

# BIN CHEN

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## EDUCATION

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<b>Arizona State University</b> , Tempe, AZ Ph.D. Materials Science and Engineering	2014 – 2018
<b>Fuzhou University</b> , China B.Eng. Materials Science and Engineering	2010 – 2014

## RESEARCH EXPERIENCE

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<b>Northwestern University</b> , Evanston, IL Associate Director, TEAMUP Consortium Research: Tandems for Efficient and Advanced Modules using Ultrastable Perovskites	2024 – present
<b>Northwestern University</b> , Evanston, IL Research Associate Professor, Department of Chemistry; Department of Electrical & Computer Engineering Research: Emerging semiconductors for solar and sensing applications	2022 – present
<b>University of Toronto</b> , Canada Postdoctoral Fellow, Department of Electrical & Computer Engineering Advisor: Prof. Ted Sargent Research: Perovskite-based tandem solar cells and quantum dot infrared photodetectors	2018 – 2022
<b>Arizona State University</b> , Tempe, AZ Graduate Research Associate, School for Engineering of Matter, Transport & Energy Advisor: Prof. Sefaattin Tongay Dissertation: Atomic Scale Characterizations of Two-dimensional Anisotropic Materials and Their Heterostructures Committee Members: Prof. Sefaattin Tongay, Prof. Mariana Bertoni, Prof. Shery Chang	2014 – 2018

## RESEARCH INTERESTS

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Our research group is dedicated to designing innovative energy materials and investigating nano-scale processes within these materials and devices. By integrating principles from physics, chemistry, and materials science, we employ advanced microscopy and spectroscopy techniques for detailed characterization. Our goal is to advance energy technologies and contribute to a sustainable future through cutting-edge research and interdisciplinary collaboration.

## SELECTED PUBLICATIONS

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† equal contribution, \* corresponding

- Choi, D.; Shin, D.; Li, C.; Liu, Y.; Bati, A. S. R.; Kachman, D. E.; Yang, Y.; Li, J.; Lee, Y. J.; Li, M.; Penukula, S.; Kim, D. B.; Shin, H.; Chen, C.-H.; Park, S. M.; Liu, C.; Maxwell, A.; Wan, H.; Rolston, N.; Sargent, E. H.\*; **Chen, B.\*** Carboxyl-Functionalized Perovskite Enables ALD Growth of a Compact and Uniform Ion Migration Barrier. *Joule* **2025**, 0 (101801), 101801.
- Yang, Y.; Chen, H.; Liu, C.; Xu, J.; Huang, C.; Malliakas, C. D.; Wan, H.; Bati, A. S. R.; Wang, Z.; Reynolds, R. P.; Gilley, I. W.; Kitade, S.; Wiggins, T. E.; Zeiske, S.; Suragtkhuu, S.; Batmunkh, M.; Chen, L. X.; **Chen, B.\***; Kanatzidis, M. G.\*; Sargent, E. H.\* Amidination of Ligands for Chemical and Field-Effect Passivation Stabilizes Perovskite Solar Cells. *Science* 2024, 386 (6724), 898–902.

