

Keren Bergman

500 W. 120th Street, Dept. of Electrical Engineering, Columbia University, New York, NY 10027

Ph: 212-853-1657; bergman@ee.columbia.edu

<http://lightwave.ee.columbia.edu/>

Appointments

2023 – Present - Director, SRC/JUMP 2 Center for Ubiquitous Connectivity (CUbiC)
2011 – Present - Charles Batchelor Professor of Electrical Engineering
2014 – Present - Founder and Faculty Director, Columbia Nano Initiative
2016 – Present - AIM Photonics Institute, Leadership Council
2002 – Present - Director, Lightwave Research Laboratory, Columbia University
2011 – 2017 - Chair, Department of Electrical Engineering, Columbia University
2006 – 2010 - Professor of Electrical Engineering, Columbia University
2007 – 2008 - Visiting Research Fellow IBM T. J. Watson Research Labs
2002 – 2006 - Associate Professor of Electrical Engineering, Columbia University
1999 – 2002 - Senior Member of Technical Staff, Tellium, Inc.
1998 – 2007 - Senior Technical Advisor, National Security Agency
1995 – 2000 - Technical Consultant, Bell Laboratories, Lucent Technologies
1994 – 1999 - Assistant Professor of Electrical Engineering, Princeton University

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

- Optica C. E. K. Mees Metal 2025
- Applied Physics Reviews Editors choice feature 2023
- HPCwire People to Watch Award 2022
- Meta (Facebook) Faculty Award 2021
- Bucknell University Distinguished Engineering Alumni Award 2019
- IEEE Photonics Engineering Award 2016
- 2016 Herman Haus Distinguished Lecture, MIT
- 2016 ComSoc 10 Women Leaders in Networking/Communications
- Charles Batchelor Professor of Electrical Engineering 2011
- IEEE Fellow 2009
- IBM Faculty Award 2008
- Optical Society of America (Optica) 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

Invited Talks and Plenaries [recent two years]

