AT&T Bell Laboratories Fellowship, 1991-1994
- General Electric Fellow, 1988-1989; Eastman Kodak Scholar 1985-1988

### ***Leadership and Professional Activities***

- Supercomputing 2017 (SC|17) Architectures Area Chair
- DOE Advanced Scientific Computing Advisory Committee (ASCAC), 2016-19 term.
- International Program Committee for the HPC2016 Cetraro, Italy June/July 2016-2018
- Editorial Advisory Board of APL Photonics 2015-2018
- IEEE Photonics Award Committee (2017- )
- Architectures/Networks Technical Committee for Supercomputing SC15 conference, November 14-20, 2015, Austin, TX
- Co-organizer 'Future Technology Scaling for Efficient Digital Electronics' workshop, at the Lawrence Berkley National Labs, CA March 24, 2016
- Chairman for the UCSB Program Review Panel and committee member for the External Review Committee for the Dept. of Electrical and Computer Engineering, October 2015
- Technical Program Committee Group IV Photonics 2015, Silicon Photonics.
- Technical Program Committee, ACM SIGCOMM 2015.
- Co-organizer and Chair of the OSA/DOE workshop on "Optical Interconnects for Extreme Scale Computing," OSA headquarters Washington DC, August 9-11 2015.
- Co-Editor in Chief for IEEE/OSA Journal of Optical Communications and Networking (2009 - present). Editor-in-Chief OSA Journal of Optical Networks (2007-2009).
- General Chair, OSA Photonics in Switching 2014 (San Diego, July 2014); IEEE/OSA Photonics in Switching 2012, Technical Program co-Chair, Corsica France September 11-14, 2012. Photonic Switching 2013 Technical Program co-Chair.
- Co-organizer, OSA Incubator and NSF Workshop on Scaling Terabit Networks: "Breaking Through Capacity Barriers and Lowering Cost with New Architectures and Technologies," September 2013.
- DOE ASCAC Subcommittee on Exascale Research Challenges 2013-14; DARPA Exascale Study Group on Technology Challenges for Achieving Exascale Systems, report co-author, "Technology Challenges in Achieving Exascale Systems," 2007-09.
- Supercomputing 2014 Architecture and Networking technical area; Supercomputing 2011, 2012 Architecture and Networking Subcommittee, Supercomputing 2010 (SC|10) subcommittee co-Chair.
- IEEE Photonics Society Summer Topicals "Optics in Data Centers," technical committee 2013
- Guest editor for IEEE JSTQE Special Issue on "Optical Interconnects for Data Centers," March 2013.
- IEEE Globecom Optical Networks and Systems Technical Program Committee (2012-2014)
- Co-organizer and technical program committee for DOE/NSA sponsored workshop: Photonic and Electronics Technology for Extreme Scale Computing (PETE), March 19-20, 2012.
- National Academies Panel on Digitization and Communications Science for the Army Research Laboratory, member 2010-2012.
- Organizer and co-chair Disruptive Technologies Panel: "Integrated Silicon Photonic Technologies in Future Computing Systems: Impact on Hardware, Software, and Applications," Supercomputing Conference SC|11, November 13-17, 2011, Seattle WA.
- Institute for Defense Analyses (IDA) 2010-2011 Defense Science Study Group. Eight week program over 2 years, sponsored by DARPA Defense Sciences Office.
- OFC 2012 CompuCom Technical subcommittee Chair, OFC 2010/11 co-organizer of CompuCom Symposium; OFC 2009 workshop co-organizer, "Can Integrated Photonics Enable Optical Interconnection Networks in Advanced Computing?"
- CLEO Micro and Nano-Photonics Technical Committee (2006-2011), Chair for 2009, 2010.
- Intelligent Aggregation Networking and Thrust 1 co-Leader for Systems and Networks on NSF ERC Center for Integrated Access Networks (led by Univ. of Arizona).

