## Publications

### Book Chapter

B1   **Y. Wang**, Z. Zhang, J. E. Bowers, and K.-T. Cheng, "Silicon photonics optical interconnects for data-centric artificial intelligence applications: A design automation perspective," in *Frontiers of Electronic Design (FED)*, A. Iranmanesh, Ed., in press, Cham: Springer International Publishing.

### Refereed Journal Articles

J1   Z. Wu, L. Yuan Dai, **Y. Wang**, S. Wang, and K. Bergman, "Flexible silicon photonic architecture for accelerating distributed deep learning," en, *Journal of Optical Communications and Networking*, vol. 16, no. 2, A157, Feb. 2024. doi 10.1364/JOCN.497372.

J2   A. James, A. Rizzo, **Y. Wang**, A. Novick, S. Wang, R. Parsons, K. Jang, M. Hattink, and K. Bergman, "Process Variation-Aware Compact Model of Strip Waveguides for Photonic Circuit Simulation," *Journal of Lightwave Technology*, pp. 1–14, 2023. doi 10.1109/JLT.2023.3238847.

J3   A. Novick, A. James, L. Y. Dai, Z. Wu, A. Rizzo, S. Wang, **Y. Wang**, M. Hattink, V. Gopal, K. Jang, R. Parsons, and K. Bergman, "High-bandwidth density silicon photonic resonators for energy-efficient optical interconnects," *Applied Physics Reviews*, vol. 10, no. 4, p. 041 306, Nov. 2023. doi 10.1063/5.0160441.

J4   **Y. Wang**, P. Sun, J. Hulme, M. A. Seyedi, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, "Energy Efficiency and Yield Optimization for Optical Interconnects via Transceiver Grouping," *Journal of Lightwave Technology*, vol. 39, no. 6, pp. 1567–1578, Mar. 2021. doi 10.1109/JLT.2020.3039489.

J5   Z. Zhang, R. Wu, **Y. Wang**, C. Zhang, E. J. Stanton, C. L. Schow, K.-T. Cheng, and J. E. Bowers, "Compact Modeling for Silicon Photonic Heterogeneously Integrated Circuits," *Journal of Lightwave Technology*, vol. 35, no. 14, pp. 2973–2980, Jul. 2017. doi 10.1109/JLT.2017.2706721.

### Refereed Conference Proceedings

C1   A. Novick, M. Hattink, A. Rizzo, **Y. Wang**, V. Gopal, S. Wang, R. Parsons, and K. Bergman, "Integrated photonic resonant modulator-based equalization and optimization for DWDM," in *Optical Fiber Communication Conference (OFC) 2024*, to appear, Optica Publishing Group, 2024.

C2   S. Wang, **Y. Wang**, X. Meng, K. Hosseini, T. T. Hoang, and K. Bergman, "Automated tuning of ring-assisted MZI–based interleaver for DWDM systems," in *Optical Fiber Communication Conference (OFC) 2024*, to appear, Optica Publishing Group, 2024.

C3   Z. Wu, R. Parsons, S. Wang, **Y. Wang**, and K. Bergman, "Wavelength reconfigurable transceiver for multi-interface compute accelerator networks," in *Optical Fiber Communication Conference (OFC) 2024*, to appear, Optica Publishing Group, 2024.

C4   G. Michelogiannakis, Y. Arafa, B. Cook, L. Y. Dai, A.-H. Hameed Badawy, M. Glick, **Y. Wang**, K. Bergman, and J. Shalf, "Efficient Intra-Rack Resource Disaggregation for HPC Using Co-Packaged DWDM Photonics," in *2023 IEEE International Conference on Cluster Computing (CLUSTER)*, Santa Fe, NM, USA: IEEE, Oct. 2023, pp. 158–172. doi 10.1109/CLUSTER52292.2023.00021.

C5   S. Wang, A. Novick, A. Rizzo, R. Parsons, S. Sanyal, K. J. McNulty, B. Y. Kim, Y. Okawachi, **Y. Wang**, A. Gaeta, M. Lipson, A. Gaeta, M. Lipson, and K. Bergman, "Integrated, Compact, and Tunable Band-Interleaving of a Kerr Comb Source," en, in *CLEO 2023*, San Jose, CA: Optica Publishing Group, 2023, STh3J.6. doi 10.1364/CLEO_SI.2023.STh3J.6.

C6   **Y. Wang**, S. Wang, A. Novick, A. James, R. Parsons, A. Rizzo, and K. Bergman, "Dispersion-Engineered and Fabrication-Robust SOI Waveguides for Ultra-Broadband DWDM," en, in *Optical Fiber Communication Conference (OFC) 2023*, San Diego California: Optica Publishing Group, 2023, Th3A.4. doi 10.1364/OFC.2023.Th3A.4.

C7   A. James, **Y. Wang**, A. Rizzo, and K. Bergman, "Flexible, Process-Aware Compact Model of Effective Index in Silicon Waveguides for Commercial Foundries," in *2022 International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD)*, Turin, Italy: IEEE, Sep. 2022, pp. 173–174. doi 10.1109/NUSOD54938.2022.9894784.

C8   **Y. Wang** and K.-T. Cheng, "Traffic-Adaptive Power Reconfiguration for Energy-Efficient and Energy-Proportional Optical Interconnects," in *2021 IEEE/ACM International Conference On Computer Aided Design (ICCAD)*, Munich, Germany: IEEE, Nov. 2021, pp. 1–9. doi 10.1109/ICCAD51958.2021.9643475.