- Invited Talk, “Peta-scale photonic connectivity for energy efficient computing,” SPIE Photonics West, Jan 27-Feb, 2024, San Francisco CA.
- Invited Panel Speaker, “Cutting-Edge Technologies for Interconnecting AI/ML Clusters,” Optical Fiber Communications (OFC 2024), March 24-28 2024, San Diego CA.
- Invited Workshop Speaker, “Co-Packaged Optics: Is it Only for the Cloud or Also for the Edge AI Services?” Optical Fiber Communications (OFC 2024), March 24-28 2024, San Diego CA.
- Invited Workshop Speaker, “Will Optical Switches Become a Key Element in High-Performance AI/ML Datacenter Networks?” Optical Fiber Communications (OFC 2024), March 24-28 2024, San Diego CA.
- Invited Paper, IEEE Custom Integrated Circuits Conference (CICC) “Silicon Photonics Chip I/O for Ultra High-Bandwidth and Energy-Efficient Die-to-Die Connectivity” 21-24 April 2024, Denver CO.
- Invited Speaker, “Realizing petabit/s IO and sub-pJ/bit interconnect with silicon photonics,” in Image Sensing Technologies: Materials, Devices, Systems, and Applications Conference at SPIE Defense + Commercial Sensing Defense conference, April 21-25, National Harbor MD.
- Invited talk, “Petascale Photonic Connectivity for Energy Efficient Scaling of AI Computing,” CLEO invited paper, May 5-10, 2024 in Charlotte, North Carolina
- Plenary Speaker, “Petascale photonic chip connectivity for energy efficient AI computing,” IEEE 74th Electronic Components and Technology Conference ECTC May 28-June 2 2024, Denver CO
- Invited Talk, “Petascale photonic connectivity for energy efficient scaling of AI computing,” IEEE Photonics in Switching and Computing, July 15-17 2024, Bridgetown, Barbados.
- Plenary Speaker, “Petascale photonic connectivity for energy efficient computing,” Optica Advanced Photonics Congress, July 28 – August 1, Quebec, Canada.
- Invited Speaker, “Petascale photonic connectivity for energy efficient computing,” SIGCOMM 2024 HotOptics, Aug 4-6, 2024, Sydney, Australia.
- Invited Seminar, Global Foundries Tech Vitality Series, CUbiC Research Overview – Photonic Connectivity in the Data Center, October 15, 2024, Virtual.
- Distinguished Lecture, Photonic Interconnects, Center for Ubiquitous Connectivity, CONNECT, October 18, 2024, Trinity College Dublin, Ireland.
- Plenary Speaker, Optics for AI Clusters & Computing; FRONT Workshop Shaping the Future of Optical Networks November 9, 2024, Rome, Italy.
- Plenary Speaker, Silicon Photonic XCVR/IO for AI Networking: Current and Future; 2024 Intel SERDES and I/O Summit December 3, 2024, Virtual.
- Distinguished Seminar, Petascale photonic connectivity for energy efficient computing, IBM Research Seminar Series, December 6, 2024, Yorktown Heights, NY.
- Invited Speaker, Advanced Packaging in a New AI Era: Embedded Photonics, SEMICON Korea 2025, Feb 18-21, 2025, Seoul, Korea.
- UC Boulder ECEE Distinguished Speaker Series: Photonic Connectivity for Advanced Computing Systems, Feb 28, 2025, Boulder, Colorado.
- Distinguished Lecture, Photonic Connectivity for Advanced Computing Systems, The College of Optics and Photonics (CREOL), March 7, 2025, Orlando, Florida.