- High-Performance Embedded Computing, HPEC Technical Committee 2009-2013
- Technical program committee, NSF Future Heterogeneous Networks, lead “High-Speed Fiber Optic Cross-Layer,” session (San Jose, March 2011).
- General Chair for Hot Interconnects 2009, August 2009 in New York, NY.
- Senior Technical Leader on Interconnects for National Security Agency Advanced Computing Systems initiative and establishment of the Center for Exceptional Computing (2006-2008).
- Co-organizer DOE Institute for Advanced Architectures and Algorithms (IAA) workshop on Interconnection Networks (San Jose, 2008); leader, emerging technologies working group
- NSF Global Environment for Network Innovations (GENI), Optical Substrate Study Group (2007- 09); Co-chair for 2008 Networking Research Challenges Workshop (ONT-4) sponsored by the Large-Scale Networking Coordination Group (including multiple federal agencies, NSF, DOE, DOD, etc.)
- National security panel on integrated high-end computing program. Panel generated CRA study report on "The Roadmap for the Revitalization of High-End Computing," Washington, D.C. (June 2003)
- Associate Editor, IEEE Photonic Technology Letters (2004 - 2009)
- Chair, IEEE–Photonics Society (LEOS) Committee on Optical Networking and Systems (2004 - 2007), Technical Committee (1999–2002)
- Optical Society of America Board of Directors (2001 - 2003)
- IEEE Photonics Society (LEOS) VP for publications (2003 - 2004); VP for membership Americas (1999 - 2002); Princeton chapter, chair (1998 - 2001); board of governors (1996 - 1999)
- Conference co-chair, Microfabrication, Integration, and Packaging of MEMS / MOEMS DTIP 2003;
- CLEO Ultrafast Technical Committee (2000-2003); Ultrafast Electronics and Optoelectronics (UEO) Program Committee (2001–2002); UEO program chair for 2005.

## ***Publications***

### ***Books:***

*Photonic Network-on-Chip Design*; Keren Bergman, Luca Carloni, Aleksandr Biberman, Johnnie Chan, and Gilbert Hendry, Series: Integrated Circuits and Systems, Vol. 68, Springer Science + Business Media New York 2014.

*Optical Interconnects for Future Data Center Networks*; Christoforos Kachris, Keren Bergman, and Ioannis Tomkos, Springer Science + Business Media New York 2013.

### ***Book Chapters:***

“Evolving requirements and trends of HPC,” (Sébastien Rumley, Ashkan Seyedi, Marco Fiorentino, Keren Bergman) *Datacenter and Super-Computer Networking*, Springer Handbook of Optical Networks, (2018).

“Hardware-Software Integrated Silicon Photonics for Computing Systems,” (D. M. Calhoun, Q. Li, D. Nikolova, C. P. Chen, K. Wen, S. Rumley, K. Bergman) Silicon Photonics III of the series *Topics in Applied Physics* 122 pp 157-189 (2016).

“Optically Interconnected High Performance Data Centers,” (Keren Bergman and Howard Wang) Optical Interconnects for Future Data Center Networks (Springer 2013).

“Next Generation Cluster Networks” (K. Bergman, B. A. Small, L. Bergman) The Handbook of Computer Networks, Wiley 2008.

“Optical Interconnection Networks” (K. Bergman) Optical Fiber Telecommunications V, Ivan Kaminow, Tingye Li, Alan Willner Editors, Elsevier 2008.