C9   **Y. Wang**, J. Hulme, P. Sun, M. Jain, M. A. Seyedi, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, "Characterization and Applications of Spatial Variation Models for Silicon Microring-Based Optical Transceivers," in *2020 57th ACM/IEEE Design Automation Conference (DAC)*, San Francisco, CA, USA: IEEE, Jul. 2020, pp. 1–6. doi 10.1109/DAC18072.2020.9218608.

C10   **Y. Wang** and K.-T. Cheng, "Task Mapping-Assisted Laser Power Scaling for Optical Network-on-Chips," in *2019 IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, Westminster, CO, USA: IEEE, Nov. 2019, pp. 1–6. doi 10.1109/ICCAD45719.2019.8942146.

C11   **Y. Wang**, M. A. Seyedi, J. Hulme, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, "Bidirectional tuning of microring-based silicon photonic transceivers for optimal energy efficiency," in *Proceedings of the 24th Asia and South Pacific Design Automation Conference*, Tokyo Japan: ACM, Jan. 2019, pp. 370–375. doi 10.1145/3287624.3287649.

C12   **Y. Wang**, M. A. Seyedi, R. Wu, J. Hulme, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, "Energy-efficient channel alignment of DWDM silicon photonic transceivers," in *2018 Design, Automation & Test in Europe Conference & Exhibition (DATE)*, Dresden, Germany: IEEE, Mar. 2018, pp. 601–604. doi 10.23919/DATE.2018.8342079.

C13   R. Wu, M. A. Seyedi, **Y. Wang**, J. Hulme, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, "Pairing of microring-based silicon photonic transceivers for tuning power optimization," in *2018 23rd Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jeju: IEEE, Jan. 2018, pp. 135–140. doi 10.1109/ASPDAC.2018.8297295.

C14    R. Wu, **Y. Wang**, Z. Zhang, C. Zhang, C. L. Schow, J. E. Bowers, and K.-T. Cheng, "Compact modeling and circuit-level simulation of silicon nanophotonic interconnects," in *Design, Automation & Test in Europe Conference & Exhibition (DATE), 2017*, Lausanne, Switzerland: IEEE, Mar. 2017, pp. 602–605. ⓓ 10.23919/DATE.2017.7927057.

C15    A. Ghofrani, M. A. Lastras-Montaño, **Y. Wang**, and K.-T. Cheng, "In-place Repair for Resistive Memories Utilizing Complementary Resistive Switches," in *Proceedings of the 2016 International Symposium on Low Power Electronics and Design*, San Francisco Airport CA USA: ACM, Aug. 2016, pp. 350–355. ⓓ 10.1145/2934583.2934590.

C16    C. Xu, F. X. Lin, **Y. Wang**, and L. Zhong, "Automated OS-level Device Runtime Power Management," in *Proceedings of the Twentieth International Conference on Architectural Support for Programming Languages and Operating Systems*, Istanbul Turkey: ACM, Mar. 2015, pp. 239–252. ⓓ 10.1145/2694344.2694360.

## Invited Conference Papers

I1    **Y. Wang**, S. Wang, R. Parsons, A. Novick, V. Gopal, K. Jang, A. Rizzo, C.-P. Chiu, K. Hosseini, T. T. Hoang, S. Shumarayev, and K. Bergman, "Silicon photonics chip I/O for ultra high-bandwidth and energy-efficient die-to-die connectivity," in *2024 IEEE Custom Integrated Circuits Conference (CICC)*, to appear, IEEE, 2024.

I2    **Y. Wang**, A. Novick, R. Parsons, S. Wang, K. Jang, A. James, M. Hattink, V. Gopal, A. Rizzo, C.-P. Chiu, K. Hosseini, T. T. Hoang, and K. Bergman, "Scalable architecture for sub-pJ/b multi-Tbps comb-driven DWDM silicon photonic transceiver," in *Next-Generation Optical Communication: Components, Sub-Systems, and Systems XII*, G. Li, K. Nakajima, and A. K. Srivastava, Eds., San Francisco, United States: SPIE, Mar. 2023, p. 55. ⓓ 10.1117/12.2649506.

I3    **Y. Wang**, L. Shao, M. A. Lastras-Montano, and K.-T. Cheng, "Taming Emerging Devices' Variation and Reliability Challenges with Architectural and System Solutions [Invited]," in *2019 IEEE 32nd International Conference on Microelectronic Test Structures (ICMTS)*, Kita-Kyushu City, Fukuoka, Japan: IEEE, Mar. 2019, pp. 90–95. ⓓ 10.1109/ICMTS.2019.8730924.

## Under Review and In Preparation

P1    **Y. Wang**, S. Wang, R. Parsons, S. Sanyal, A. Novick, A. Rizzo, K. Jang, V. Gopal, K. J. McNulty, B. Y. Kim, Y. Okawachi, C.-P. Chiu, K. Hosseini, T. T. Hoang, S. Shumarayev, M. Lipson, A. Gaeta, and K. Bergman, "Scalable co-packaged dwdm silicon photonics chip i/o driven by microresonator Kerr frequency combs," *Nature Communications Physics*, 2024, invited, in preparation.