- Keynote Speaker, IEEE Custom Integrated Circuits Conference (CICC), Chiplet Solutions for Custom IC, April 16-18, 2025, Boston, MA.
- Invited Speaker, SRC Asia Tour: including multiple talks at TSMC, MediaTek, SK Hynix, and Samsung, May 8 – 16, 2025, Taipei, Taiwan and Seoul, Korea.
- Plenary Speaker, AIM Photonics annual meeting, June 10 – 11, 2025, Rochester NY
- Invited Speaker, “Sub-pJ/bit Optical Connectivity for AI Clusters,” IEEE Radio Frequency Integrated Circuits Symposium (RFIC) June 15 –17, 2025, San Francisco, CA

- Invited Speaker, Flexible Photonic Connectivity for AI Systems, International Conference on Transparent Optical Networks ICTON 2025, July 6-10, 2025, Barcelona, Spain.
- Invited Speaker, OPTICA Advanced Photonics Congress, Photonic Networks and Devices, APC 2025 NETWORKS, July 13 – 17, 2025, Marseille, France.
- Invited Speaker, “Photonic Connectivity for AI Systems,” IEEE Summer Topicals Meeting, July 21 – 23, 2025 Berlin, Germany.
- Plenary Speaker, “Petascale Photonic Connectivity for Energy-Efficient AI Systems,” AIM Photonics Annual Meeting, Rochester, NY, June 11, 2025.
- Invited Speaker, “Sub-pJ/bit Optical Connectivity for Performance Acceleration in AI Clusters,” ModSim 2025, Seattle, WA, August 15, 2025.
- Invited Speaker, “Embedded Photonic Connectivity in AI Systems,” Analog Devices, Wilmington, MA, August 28, 2025.
- Invited Speaker, “Photonic Connectivity for AI Systems,” Photonics for Data Centers Workshop, EPFL, Lausanne, Switzerland, September 5, 2025.
- Invited Speaker, “SRC JUMP 2.0 – CUBiC Research Overview,” GlobalFoundries Tech Vitality Series, Virtual, October 15, 2025.
- Invited Short Course, “Photonic Interconnects for High-Performance Computing Systems,” ACRC Short Course, Technion, Haifa, Israel, October 27, 2025.
- Invited Speaker, “Embedded Photonic Connectivity for Scaling AI Systems,” EFCL Workshop, ETH Zurich, November 4, 2025.
- Distinguished Speaker, Max Planck Institute for the Science of Light, “Scaling Energy-Efficient AI Systems Performance with Photonic Connectivity,” Erlangen, Germany, March 6, 2026.
- Invited Speaker, “Scaling energy-efficient AI systems performance with integrated photonic connectivity,” European Conference on Integrated Optics (ECIO 2026), ETH Zurich, Switzerland, June 15-17 2026.
- Invited Speaker, IEEE Summer Topicals Meeting Series (SUM), Tulum, Mexico, 13-15 July 2026
- Keynote Speaker, “Energy-Efficient AI Systems with Photonic Connectivity,” 16th International Conference on Parallel Processing and Applied Mathematics (PPAM 2026), Poznan, Poland, Aug 30 – Sept 2, 2026.
- Invited Talk, “Silicon photonic components for dense wavelength multiplexing in Datacom transceivers,” European Conference on Optical Communications (ECOC 2026), Málaga, Spain), September 20 – 24, 2026.
- Keynote Speaker, “Si Photonics Packaging Summit: advancing the state-of-the-art in silicon photonics and co-packaging optics,” IMAPS Symposium, Boston, MA, October 1–2, 2026.