17. Li, C.†; Chen, L.†; Jiang, F.†; Song, Z.†; Wang, X.; Balvanz, A.; Ugur, E.; Liu, Y.; Liu, C.; Maxwell, A.; Chen, H.; Liu, Y.; Wang, Z.; Xia, P.; Li, Y.; Fu, S.; Sun, N.; Grice, C. R.; Wu, X.; Fink, Z.; Hu, Q.; Zeng, L.; Jung, E.; Wang, J.; Park, S. M.; Luo, D.; Chen, C.; Shen, J.; Han, Y.; Perini, C. A. R.; Correa-Baena, J.-P.; Lu, Z.-H.; Russell, T. P.; De Wolf, S.; Kanatzidis, M. G.; Ginger, D. S.; **Chen, B.\***; Yan, Y.\*; Sargent, E. H.\* Diamine Chelates for Increased Stability in Mixed Sn–Pb and All-Perovskite Tandem Solar Cells. *Nat. Energy* 2024, 1–9.
16. Chen, H.†; Liu, C.†; Xu, J.†; Maxwell, A.†; Zhou, W.†; Yang, Y.; Zhou, Q.; Bati, A. S. R.; Wan, H.; Wang, Z.; Zeng, L.; Wang, J.; Serles, P.; Liu, Y.; Teale, S.; Liu, Y.; Saidaminov, M.; Hoogland, S.; Filleter, T.; Kanatzidis, M. G.; **Chen, B.\***; Ning Z\*; Sargent, E. H.\* Improved charge extraction in inverted perovskite solar cells with dual-site-binding ligands. *Science* 2024, 384 (6692), 189–193.
15. Xu, J.; Maxwell, A.; Song, Z.; Bati, A. S. R.; Chen, H.; Li, C.; Park, S. M.; Yan, Y.; **Chen, B.\***; Sargent, E. H.\* The Dynamic Adsorption Affinity of Ligands Is a Surrogate for the Passivation of Surface Defects. *Nat. Commun.* 2024, 15 (1), 2035.
14. Maxwell, A.†; Chen, H.†; Grater, L.; Li, C.; Teale, S.; Wang, J.; Zeng, L.; Wang, Z.; Park, S. M.; Vafaie, M.; Sidhik, S.; Metcalf, I. W.; Liu, Y.; Mohite, A. D.; **Chen, B.\***; Sargent, E. H.\* All-Perovskite Tandems Enabled by Surface Anchoring of Long-Chain Amphiphilic Ligands. *ACS Energy Lett.* 2024, 520–527.
13. Yang, Y.†; Liu, C.†; Ding, Y.†; Ding, B.†; Xu, J.†; Liu, A.; Yu, J.; Grater, L.; Zhu, H.; Hadke, S. S.; Sangwan, V. K.; Bati, A. S. R.; Hu, X.; Li, J.; Park, S. M.; Hersam, M. C.; **Chen, B.\***; Nazeeruddin, M. K.\*; Kanatzidis, M. G.\*; Sargent, E. H.\* A Thermotropic Liquid Crystal Enables Efficient and Stable Perovskite Solar Modules. *Nat. Energy* 2024, 1–8.
12. Liu, C.†; Yang, Y.†; Chen, H.†; Xu, J.†; Liu, A.†; Bati, A. S. R.; Zhu, H.; Grater, L.; Hadke, S. S.; Huang, C.; Sangwan, V. K.; Cai, T.; Shin, D.; Chen, L. X.; Hersam, M. C.; Mirkin, C. A.; **Chen, B.\***; Kanatzidis, M. G.\*; Sargent, E. H.\* Bimolecularly-passivated interface enables efficient and stable inverted perovskite solar cells, *Science* 2023, 382 (6672), 810–815.
11. Liu, Y.†; Zhu, T.†; Grater, L.†; Chen, H.†; Reis, R.; Maxwell, A.; Cheng, M.; Dong, Y.; Teale, S.; Leontowich, A. F. G.; Kim, C.; Chan, P. T.; Wang, M.; Paritmongkol, W.; Gao, Y.; Park, S.; Xu, J.; Khan, J. I.; Laquai, F.; Walker, G. C.; Dravid, V. P.; **Chen, B.\***; Sargent, E. H.\* A Three-Dimensional Quantum Dot Network Stabilizes Perovskite Solids via Hydrostatic Strain. *Matter* 2024, 7 (1), 107–122.
10. Chen, H.†; Maxwell, A.†; Li, C.†; Teale, S.†; **Chen, B.†**; Zhu, T.; Ugur, E.; Harrison, G.; Grater, L.; Wang, J.; Wang, Z.; Zeng, L.; Park, S. M.; Chen, L.; Serles, P.; Awni, R. A.; Subedi, B.; Zheng, X.; Xiao, C.; Podraza, N. J.; Filleter, T.; Liu, C.; Yang, Y.; Luther, J. M.; De Wolf, S.; Kanatzidis, M. G.; Yan, Y.; Sargent, E. H. Regulating Surface Potential Maximizes Voltage in All-Perovskite Tandems. *Nature* 2023, 613 (7945), 676–681.
9. Chen, H.†; Teale, S.†; **Chen, B.†**; Hou, Y.†; Grater, L.; Zhu, T.; Bertens, K.; Park, S. M.; Atapattu, H. R.; Gao, Y.; Wei, M.; Johnston, A. K.; Zhou, Q.; Xu, K.; Yu, D.; Han, C.; Cui, T.; Jung, E. H.; Zhou, C.; Zhou, W.; Proppe, A. H.; Hoogland, S.; Laquai, F.; Filleter, T.; Graham, K. R.; Ning, Z.; Sargent, E. H. Quantum-Size-Tuned Heterostructures Enable Efficient and Stable Inverted Perovskite Solar Cells. *Nat. Photonics* 2022, 16 (5), 352–358.
8. **Chen, B.**; Sargent, E. H. What Does Net Zero by 2050 Mean to the Solar Energy Materials Researcher? *Matter* 2022, 5 (5), 1322–1325.
7. **Chen, B.**; Chen, H.; Hou, Y.; Xu, J.; Teale, S.; Bertens, K.; Chen, H.; Proppe, A.; Zhou, Q.; Yu, D.; Xu, K.; Vafaie, M.; Liu, Y.; Dong, Y.; Jung, E. H.; Zheng, C.; Zhu, T.; Ning, Z.; Sargent, E. H. Passivation of the Buried Interface via Preferential Crystallization of 2D Perovskite on Metal Oxide Transport Layers. *Adv. Mater.* 2021, e2103394.