### ***Journal and Conference Publications:***

1. Q. Cheng, S. Rumley, M. Bahadori, and K. Bergman, "Photonic switching in high performance datacenters [Invited]," *Optics Express* 20th Anniversary issue, 2018 [in press].
2. M. Bahadori, M. Nikdast, S. Rumley, L. Y. Dai, N. Janosik, T. V. Vaerenbergh, A. Gazman, Q. Cheng, R. Polster, and K. Bergman, "Design Space Exploration of Microring Resonators in Silicon Photonic Interconnects: Impact of the Ring Curvature," in *IEEE/OSA Journal of Lightwave Technology*, (March 2018) [early access].
3. Y. Shen, M. H N Hattink, P. Samadi, Q. Cheng, Z. Zhu, A. Gazman, and K. Bergman, "Software-Defined Networking Control Plane for Seamless Integration of Multiple Silicon Photonic Switches in Datacom Networks," *Optics Express* 26, 10914-10929 (2018)
4. H. Guan, A. Novack, T. Galfsky, Y. Ma, S. Fatholouloumi, A. Horth, T. N. Huynh, J. Roman, R. Shi, M. Caverley, Y. Liu, T. Baehr-Jones, K. Bergman, and M. Hochberg, "Widely-tunable, narrow-linewidth III-V/silicon hybrid external-cavity laser for coherent communication," *Optics Express* 26, 7920-7933 (2018)
5. R. Polster, L. Y. Dai, O. Jimenez, Q. Cheng, M. Lipson, and K. Bergman, "Wafer-scale high-density edge coupling for high throughput testing of silicon photonics", Optical Fiber Communication Conference (OFC) paper M3F. 2 (March, 2018).
6. N. C. Abrams, R. Polster, L. Y. Dai, K. Bergman, "High Throughput Bandwidth Characterization of Silicon Photonic Modulators using Offset Frequency Combs," Optical Fiber Communications Conference (OFC) paper Th2A.16 (March, 2018).
7. E. F. Anderson, A. Gazman, Z. Zhu, M. Hattink and K. Bergman, "Reconfigurable Silicon Photonic Platform for Memory Scalability and Disaggregation," Optical Fiber Communication Conference (OFC) paper Tu3F.3 (March, 2018).
8. Y. Shen, A. Gazman, Z. Zhu, M. Y. Teh, M. Hattink, S. Rumley, P. Samadi, and K. Bergman, "Autonomous Dynamic Bandwidth Steering with Silicon Photonic-Based Wavelength and Spatial Switching for Datacom Networks," Optical Fiber Communications Conference (OFC) paper Tu3F.2 (March, 2018).
9. Z. Zhu, A. Gazman, D. Gidony, Y. Shen, K. Shepard, and K. Bergman, "Single-wire DAC/ADC Control and Feedback of Silicon Photonic Ring Resonator Circuits for Wavelength Switching," Optical Fiber Communication Conference (OFC) paper W2A.32 (March, 2018).
10. Y. Huang, Q. Cheng, and K. Bergman, "Automated calibration of balanced control to optimize performance of silicon photonic switch fabrics," Optical Fiber Communication Conference (OFC) paper Th1G.2 (March, 2018).
11. M. Bahadori, A. Gazman, N. Janosik, S. Rumley, Z. Zhu, R. Polster, Q. Cheng, K. Bergman, "Thermal Rectification of Integrated Microheaters for Microring Resonators in Silicon Photonics Platform," *IEEE/OSA Journal of Lightwave Technology* 36 (3) (Feb, 2018).
12. R. Polster, L. Y. Dai, M. Oikonomou, Q. Cheng, S. Rumley, K. Bergman, "Challenges and solutions for high-volume testing of silicon photonics," in *Proc. Photonics West Vol 10537, Silicon Photonics XIII* (Feb, 2018)
13. Y. Huang, P. B. Cho, P. Samadi, and K. Bergman, "Power excursion mitigation for flexgrid defragmentation with machine learning," in *IEEE/OSA Journal of Optical Communications and Networking*, vol. 10, no. 1, pp. A69-A76 (Jan. 2018).