Leadership and Professional Activities

Advisory Boards and Professional Society service:

- Director, Center for Ubiquitous Connectivity (CUBiC), SRC Joint University Microelectronics Program (JUMP 2.0) 5-year \$35M, leading 23 co-PIs, twelve academic institutions and supported by DARPA and 15 industry partners including Intel, Samsung, Micron, IBM, HRL labs, EMD Electronics, TSMC, Analog Devices, SK Hynix, ARM, Boeing, MediaTek, Raytheon, Qorvo, and Global Foundries.
- Technical University of Denmark’s (DTU), international research review panel for DTU Electrical and Photonics Engineering
- IEEE Photonics Society, John Tyndall Award Selection Committee
- American Institute for Manufacturing Integrated Photonics (AIM Photonics)
 - Strategic Advisory Board, (AIM 2.0) 2021-present
 - Founder, and Leadership Council (2016-2021)
- Department of Energy Advanced Scientific Computing Advisory Committee (ASCAC), 2016-2025

- Irish Photonic Integration Center (IPIC) Scientific Advisory Committee chair (SAC), 2019 – 2025
- Society of Women Engineers (SWE) faculty advisor; Engineering Women's Forum; Columbia SEAS days on campus women engineering panel; Women in engineering day, 2016 – present
- IEEE Student Chapter, Columbia University, faculty advisor, 2020 – present
- Department of Energy, Brookhaven National Laboratory Computational Science, scientific advisory board, 2018 – 2024
- Board of Electors, University of Cambridge Van Eck Professorship of Engineering, 2022 – 2023
- IEEE Photonics Award Committee (2017- 2019)
- IEEE Photonics Society
 - Vice President for Publications (2003 - 2004)
 - Vice President for Membership Americas (1999 - 2002)
 - Board of Governors (1996 – 1999)
- IEEE Photonics Society Technical Committee on Optical Networking and Systems (chair, 2004 - 2007), committee member (1999–2002)
- Optical Society of America (Optica) Board of Directors (2001-2003)
- National Academy of Engineering EU-US Frontiers of Engineering Symposium, Aalto University, Helsinki, Finland (2016)
- National Academies Panel on Digitization and Communications Science for the Army Research Laboratory, member (2010-2012)
- Institute for Defense Analyses (IDA) Defense Science Study Group. Two-year selective faculty program sponsored by DARPA Defense Sciences Office (2010-2011)
- Department of Energy 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).
- National Security Agency, Technical Lead on Interconnects for Advanced Computing Systems initiative and Center for Exceptional Computing (2006-2008). 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).