6. Fang, Z.†; Wang, L.†; Mu, X.†; **Chen, B.†**; Xiong, Q.; Wang, W. D.; Ding, J.; Gao, P.; Wu, Y.; Cao, J. Grain Boundary Engineering with Self-Assembled Porphyrin Supramolecules for Highly Efficient Large-Area Perovskite Photovoltaics. *J. Am. Chem. Soc.* 2021.
5. Jung, E. H.†; **Chen, B.†**; Bertens, K.; Vafaie, M.; Teale, S.; Proppe, A.; Hou, Y.; Zhu, T.; Zheng, C.; Sargent, E. H. Bifunctional Surface Engineering on SnO<sub>2</sub> Reduces Energy Loss in Perovskite Solar Cells. *ACS Energy Lett.* 2020, 5 (9), 2796–2801.
4. **Chen, B.**; Baek, S.-W.; Hou, Y.; Aydin, E.; De Bastiani, M.; Scheffel, B.; Proppe, A.; Huang, Z.; Wei, M.; Wang, Y.-K.; Jung, E.-H.; Allen, T. G.; Van Kerschaver, E.; García de Arquer, F. P.; Saidaminov, M. I.; Hoogland, S.; De Wolf, S.; Sargent, E. H. Enhanced Optical Path and Electron Diffusion Length Enable High-Efficiency Perovskite Tandems. *Nat. Commun.* 2020, 11 (1), 1257.
3. Manekkathodi, A.†; **Chen, B.†**; Kim, J.; Baek, S.-W.; Scheffel, B.; Hou, Y.; Ouellette, O.; Saidaminov, M. I.; Voznyy, O.; Madhavan, V. E. Solution-Processed Perovskite-Colloidal Quantum Dot Tandem Solar Cells for Photon Collection beyond 1000 Nm. *Journal of Materials Chemistry A* 2019, 7 (45), 26020–26028.
2. **Chen, B.**; Wu, K.; Suslu, A.; Yang, S.; Cai, H.; Yano, A.; Soignard, E.; Aoki, T.; March, K.; Shen, Y. Controlling Structural Anisotropy of Anisotropic 2D Layers in Pseudo-1D/2D Material Heterojunctions. *Adv. Mater.* 2017, 29 (34), 1701201.
1. **Chen, B.**; Sahin, H.; Suslu, A.; Ding, L.; Bertoni, M. I.; Peeters, F.; Tongay, S. Environmental Changes in MoTe<sub>2</sub> Excitonic Dynamics by Defects-Activated Molecular Interaction. *ACS nano* 2015, 9 (5), 5326–5332.