14. Y. Li, W. Mo, S. Zhu, Y. Shen, J. Yu, P. Samadi, K. Bergman, and Daniel C. Kilper, "tSDX: Enabling Impairment-Aware All-Optical Inter-Domain Exchange," *IEEE/OSA Journal of Lightwave Technology*, Vol. 36, No. 1, pp 142-154 (Jan 1, 2018).
15. Y. Shen, P. Samadi, and K. Bergman, "Autonomous Network and IT Resource Management for Geographically Distributed Data Centers," in *IEEE/OSA Journal of Optical Communications and Networking*, vol. 10, no. 2, pp. A225-A231 (Feb. 2018).
16. H. Guan, Y. Ma, R. Shi, X. Zhu, R. Younce, Y. Chen, J. Roman, N. Ophir, Y. Liu, R. Ding, T. Baehr-Jones, K. Bergman, and M. Hochberg, "Compact and low loss 90° optical hybrid on a silicon-on-insulator platform," *Optics Express* 25, 28957-28968 (2017)
17. D. Amar, P. Samadi, K. Bergman, C. Lepers, M. Lourdiane, C. Ware, P. Gravey, "Power Excursion Reduction in Flex-Grid Optical Networks with Symbol Rate Adaptation," in Asia Communications and Photonics Conference, OSA Technical Digest (online) (Optical Society of America, 2017), paper S4C.5.
18. A. Muhammad, P. Monti, P. Samadi, L. Wosinska, K. Bergman, "Joint Allocation of IT and Network Resources for Survivable Services in Geographically Distributed Metro Data Centers," in European Conference on Optical Communications (ECOC) (Sept, 2017).
19. A. Gazman, C. Browning, Z. Zhu, L. Barry, K. Bergman, "Automated Thermal Stabilization of Cascaded Silicon Photonic Ring Resonators for Reconfigurable WDM Applications," European Conference on Optical Communications (ECOC) (Sept, 2017).
20. Y. Shen, P. Samadi, Z. Zhu, A. Gazman, E. Anderson, D. Calhoun, M. Hattink, K. Bergman, "Software-Defined Networking Control Plane for Seamless Integration of Silicon Photonics in Datacom Networks," European Conference on Optical Communications (ECOC) (Sept, 2017).
21. Y. Huang, Q. Cheng, N. Abrams, J. Zhou, S. Rumley, and K. Bergman, "Automated Calibration and Characterization for Scalable Integrated Optical Switch Fabrics without Built-in Power Monitors," European Conference on Optical Communications (ECOC) (Sept, 2017).
22. Q. Cheng, M. Bahadori, Y. Huang, S. Rumley, and K. Bergman, "Smart Routing Tables for Integrated Photonic Switch Fabrics," European Conference on Optical Communications (ECOC) (Sept, 2017).
23. P. Samadi, D. Amar, C. Lepers, M. Lourdiane, K. Bergman, "Quality of Transmission Prediction with Machine Learning for Dynamic Operation of Optical WDM Networks," European Conference on Optical Communications (ECOC) (Sept, 2017).
24. M. Y. Teh, J. J. Wilke, K. Bergman, S. Rumley, "Design space exploration of the Dragonfly topology," [Best Paper Award] Workshop on Communication Architectures for HPC, Big Data, Deep Learning and Clouds at Extreme Scale, ISC (June, 2017).
25. H. Guan, S. Rumley, K. Wen, D. Donofrio, J. Shalf, K. Bergman, "Reconfigurable Silicon Photonic Interconnect for Many-Core Architecture," Workshop on HPC Computing in a Post Moore's Law World (HCPM), ISC (June, 2017).
26. A. Gazman, M. Bahadori, Z. Zhu, K. Bergman, "Programmable Optical Power Distribution in Silicon Photonic Platform," *2017 IEEE Optical Interconnects Conference (OI)*, Santa Fe, NM, 2017, pp. 21-22.
27. Q. Cheng, M. Bahadori, S. Rumley, and K. Bergman, "Highly-Scalable, Low-Crosstalk Architecture for Ring-Based Optical Space Switch Fabrics," *2017 IEEE Optical Interconnects Conference (OI)*, Santa Fe, NM, 2017, pp. 41-42.