Editorial:

- Applied Physics APL Photonics Editorial Advisory Board (2015-2019)
- OSA/Optica Journal of Optical Networks Editor-in-Chief (2007-2009)
- IEEE/OSA Journal of Optical Communications, co-founder and Editor-in-Chief of the joint journal created through IEEE and Optica (OSA) (2009-2013)
- IEEE JSTQE Guest editor for Special Issue on “Optical Interconnects for Data Centers,” (2013)
- IEEE Photonic Technology Letters, Associate Editor (2004 - 2009)

Technical Conference and Workshops:

- Optical Fiber Communications Conference (OFC)
 - Optica Representatives to the OFC Steering Committee (2024 – 2027)
 - Optical Networking for Data Center and Computing Applications, Chair (2024) 2022-present
 - CompuCom Technical subcommittee Chair 2012
 - Workshop co-organizer on integrated photonics in advanced computing (2009); CompuCom Symposium, organizer (2011)
- International Supercomputing and High-Performance Computing Conference ISC
 - 2022 Technical Program Chair
 - 2020 Track lead for Emerging Technologies

- IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis, Supercomputing (SC)
 - Technical Program Committee, Post Moore Computing, 2022 – 2024
 - Organizer Panels: Transforming the Future of HPC with Silicon Photonics (2022); Scalable and Adaptable Architectures for AI/HPC Advancement (2023)
 - Architecture and Networking technical area, (Committee Chair 2017) (2010-2017)
 - Organizer Disruptive Technologies Panel on Integrated Silicon Photonic Technologies in Future Computing Systems: Impact on Hardware, Software, and Applications (2011)
- IEEE/Optica CLEO – Laser Science to Photonics Applications
 - Micro/Nano-Photonics Technical Committee (2006-2011), Chair (2009 – 2010)
 - Ultrafast Technical Committee (2000-2003); Ultrafast Electronics and Optoelectronics (UEO) Program Committee (2001–2002); UEO program chair (2005)
- IEEE/Optica Photonics in Switching and Computing
 - General Chair, Photonics in Switching (2014)
 - Technical Program co-chair, Photonics in Switching (2012-2013)
- IEEE Group IV Photonics, Technical Program Committee, Silicon Photonics (2015)
- IEEE Photonics Society Summer Topicals “Optics in Data Centers,” Technical Committee (2013)
- IEEE Globecom Optical Networks and Systems Technical Program Committee (2012-2014)
- ACM/IEEE SIGCOMM, Technical Program Committee, SIGCOMM (2015)
- High-Performance Embedded Computing, HPEC Technical Committee (2009-2013)
- Hot Interconnects, General Chair (2009), Technical Program (2008-2012)
- Microfabrication, Integration, and Packaging of MEMS / MOEMS DTIP, Conference co-chair (2003)
- Co-organizer DOE Institute for Advanced Architectures and Algorithms (IAA) workshop on Interconnection Networks; leader, emerging technologies working group (2008)
- NSF Global Environment for Network Innovations (GENI), Optical Substrate Study Group (2007- 09); Co-chair for Networking Research Challenges Workshop (ONT-4) sponsored by the Large-Scale Networking Coordination Group (including multiple federal agencies, NSF, DOE, DOD, etc.) (2008)
- Co-organizer and technical program lead DOE/NSA sponsored workshop: Photonic and Electronics Technology for Extreme Scale Computing (PETE) (2012)
- Co-organizer, OSA Incubator and NSF Workshop on Scaling Terabit Networks: “Breaking Through Capacity Barriers and Lowering Cost with New Architectures and Technologies” (2013)
- Co-organizer, NSF Future Heterogeneous Networks, Technical program lead “High-Speed Fiber Optic Cross-Layer,” (2011).
- Co-organizer and Chair of the OSA/DOE workshop on “Optical Interconnects for Extreme Scale Computing,” OSA headquarters (2015)
- Co-organizer ‘Future Technology Scaling for Efficient Digital Electronics’ workshop, at the Lawrence Berkley National Labs (2016)

Publications

Patents:

1. SILICON PHOTONIC BAND INTERLEAVER, Keren Bergman, Asher Novick, Anthony Rizzo, Songli Wang, US Patent Application 18625875. (2024).
2. METHODS, SYSTEMS, AND DEVICES FOR BANDWIDTH STEERING USING PHOTONIC DEVICES, Georgios Michelogiannakis, Shen Yiwen, Min Yee Teh, John Shalf, Madeleine Glick, Keren Bergman US patent 12,075,201 (2024).
3. FAST PROBING OF SIGNAL QUALITY IN A WDM NETWORK, Daniel Kilper, Atiyah Sayyidah Ahsan, Keren Bergman, U.S. Patent No. 11,496,213. (2022).

