

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 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](https://doi.org/10.1109/JLT.2023.3238847).
- J2 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](https://doi.org/10.1063/5.0160441).
- J3 Z. Wu, L. Y. Dai, **Y. Wang**, S. Wang, and K. Bergman, "Flexible silicon photonic architecture for accelerating distributed deep learning," *Journal of Optical Communications and Networking*, 2023, to appear.
- J4 **Y. Wang**, P. Sun, J. Hulme, M. A. Seyed, 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](https://doi.org/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](https://doi.org/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](https://doi.org/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," in *CLEO 2023*, San Jose, CA: Optica Publishing Group, 2023, STh3J.6. doi [10.1364/CLEO_SI.2023.STh3J.6](https://doi.org/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," in *Optical Fiber Communication Conference (OFC) 2023*, San Diego California: Optica Publishing Group, 2023, Th3A.4. doi [10.1364/OFC.2023.Th3A.4](https://doi.org/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](https://doi.org/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](https://doi.org/10.1109/ICCAD51958.2021.9643475).
- C9 **Y. Wang**, J. Hulme, P. Sun, M. Jain, M. A. Seyed, 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](https://doi.org/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](https://doi.org/10.1109/ICCAD45719.2019.8942146).
- C11 **Y. Wang**, M. A. Seyed, 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](https://doi.org/10.1145/3287624.3287649).
- C12 **Y. Wang**, M. A. Seyed, 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](https://doi.org/10.23919/DATE.2018.8342079).
- C13 R. Wu, M. A. Seyed, **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](https://doi.org/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. doi [10.23919/DATe.2017.7927057](https://doi.org/10.23919/DATe.2017.7927057).
- C15 A. Ghofrani, M. A. Lastras-Montano, **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. doi [10.1145/2934583.2934590](https://doi.org/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. doi [10.1145/2694344.2694360](https://doi.org/10.1145/2694344.2694360).

Invited Conference Papers

- I1 **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. doi [10.1117/12.2649506](https://doi.org/10.1117/12.2649506).
- I2 **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. doi [10.1109/ICMTS.2019.8730924](https://doi.org/10.1109/ICMTS.2019.8730924).

Under Review and In Preparation

- P1 **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)*, invited, under review, IEEE, 2024.
- P2 **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.