28. N. C. Abrams, M. Bahadori, C. T. Phare, M. Lipson, K. Bergman, "Intermodulation Crosstalk of Graphene-Enabled Electro-Optic Microring Modulators for DWDM Interconnects," *2017 IEEE Optical Interconnects Conference (OI)*, Santa Fe, NM, 2017, pp. 3-4.
29. D. M. Calhoun, E. F. Anderson, M. H. N. Hattink, S. Rumley, K. Bergman, "Accelerated Out-of-Band Arbitration of a Microring-Based Silicon Photonic System," *2017 IEEE Optical Interconnects Conference (OI)*, Santa Fe, NM, 2017, pp. 43-44.
30. Q. Cheng, M. Bahadori, K. Bergman, "Advanced Path Mapping for Silicon Photonic Switch Fabrics," in *Conference on Lasers and Electro-Optics*, OSA Technical Digest (online) (Optical Society of America, 2017), paper SW1O.5.
31. M. Fiorani, P. Samadi, Y. Shen, L. Wosinska, K. Bergman, "Flexible Network Architecture and Provisioning Strategy for Geographically Distributed Metro Data Centers," *Journal of Communications and Networking (JOCN)* 9 (5) 385-392 (May 2017).
32. V. Vujicic, A. P. Anthur, A. Gazman, C. Browning, M. D. Gutierrez Pascual, Z. Zhu, K. Bergman, and L. P. Barry, "Software-Defined Silicon-Photonics-Based Metro Node for Spatial and Wavelength Superchannel Switching," in *IEEE/OSA Journal of Optical Communications and Networking*, vol. 9, no. 5, pp. 342-350, May 2017.
33. S. Rumley, M. Bahadori, R. Polster, S. D. Hammond, D. M. Calhoun, K. Wen, A. Rodrigues, and K. Bergman, "Optical interconnects for extreme scale computing systems," *Parallel Computing*, Vol 61, (Feb 2017).
34. M. Bahadori, S. Rumley, "Analysis of Worst-case of Loss and Crosstalk for Planar Silicon Photonic Switch Architectures," 3rd International DATE Workshop on Optical/Photonic Interconnects for Computing Systems (OPTICS) (Mar 2017).
35. M. Bahadori, S. Rumley, R. Polster, A. Gazman, M. Traverso, M. Webster, K. Patel, K. Bergman, "Energy-Performance Optimized Design of Silicon Photonic Interconnection Networks for High-Performance Computing [Invited paper]," *Design, Automation & Test in Europe Conference & Exhibition (DATE)*, 2017, Lausanne, 2017, pp. 326-331.
36. C. Browning, A. Gazman, V. Vujicic, A. Anthur, Z. Zhu, K. Bergman, L.P. Barry, "Optical Circuit Switching/Multicasting of Burst Mode PAM-4 using a Programmable Silicon Photonic Chip," in *Optical Fiber Communication Conference*, OSA Technical Digest (online) (Optical Society of America, 2017), paper Th1B.6.
37. P. Samadi, M. Fiorani, Y. Shen, L. Wosinska, K. Bergman, "Self-Adaptive, Multi-Rate Optical Network for Geographically Distributed Metro Data Centers," in *Optical Fiber Communication Conference*, OSA Technical Digest (online) (Optical Society of America, 2017), paper W3D.2.
38. Y. Huang, P. B. Cho, P. Samadi, and K. Bergman, "Dynamic Power Pre-adjustments with Machine Learning that Mitigate EDFA Excursions during Defragmentation," in *Optical Fiber Communication Conference*, OSA Technical Digest (online) (Optical Society of America, 2017), paper W3D.2.
39. Y. Huang, C. Gutterman, P. Samadi, P. Cho, W. Samoud, C. Ware, M. Lourdiane, G. Zussman, K. Bergman, "Dynamic mitigation of EDFA power excursions with machine learning," *Optics Express* 25, 2245-2258 (2017).
40. P. Samadi, M. Fiorani, Y. Shen, L. Wosinska, K. Bergman, "Flexible Architecture and Autonomous Control Plane for Metro-scale Geographically Distributed Data Centers [Invited]," in *Journal of Lightwave Technology*, vol. 35, no. 6, pp. 1188-1196, March 15, 2017.