4. SYSTEMS AND METHODS FOR CRYOGENIC OPTOELECTRONIC DATA LINK; Igor Vernik; Oleg Mukhanov; Alan Kadin, Christopher Phare, Michal Lipson, Keren Bergman; US Patent 12,009,869 (2024); 11,115,131 (2021); 10,644,809 (2020); 10,097,281 (2018).
5. PHOTONICS INTERPOSER OPTOELECTRONICS; Douglas Coolbaugh, Michael Watts, Michal Lipson, Keren Bergman, Thomas Koch, Jeremiah Hebding, Daniel Pascual, Douglas La Tulipe; US Patent 10976491 (2021).
6. APPLICATIONS OF WAVELENGTH-LOCKING USING DITHERING SIGNALS FOR MICRORING RESONATORS; K Padmaraju, K Bergman US Patent 10,281,747 (2019).
7. INTEGRATED THERMAL STABILIZATION OF A MICRORING RESONATOR; A Knights, D Logan, K Padmaraju, K Bergman US Patent 9,831,360 (2017).
8. RESILIENT OPTICAL NETWORKING; Daniel Kilper, Keren Bergman, Gil Zussman, Berk Birand; US Patent: 10,158,447 (2018).
9. SYSTEMS AND METHODS FOR STORING OPTICAL DATA; Benjamin Small, Assaf Shacham, Keren Bergman; US Patent 8,582,972 (2013).
10. SYSTEMS AND METHODS FOR ON-CHIP DATA COMMUNICATIONS; Assaf Shacham; Keren Bergman, Luca Carloni; US Patent 8,340,517 (2012)
11. OPTICAL NETWORK; Keren Bergman, Assaf Shacham; US Patent 8,326,148 (2012)
12. OPTICAL SWITCH HAVING MEMS ARRAY WITH REDUCED OPTICAL LOSS; Jerry Dadap, Bonadeo; Nicolas H. (Aberdeen, NJ), Lee; Chauhan Daniel (Middletown, NJ), Bergman; Keren (Princeton, NJ), Brener; Igal (Westfield, NJ), Peale; David R. (Tinton Falls, NJ), Chiang; Kophu (North Andover, MA); US Patent 6,690,849 (2004)

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:

1. "Photonic switch fabrics in data center/high-performance computing networks," (Qixiang Cheng, Chunhui Yao, Nicola Calabretta, Ripalta Stabile, Keijiro Suzuki, Hitoshi Kawashima, Weijie Tang, Madeleine Glick, Tao Chu, Kazuhiro Ikeda, Ryosuke Matsumoto, Shu Namiki, Keren Bergman, Richard Penty) In Integrated Photonics for Data Communication Applications, pp. 265-301. Elsevier, 2023.
2. "Optical Interconnection Networks for High Performance Systems," (Qixiang Cheng, Madeleine Glick, Keren Bergman) Optical Fiber Telecommunications VII, Alan Willner, Editor (Elsevier 2020)
3. "Evolving requirements and trends of HPC," (Sébastien Rumley, Ashkan Seyed, Marco Fiorentino, Keren Bergman) Springer Handbook of Optical Networks, Mukherjee, B., Tomkos, I., Tornatore, M., Winzer, P., Zhao, Y. Editors (Springer 2020)
4. "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 Systems and Applications, L. Pavesi and D. Lockwood Editors (Springer 2016).
5. "Optically Interconnected High Performance Data Centers," (Keren Bergman and Howard Wang) Optical Interconnects for Future Data Center Networks (Springer 2013).
6. "Next Generation Cluster Networks" (K. Bergman, B. A. Small, L. Bergman) The Handbook of Computer Networks, (Wiley 2008).
7. "Optical Interconnection Networks" (K. Bergman) Optical Fiber Telecommunications V, Ivan Kaminow, Tingye Li, Alan Willner Editors, (Elsevier 2008).