## FUNDING SUPPORT

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### Pending Research

3. DE-FOA-0003337  
U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy  
\$1,500,000  
06/2025 – 05/2028  
Efficient and stable near-infrared organic photovoltaics for hybrid organic tandem solar cells  
Role: Co-Principal Investigator
2. NSF 25-508  
U.S. National Science Foundation  
\$1,800,000  
10/2025 – 09/2029  
Collaborative Research: DMREF: Machine Learning Guided Discovery and Design of Tunable Phase Change Materials for Solid State Thermal Energy Storage  
Role: Co-Principal Investigator
1. NSF 23-612  
U.S. National Science Foundation  
\$600,000  
05/2025 – 04/2028  
Synthesis and surface chemistry of InAs colloidal quantum dots toward efficient short-wave infrared detection  
Role: Co-Principal Investigator

### Current Research

6. Translation and Incubation Fund  
Trienens Institute for Sustainability and Energy  
\$100,000

- 01/2024 – 12/2024  
 Stable perovskite solar cells with cost-effective bilayer metal oxides as electron transport layers  
 Role: Principal Investigator
5. DE-FOA-0003058  
 U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy  
 \$6,700,000  
 09/2024 – 08/2026  
 STACKED: Stability and Characterization of Hole-Transporting Layers Key to Enabling Outdoor Durability  
 Role: Co-Principal Investigator
  4. Seed Funding Initiative  
 Center for Engineering Sustainability and Resilience  
 \$80,000  
 02/2024 – 8/2025  
 Introducing AC Photo-Hall Method: Separating Electron/Hole Mobilities in Perovskite Photovoltaics  
 Role: Co-Principal Investigator
  3. OSR-5624  
 King Abdullah University of Science and Technology  
 \$350,000  
 02/2024 – 01/2026  
 All-Perovskite Tandem Solar Cells  
 Role: Co-Principal Investigator
  2. DE-EE0010502  
 U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy  
 \$9,000,000  
 09/2023 – 08/2026  
 TEAMUP: Tandems for Efficient and Advanced Modules using Ultrastable Perovskites  
 Role: Senior Personnel
  1. HR001122S0044-SNAP-FP-009  
 U.S. Department of Defense, Defense Advanced Research Projects Agency  
 \$10,000,000  
 08/2023 – 07/2027  
 SYNCED: Interfacing Synthetic Biology with Electrochemical Detectors for Smart Non-Invasive Assays of Physiology  
 Role: Senior Personnel

## Completed Research

2. N00014-20-1-2572  
 U.S. Department of the Navy, Office of Naval Research  
 \$480,000  
 08/2020 – 07/2023  
 Wide-bandgap perovskites for efficient, stable tandems  
 Role: Senior Personnel
1. OSR-2020-CRG9-4350.2  
 King Abdullah University of Science and Technology, Office of Sponsored Research  
 \$600,000  
 04/2021 – 03/2024  
 SOLSTICE: Solar-driven Circular Carbon Enabled by Perovskite/Perovskite/Si Triple-Junction

Tandems  
Role: Senior Personnel

## PATENTS

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2. US and Canadian Patent: A Surface Treatment Method to Passivate Inverted Structure Perovskite Solar Cells
1. US Provisional Patent: Perovskite Solar Cells With Dual Site Binding Ligands

## CONFERENCES AND PRESENTATIONS

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24. Organizer for MRS Spring symposium, April 2025
23. Invited talk at MRS Spring meeting, April 2025
22. Invited talk at Ludwig Maximilian University of Munich, Mar 2025
21. Invited talk at Nanyang Technical University, Mar 2025
20. Invited talk at National University of Singapore, Feb 2025
19. Oral presentation at MRS fall meeting, Dec 2024
18. Oral presentation at ACS fall meeting, Aug 2024
17. Invited talk at 4th tandemPV Workshop, June 2024
16. Oral presentation at MRS fall meeting, November 2023
15. Session chair for MRS fall meeting, November 2023
14. Invited talk at Physics Seminar Series UC Merced, October 2023
13. Invited talk at 2nd Northwestern/Muenster Symposium on Smart Materials, August 2023
12. Organizer for ACS Fall meeting symposium: Organic, Perovskite and Hybrid Solar (raised \$5000 sponsorship for the symposium), August 2023
11. Oral presentation at PVSC 50th, June 2023
10. Invited talk at Homeland Defense & Security Information Analysis Center, April 2023
9. Invited talk at APS March meeting, March 2023
8. Invited talk at EcoMat Webinar: Perovskite Materials for Photovoltaic and Optoelectronic Applications, January 2023
7. Invited talk at Lawrence Symposium on Epitaxy, Arizona State University, January 2023
6. Invited talk at Zhejiang University, June 2022
5. Invited talk at KAUST Research Conference: 2022 Accelerating Solar Energy Research towards meeting Vision 2030 Goals, May 2022
4. Invited talk at ICFO – UofT – Stanford International School on the Frontiers of Light, October 2021
3. Invited talk at MRS Spring Meeting, April 2021
2. Poster presentation at MRS Spring Meeting, March 2017
1. Poster presentation at MRS Spring Meeting, March 2016