41. A. Gazman, C. Browning, M. Bahadori, Z. Zhu, P. Samadi, S. Rumley, V. Vujicic, L. P. Barry, K. Bergman, "Software-defined control-plane for wavelength selective unicast and multicast of optical data in a silicon photonic platform," *Optics Express* 25, 232-242 (2017).
42. D. Nikolova, D. M. Calhoun, Y. Liu, S. Rumley, A. Novack, T. Baehr-Jones, M. Hochberg, K. Bergman, "Modular architecture for fully non-blocking silicon photonic switch fabric," *Nature Microsystems & Nanoengineering* 3 (1607) (2017).
43. K. Wen, P. Samadi, S. Rumley, C. P. Chen, Y. Shen, M. Bahadori, J. Wilke, K. Bergman, "Flexfly: Enabling a Reconfigurable Dragonfly Through Silicon Photonics," [Best Student Paper Award] The International Conference for High Performance Computing, Networking, Storage and Analysis (SC|16) (Nov 2016).
44. K. Wen, S. Rumley, P. Samadi, C. P. Chen, K. Bergman, "Silicon Photonics in Post Moore's Law Era: Technological and Architectural Implications," Post-Moore's Era Supercomputing (PMES) Workshop (Nov 14, 2016).
45. M. Bahadori, S. Rumley, R. P. Polster, K. Bergman, "Loss and Crosstalk of Scalable MZI-based Switch Topologies in Silicon Photonic Platform," IEEE Photonics Conference (IPC) (Oct 3, 2016).
46. M. Fiorani, P. Samadi, Y. Shen, L. Wosinska, K. Bergman, "Flexible Architecture and Control Strategy for Metro-Scale Networking of Geographically Distributed Data Centers [Invited]," European Conference on Optical Communications (ECOC) (Sep 2016).
47. Y. Huang, W. Samoud, C. L. Gutterman, C. Ware, M. Lourdiane, G. Zussman, P. Samadi, K. Bergman, "A Machine Learning Approach for Dynamic Optical Channel Add/Drop Strategies that Minimize EDFA Power Excursions," European Conference on Optical Communication (ECOC) (Sep 2016).
48. S. Rumley, M. Bahadori, D. Nikolova, K. Bergman, "Physical Layer Compact Models for Ring Resonators based Dense WDM Optical Interconnects," European Conference on Optical Communication (ECOC) (Sep 2016).
49. K. Wen, H. Guan, D. M. Calhoun, S. Rumley, D. Donofrio, J. Shalf, K. Bergman, "Silicon Photonic Memory Interconnect for Many-Core Architectures," IEEE High Performance Extreme Computing Conference (HPEC'16) (Sep 13, 2016).
50. S. Rumley, R. P. Polster, S. D. Hammond, A. F. Rodrigues, K. Bergman, "End-to-end Modeling and Optimization of Power Consumption in HPC Interconnects [Invited]," HUCAA Workshop at ICPP (Aug 2016).
51. K. Bergman, S. Rumley, "Optical Switching Performance Metrics for Scalable Data Centers [Invited]," Photonics in Switching (Jul 2016).
52. M. Bahadori, S. Rumley, H. Jayatileka, K. Murray, N. A. F. Jaeger, L. Chrostowski, S. Shekhar, K. Bergman, "Crosstalk Penalty in Microring-Based Silicon Photonic Interconnect Systems," *IEEE Journal of Lightwave Technology* 34 (17) (Jul 2016).
53. J. M. Rothenberg, C. P. Chen, J. J. Ackert, J. I. Dadap, A. P. Knights, K. Bergman, R. M. Osgood, Jr., R. R. Grote, "Experimental demonstration of coherent perfect absorption in a silicon photonic racetrack resonator," *Optics Letters* 41 (11) 2537-2540 (Jun 2016).
54. P. Samadi, K. Wen, J. Xu, K. Bergman, "Software-defined optical network for metro-scale geographically distributed data centers," *Optics Express* 24 (11) (May 2016).
55. M. Bahadori, R. Polster, S. Rumley, Y. Thonnart, J.-L. Gonzalez-Jimenez, K. Bergman, "Energy-Bandwidth Design Exploration of Silicon Photonic Interconnects in 65nm CMOS," IEEE Optical Interconnects Conference (OI) (May 2016)