Journal Publications:

1. Z. Wu, Y. Wang, K. Bergman, "SiPAM: Silicon Photonic Accelerated Memory Pooling Architecture," *IEEE Micro*, (March 2026).
2. J. M. Venditto et al., A. E. Willner, and K. Bergman, "Reconfigurable Silicon Photonic Transceiver for Space-Based Communication Nodes," *Journal of Lightwave Technology*, vol. 44, no. 3, pp. 930–943, 2026.
3. Robert Parsons, Alexander Oh, James Robinson, Songli Wang, Michael Cullen, Kaylx Jang, Aneek James, Yuyang Wang, and Keren Bergman, "Foundry-enabled wafer-scale characterization and modeling of silicon photonic DWDM links," *Nanophotonics*, vol. 14, pp. 5363–5374, 2025. <https://doi.org/10.1515/nanoph-2025-0439>
4. James Robinson, Robert Parsons, Yuyang Wang, Kaylx Jang, Xiang Meng, and Keren Bergman, "Silicon photonic DWDM micro-resonator link initialization under fabrication variation," *Optics Express*, vol. 33, pp. 53700–53713, 2025.
5. Z. Wu, B. Klenk, L. Dennison, and K. Bergman, "ACTINA: Adapting Circuit-Switching Techniques for AI Networking Architectures," *SC '25: Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis*, 1211-1222 (2025). <https://doi.org/10.1145/3712285.375984>
6. Devesh Khilwani, Christine Ou, Sunwoo Lee, Stuart Daudlin, Anthony Rizzo, Songli Wang, Michael Cullen, Yuyang Wang, Keren Bergman, Alyosha Molnar, "System and Circuit Design for a 5.3 Tbps/mm², 520 fJ/bit Opto-Electronic Transceiver Leveraging Dense Wavelength Division Multiplexing," *TechRxiv*. 2025.
7. Robert Parsons, Kaylx Jang, Yuyang Wang, Asher Novick, A Matthew Smith, Christopher C Tison, Yonas Gebregiorgis, Ven Deenadayalan, Matthew van Niekerk, Lewis Carpenter, Tat Ngai, Gerald Leake, Daniel Coleman, Xiang Meng, Stefan Preble, Michael L Fanto, Anthony Rizzon, and Keren Bergman, "Highly uniform thermally undercut silicon photonic devices in a 300 mm CMOS foundry process," *Scientific Reports*, 15, 29906 (2025). <https://doi.org/10.1038/s41598-025-14480-4>
8. M. L. Hall, X. He, C.-P. Chiu, P. E. Morrissey, K. Gradkowski, V. Jayaram, F. Cheng, T. T. Hoang, K. Bergman, P. O'Brien, and K. Hosseini, "Innovations in fibre array coupling and integration for high-bandwidth FPGA multichip packages," *Proc. SPIE 13372, Optical Interconnects and Packaging* 2025, 1337204 (20 March 2025); <https://doi.org/10.1117/12.3040471>
9. Stuart Daudlin, Anthony Rizzo, Sunwoo Lee, Devesh Khilwani, Christine Ou, Songli Wang, Asher Novick, Vignesh Gopal, Michael Cullen, Robert Parsons, Kaylx Jang, Alyosha Molnar, and Keren Bergman, "Three-dimensional photonic integration for ultra-low-energy, high-bandwidth interchip data links," *Nature Photonics* vol. 19, pp. 502–509, 2025 (March 2025). <https://doi.org/10.1038/s41566-025-01633-0>
10. Bohao Sun, Chunhui Yao, Tongyun Li, Ziyao Zhang, Peng Bao, Minjia Chen, Alan Yilun Yuan, Chenxi Tan, Zhitian Shi, Adrian Wonfor, Seb Savory, Keren Bergman, Richard Penty, and Qixiang Cheng, "Tri-layer SiN-on-Si 8×8 Optical Switches with Thermo-optic and Electro-optic Actuators," *IEEE Journal of Lightwave Technology*, vol. 43, no. 11, pp. 5400-5406, 2025, doi: 10.1109/JLT.2025.3545568.
11. Songli Wang, Yuyang Wang, Swarnava Sanyal, Robert Parsons, Xingchen Ji, Yoshitomo Okawachi, Xiang Meng, Michal Lipson, Alexander Gaeta, Keren Bergman, "Automated tuning of a ring-assisted MZI-based interleaver for Kerr frequency combs," *Optics Letters*, Vol 50, no 2, pp 698-701 (January 2025).
12. Yuyang Wang, Songli Wang, Robert Parsons, Swarnava Sanyal, Vignesh Gopal, Asher Novick, Anthony Rizzo, Michal Lipson, Alexander Gaeta, Keren Bergman, "Co-Designed Silicon Photonics Chip I/O for Energy-Efficient Petascale Connectivity," *IEEE Transactions on Components, Packaging and Manufacturing Technology* (2025). **Best Paper Award 2025**; doi: 10.1109/TCPMT.2024.3492189