## TEACHING AND MENTORING

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**Instructor at Kellogg and the Querrey InQbation Lab** 2024

I teach the one-quarter Independent Study course, the Kellogg – Q Lab Entrepreneurial Residency. This course allows MBA students to be embedded in Northwestern research centers, providing structured entry points into cutting-edge technology areas and offering exposure to cross-disciplinary research.

**Instructor for Independent Study (399) at Weinberg College of Arts and Sciences** 2024

I teach the on-quarter Independent Study course on optoelectronics, where I am responsible for developing the syllabus and providing guidance to the enrolled undergraduate students. This course offers students opportunities to build fundamental knowledge and explore research trends in the literature.

**Perovskite Photovoltaic Research Group Leader** 2019 – 2022

I manage a team of over 15 members focusing on perovskite photovoltaics research. My responsibilities include mentoring on specific research projects, conceptualizing manuscripts, writing grant proposals, and preparing grant reports.

**Lecturer (simulated)** 2019

At the Teaching in Higher Education course at the University of Toronto, I developed my syllabus on “Two-dimensional semiconductor materials and systems” and taught in simulated classes.

## ACADEMIC AND SOCIAL SERVICE

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**Journal advisory board** 2025 – present  
EES Solar

**Journal reviewer** 2016 – present  
Science, Nature, Nature Energy, Nature Sustainability, Chemical Reviews, Journal of the American Chemical Society, Angewandte Chemie; Nature Communications, Advanced Materials, Matter, Energy & Environmental Science, Advanced Energy Materials, ACS Nano, ACS Photonics, Advanced Science, Chemical Science, ACS Applied Materials & Interfaces, ACS Applied Energy Materials; Journal of Applied Physics, Journal of Photovoltaics, Journal of Physics D: Applied Physics, Journal of Physics: Condensed Matter, 2D Materials, Nanotechnology

**Proposal reviewer** 2023 – present  
Natural Sciences and Engineering Research Council of Canada  
ACS Petroleum Research Fund  
National Research Foundation of Singapore

## HONORS AND AWARDS

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2. Highly Cited Researcher in the field of Cross-Field - 2023 (Clarivate)
1. Highly Cited Researcher in the field of Cross-Field - 2024 (Clarivate)

## ALL PUBLICATIONS

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126. Choi, D.; Shin, D.; Li, C.; Liu, Y.; Bati, A. S. R.; Kachman, D. E.; Yang, Y.; Li, J.; Lee, Y. J.; Li, M.; Penukula, S.; Kim, D. B.; Shin, H.; Chen, C.-H.; Park, S. M.; Liu, C.; Maxwell, A.; Wan, H.; Rolston, N.; Sargent, E. H.\*; **Chen, B.\*** Carboxyl-Functionalized Perovskite Enables ALD Growth of a Compact and Uniform Ion Migration Barrier. *Joule* **2025**, 0 (101801), 101801.
125. Yang, Y.; Chen, H.; Liu, C.; Xu, J.; Huang, C.; Malliakas, C. D.; Wan, H.; Bati, A. S. R.; Wang, Z.; Reynolds, R. P.; Gilley, I. W.; Kitade, S.; Wiggins, T. E.; Zeiske, S.; Suragtkhuu, S.; Batmunkh, M.; Chen, L. X.; **Chen, B.\***; Kanatzidis, M. G.\*; Sargent, E. H.\* Amidination of Ligands for Chemical and Field-Effect Passivation Stabilizes Perovskite Solar Cells. *Science* **2024**, 386 (6724), 898–902.
124. Shen, Y.; Li, C.; Liu, C.; Reitz, S. A.; **Chen, B.**; Sargent, E. H. The Impact of Interface and Heterostructure on the Stability of Perovskite-Based Solar Cells. *Appl. Phys. Rev.* **2024**, 11 (4), 041306.