56. K. Bergman, J. Shalf, T. Hausken, "Optical Interconnects and Extreme Computing," *Optics & Photonics* 27, 32-39 (Apr 19, 2016).
57. P. Samadi, K. Wen, J. Xu, Y. Shen, K. Bergman, "Reconfigurable Optical Dragonfly Architecture for High Performance Computing," Optical Fiber Communication (OFC) Th2A.60 (Mar 2016).
58. M. Bahadori, S. Rumley, K. Bergman, "Impact of High-Speed Modulation on the Scalability of Silicon Photonic Interconnects [Invited]," 2nd International Workshop on Optical/Photonic Interconnects for Computing Systems (OPTICS) (Mar 2016).
59. M. Bhopalwala, H. Rastegarfar, D. Kilper, M. Wang, K. Bergman, "Energy efficiency of optical grooming of QAM optical transmission channels," *Optics Express* 24 (3), 2749-64 (Feb 2016).
60. S. Rumley, M. Bahadori, K. Wen, D. Nikolova, K. Bergman, "PhoenixSim: Crosslayer Design and Modeling of Silicon Photonic Interconnects," 1st International Workshop on Advanced Interconnect Solutions and Technologies for Emerging Computing Systems (AISTECS) (Jan 2016).
61. M. Bahadori, S. Rumley, D. Nikolova, K. Bergman, "Comprehensive Design Space Exploration of Silicon Photonic Interconnects," *IEEE Journal of Lightwave Technology*, 33 (Nov 2015).
62. Q. Li, D. Nikolova, D. M. Calhoun, Y. Liu, R. Ding, T. Baehr-Jones, M. Hochberg, K. Bergman, "Single Microring-Based 2x2 Silicon Photonic Crossbar Switches," *IEEE Photonics Technology Letters* 27 (18) (Sep 2015).
63. A. S. Ahsan, C. Browning, M. S. Wang, K. Bergman, D. C Kilper, L. P. Barry, "Excursion-Free Dynamic Wavelength Switching in Amplified Optical Networks," *Journal of Optical Communications and Networking* 7 (9), 898-905 (Sept. 2015).
64. P. Samadi, V. Gupta, J. Xu, H. Wang, G. Zussman, K. Bergman, "Optical multicast system for data center networks," *Optics Express* 23 (17) 22162-22180 (Aug 2015).
65. Y. Yang, Y. Ma, H. Guan, Y. Liu, S. Danziger, S. Ocheltree, K. Bergman, T. Baehr-Jones, M. Hochberg, "Phase coherence length in silicon photonic platform," *Optics Express* 23 (13), 16890-16902 (Jun 2015)
66. Q. Li, R. Ding, Y. Liu, T. Baehr-Jones, M. Hochberg, K. Bergman, "High-Speed BPSK Modulation in Silicon," *IEEE Photonics Technology Letters* 27 (12) 1329-1332 (Jun 2015).
67. Y. Ma, Y. Liu, H. Guan, A. Gazman, Q. Li, R. Ding, Y. Li, K. Bergman, T. Baehr-Jones, M. Hochberg, "Symmetrical polarization splitter/rotator design and application in a polarization insensitive WDM receiver," *Optics Express* 23 (12) 16052-16062 (Jun 2015).
68. B. Stern, X. Zhu, C. P. Chen, L. D. Tzuang, J. Cardenas, K. Bergman, M. Lipson, "On-chip mode-division multiplexing switch," *Optica* 2 (6) (Jun 2015).
69. A. Almain et al., "Experimental demonstration of robustness and accuracy of a DLI-based OSNR monitor under changes in the transmitter and link for different modulation formats and baud rates," *Optics Letters* 40 (9), 2012-2015 (May 2015).
70. S. Rumley, K. Bergman, "Meeting Exascale Interconnect Requirements with Integrated Photonics [Invited]," 5th International Symposium on Photonics and Electronics Convergence (ISPEC 2015) (Dec 2015).
71. Y. Ma, Y. Liu, R. Ding, T. Baehr-Jones, P. Magill, H. Guan, A. Gazman, Q. Li, K. Bergman, M. Hochberg, "Optimized Silicon Photonic Components for High-Performance Interconnect Systems," IEEE Photonics Conference TuG3.2 (Oct 2015).



72. Q. Li, R. Ding, Y. Liu, T. Baehr-Jones, M. Hochberg, K. Bergman, "High-Speed BPSK Modulation using a Silicon Modulator," IEEE Photonics Conference MG1.5 (Oct 2015).
73. P. Samadi, J. Xu, K. Bergman, "Experimental Demonstration of One-to-Many Virtual Machine Migration by Reliable Optical Multicast," European Conference on Optical Communications (ECOC) 689 (Sep 2015).
74. S. Rumley, D. M. Calhoun, S. D. Hammond, A. Rodrigues, K. Bergman, "Toward Transparent Optical Networking in Exascale Computers [Tutorial]," European Conference on Optical Communications (ECOC) 882 (Sep 2015).
75. S. Rumley, M. Glick, S. D. Hammond, A. Rodrigues, K. Bergman, "Design Methodology for Optimizing Optical Interconnection Networks in High Performance Systems," ISC High Performance 2015 conference (Jul 2015).
76. K. Wen, S. Rumley, J. Wilke, K. Bergman, "Latency-avoiding Dynamic Optical Circuit Prefetching Using Application-specific Predictors," First International Workshop on Communication Architectures at Extreme Scale (ExaComm) (Jul 2015).
77. P. Samadi, J. Xu, K. Wen, H. Guan, Z. Li, K. Bergman, "Experimental Demonstration of Converged Inter/Intra Data Center Network Architecture," 17th International Conference on Transparent Optical Networks ICTON 2015 (Jul 2015).
78. M. Bahadori, A. Gazman, S. Rumley, Q. Li, K. Bergman, "Nonlinear Temperature-Dependent Transfer Characteristics of Silicon Photonic Microring Resonators," Integrated Photonics Research, Silicon and Nano Photonics (IPR) JM3A.28 (Jun 2015).
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