13. Mauricio G Palma, Jorge Gonzalez, Martin Carrasco, Ruth Rubio-Noriega, Keren Bergman, Rodolfo Azevedo, "Inter-node Message Passing through Optical Reconfigurable Memory Channel," *IEEE Access*, vol. 12, pp. 83057-83071, (June 2024)
14. Zhenguo Wu, Liang Yuan Dai, Yuyang Wang, Songli Wang, and Keren Bergman, "Flexible silicon photonic architecture for accelerating distributed deep learning," *IEEE/Optica Journal of Optical Communications and Networking*, Vol. 16, Issue 2, pp. A157-A168 (February 2024)
15. Asher Novick, Aneek James, Ling Yuan Dai, Zhenguo Wu, Anthony Rizzo, Songli Wang, Yuyang Wang, Maarten Hattink, Vignesh Gopal, Kaylx Jang, Robert Parsons, Keren Bergman, "High-bandwidth density silicon photonic resonators for energy-efficient optical interconnects," **Editors choice feature article 2023**, *Appl. Phys. Rev.* 10 (4), (Nov 2023).
16. Oscar A Jimenez Gordillo, Asher Novick, Oliver L Wang, Anthony J Rizzo, Utsav D Dave, Keren Bergman, Michal Lipson, "Fiber-chip link via mode division multiplexing," *IEEE Photonics Technology Letters*, vol. 35, no. 19, pp. 1071-1074, (Oct. 2023).
17. Anthony Rizzo, Asher Novick, Vignesh Gopal, Bok Young Kim, Xingchen Ji, Stuart Daudlin, Yoshitomo Okawachi, Qixiang Cheng, Michal Lipson, Alexander A Gaeta, and Keren Bergman, "Massively scalable Kerr comb-driven silicon photonic link," *Nature Photonics*. 17, pp. 781–790 (June 2023).
18. Zhenguo Wu, Liang Yuan Dai, Asher Novick, Madeleine Glick, Ziyi Zhu, Sébastien Rumley, George Michelogiannakis, John Shalf, and Keren Bergman, "Peta-Scale Embedded Photonics Architecture for Distributed Deep Learning Applications," in *IEEE/Optica Journal of Lightwave Technology*, vol. 41, no. 12, pp. 3737-3749, (June 2023).
19. Min Yee Teh, Shizhen Zhao, Peirui Cao, and Keren Bergman, "Enabling Quasi-Static Reconfigurable Networks with Robust Topology Engineering," *IEEE/ACM Transactions on Networking* vol. 31, no. 3, pp. 1056-1070 (June 2023)
20. Devika Dass, Liang Yuan Dai, Keren Bergman, Xing Ouyang, Paul Townsend, Chris Roeloffzen, Colm Browning, "Low Noise Ultra-Flexible SiP Switching Platform for mmWave OCDM & Multi-band OFDM ARoF Fronthaul," in *IEEE Photonics Technology Letters*, vol. 35, no. 12, pp. 653-656, (June 2023).
21. Aneek James, Asher Novick, Anthony Rizzo, Robert Parsons, Kaylx Jang, Maarten Hattink, and Keren Bergman, "Scaling comb-driven resonator-based DWDM silicon photonic links to multi-Tb/s in the multi-FSR regime," *Optica*, 10, 832-840, (June 2023)
22. Aneek James, Anthony Rizzo, Yuyang Wang, Asher Novick, Songli Wang, Robert Parsons, Kaylx Jang, Maarten Hattink, and Keren Bergman, "Process Variation-Aware Compact Model of Strip Waveguides for Photonic Circuit Simulation," *IEEE/Optica Journal of Lightwave Technology*, vol. 41, no. 9, pp. 2801-2814, (May, 2023).
23. Yuyang Wang, Asher Novick, Robert Parsons, Songli Wang, Kaylx Jang, Aneek James, Maarten Hattink, Vignesh Gopal, Anthony Rizzo, Chia-Pin Chiu, Kaveh Hosseini, Tim Tri Hoang, and Keren Bergman, "Scalable architecture for sub-pJ/b multi-Tbps comb-driven DWDM silicon photonic transceiver," *Proceedings SPIE Volume 12429, Next-Generation Optical Communication: Components, Sub-Systems, and Systems XII*; (March 2023).
24. Anthony Rizzo, Utsav Dave, Asher Novick, Alexandre Freitas, Samantha P Roberts, Aneek James, Michal Lipson, and Keren Bergman, "Fabrication-robust silicon photonic devices in standard sub-micron silicon-on-insulator processes," *Optics Letters* 48.2 215-218, (Jan 2023).
25. Matthew van Nierkerk, Anthony Rizzo, Hector Rubio, Gerald Leake, Daniel Coleman, Christopher Tison, Michael Fanto, Keren Bergman, Stefan Preble, "Massively scalable wavelength diverse integrated photonic linear neuron," *Neuromorphic Computing and Engineering*, 2 No 3 (Sept 2022).
26. Anthony Rizzo, Stuart Daudlin, Asher Novick, Aneek James, Vignesh Gopal, Vaishnavi Murthy, Qixiang Cheng, Bok Young Kim, Xingchen Ji, Yoshitomo Okawachi, Matthew van Nierkerk, Venkatesh Deenadayalan, Gerald Leake, Michael Fanto, Stefan Preble, Michal Lipson, Alexander Gaeta, and Keren Bergman, "Petabit-Scale Silicon Photonic Interconnects with Integrated Kerr Frequency Combs," *IEEE Journal of Selected Topics in Quantum Electronics*, 29, 1-20 (Feb 2023).

27. Junfei Xia, Tongyun Li, Qixiang Cheng, Madeleine Glick, Michael Crisp, Keren Bergman, Richard Penty, "A Future Proof Reconfigurable Wireless and Fixed Converged Optical Fronthaul Network Using Silicon Photonic Switching Strategies," *IEEE/Optica Journal of Lightwave Tech* (July 2022)
28. Jorge Gonzalez, Mauricio G Palma, Maarten Hattink, Ruth Rubio-Noriega, Lois Orosa, Onur Mutlu, Keren Bergman, Rodolfo Azevedo, "Optically connected memory for disaggregated data centers," *Journal of Parallel and Distributed Computing*, 163, 300-312 (May 2022).
29. Min Yee Teh, Zhenguo Wu, Madeleine Glick, Sebastien Rumley, Manya Ghobadi, and Keren Bergman, "Performance trade-offs in reconfigurable networks for HPC," *IEEE/Optica Journal of Optical Communications and Networking*, 14, 6, 454-468 (June 2022).
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