123. Zhu, T.; Grater, L.; Teale, S.; Vasileiadou, E. S.; Sharir-Smith, J.; **Chen, B.**; Kanatzidis, M. G.; Sargent, E. H. Coupling Photogeneration with Thermodynamic Modeling of Light-Induced Alloy Segregation Enables the Identification of Stabilizing Dopants. *Chem. Mater.* 2024.
122. Liu, C.; Yang, Y.; Chen, H.; Spanopoulos, I.; Bati, A. S. R.; Gilley, I. W.; Chen, J.; Maxwell, A.; Vishal, B.; Reynolds, R. P.; Wiggins, T. E.; Wang, Z.; Huang, C.; Fletcher, J.; Liu, Y.; Chen, L. X.; De Wolf, S.; **Chen, B.**; Zheng, D.; Marks, T. J.; Facchetti, A.; Sargent, E. H.; Kanatzidis, M. G. Two-Dimensional Perovskitoids Enhance Stability in Perovskite Solar Cells. *Nature* 2024, 1–3.
121. Li, C.†; Chen, L.†; Jiang, F.†; Song, Z.†; Wang, X.; Balvanz, A.; Ugur, E.; Liu, Y.; Liu, C.; Maxwell, A.; Chen, H.; Liu, Y.; Wang, Z.; Xia, P.; Li, Y.; Fu, S.; Sun, N.; Grice, C. R.; Wu, X.; Fink, Z.; Hu, Q.; Zeng, L.; Jung, E.; Wang, J.; Park, S. M.; Luo, D.; Chen, C.; Shen, J.; Han, Y.; Perini, C. A. R.; Correa-Baena, J.-P.; Lu, Z.-H.; Russell, T. P.; De Wolf, S.; Kanatzidis, M. G.; Ginger, D. S.; **Chen, B.\***; Yan, Y.\*; Sargent, E. H.\* Diamine Chelates for Increased Stability in Mixed Sn–Pb and All-Perovskite Tandem Solar Cells. *Nat. Energy* **2024**, 1–9.
120. Teale, S.; Degani, M.; **Chen, B.**; Sargent, E. H.; Grancini, G. Molecular Cation and Low-Dimensional Perovskite Surface Passivation in Perovskite Solar Cells. *Nat. Energy* 2024, 1–14.
119. Khan, J. I.; Yang, Y.; Palmer, J. R.; Tyndall, S. B.; Chaudhuri, S.; Liu, C.; Grater, L.; North, J. D.; **Chen, B.**; Young, R. M.; Schatz, G. C.; Wasielewski, M. R.; Kanatzidis, M. G.; Swearer, D. F.; Sargent, E. H. Evaluation of Interfacial Photophysical Processes by Time-Resolved Optical Spectroscopy in Perovskite Solar Cells. *Matter* 2024, 7 (7), 2536–2550.
118. Fu, S.; Sun, N.; Xian, Y.; Chen, L.; Li, Y.; Li, C.; Abudulimu, A.; Kaluarachchi, P. N.; Huang, Z.; Wang, X.; Dolia, K.; Ginger, D. S.; Heben, M. J.; Ellingson, R. J.; **Chen, B.**; Sargent, E. H.; Song, Z.; Yan, Y. Suppressed Deprotonation Enables a Durable Buried Interface in Tin-Lead Perovskite for All-Perovskite Tandem Solar Cells. *Joule* 2024. <https://doi.org/10.1016/j.joule.2024.05.007>.
117. Chen, H.; Liu, C.; Xu, J.; Maxwell, A.; Zhou, W.; Yang, Y.; Zhou, Q.; Bati, A. S. R.; Wan, H.; Wang, Z.; Zeng, L.; Wang, J.; Serles, P.; Liu, Y.; Teale, S.; Liu, Y.; Saidaminov, M. I.; Li, M.; Rolston, N.; Hoogland, S.; Filleter, T.; Kanatzidis, M. G.; **Chen, B.\***; Ning, Z.\*; Sargent, E. H.\* Improved Charge Extraction in Inverted Perovskite Solar Cells with Dual-Site-Binding Ligands. *Science* 2024, 384 (6692), 189–193.
116. Morteza Najarian, A.; Vafaie, M.; **Chen, B.**; García de Arquer, F. P.; Sargent, E. H. Photophysical Properties of Materials for High-Speed Photodetection. *Nature Reviews Physics* 2024, 1–12.
115. Xu, J.; Maxwell, A.; Song, Z.; Bati, A. S. R.; Chen, H.; Li, C.; Park, S. M.; Yan, Y.; **Chen, B.\***; Sargent, E. H.\* The Dynamic Adsorption Affinity of Ligands Is a Surrogate for the Passivation of Surface Defects. *Nat. Commun.* 2024, 15 (1), 2035.
114. Maxwell, A.; Chen, H.; Grater, L.; Li, C.; Teale, S.; Wang, J.; Zeng, L.; Wang, Z.; Park, S. M.; Vafaie, M.; Sidhik, S.; Metcalf, I. W.; Liu, Y.; Mohite, A. D.; **Chen, B.\***; Sargent, E. H.\* All-Perovskite Tandems Enabled by Surface Anchoring of Long-Chain Amphiphilic Ligands. *ACS Energy Lett.* 2024, 520–527.
113. Yang, Y.; Liu, C.; Ding, Y.; Ding, B.; Xu, J.; Liu, A.; Yu, J.; Grater, L.; Zhu, H.; Hadke, S.; Sangwan, V.; Bati, A. S. R.; Hu, X.; Li, J.; Park, S. M.; Hersam, M.; **Chen, B.\***; Nazeeruddin, M.\*; Kanatzidis, M. G.\*; Sargent, E. H.\* A Thermotropic Liquid Crystal Enables Efficient and Stable Perovskite Solar Modules. *Nat. Energy* 2024, 1–8.
112. Xu, F.; Aydin, E.; Liu, J.; Ugur, E.; Harrison, G. T.; Xu, L.; Vishal, B.; Yildirim, B. K.; Wang, M.; Ali, R.; Subbiah, A. S.; Yazmaciyan, A.; Zhumagali, S.; Yan, W.; Gao, Y.; Song, Z.; Li, C.; Fu, S.; **Chen, B.**; ur Rehman, A.; Babics, M.; Razzaq, A.; De Bastiani, M.; Allen, T. G.; Schwingenschlögl, U.; Yan, Y.; Laquai, F.; Sargent, E. H.; De Wolf, S. Monolithic Perovskite/Perovskite/Silicon Triple-Junction Solar Cells with Cation Double Displacement Enabled 2.0 eV Perovskites. *Joule* 2024, 8 (1), 224–240.

111. Liu, Y.†; Zhu, T.†; Grater, L.†; Chen, H.†; Reis, R.; Maxwell, A.; Cheng, M.; Dong, Y.; Teale, S.; Leontowich, A. F. G.; Kim, C.; Chan, P. T.; Wang, M.; Paritmongkol, W.; Gao, Y.; Park, S.; Xu, J.; Khan, J. I.; Laquai, F.; Walker, G. C.; Dravid, V. P.; **Chen, B.\***; Sargent, E. H.\* A Three-Dimensional Quantum Dot Network Stabilizes Perovskite Solids via Hydrostatic Strain. *Matter* 2024, 7 (1), 107–122.
110. Wang, J.; Zeng, L.; Zhang, D.; Maxwell, A.; Chen, H.; Datta, K.; Caiazzo, A.; Remmerswaal, W. H. M.; Schipper, N. R. M.; Chen, Z.; Ho, K.; Dasgupta, A.; Kusch, G.; Ollearo, R.; Bellini, L.; Hu, S.; Wang, Z.; Li, C.; Teale, S.; Grater, L.; **Chen, B.**; Wienk, M. M.; Oliver, R. A.; Snaith, H. J.; Janssen, R. A. J.; Sargent, E. H. Halide Homogenization for Low Energy Loss in 2-eV-Bandgap Perovskites and Increased Efficiency in All-Perovskite Triple-Junction Solar Cells. *Nat. Energy* 2023, 1–11.
109. Xu, J.; Chen, H.; Grater, L.; Liu, C.; Yang, Y.; Teale, S.; Maxwell, A.; Mahesh, S.; Wan, H.; Chang, Y.; **Chen, B.**; Rehl, B.; Park, S. M.; Kanatzidis, M. G.; Sargent, E. H. Anion Optimization for Bifunctional Surface Passivation in Perovskite Solar Cells. *Nat. Mater.* 2023, 1–8.
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