Dr. Yan Yao

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Executive Summary

Dr. Yan Yao is an internationally recognized leader in electrochemical energy storage, particularly known for his pioneering work on battery chemistries beyond lithium-ion. His research focuses on the intersection of electrochemistry and materials science. He specializes in multivalent, solid-state, and aqueous batteries designed to improve safety and reduce environmental impact.

Dr. Yao serves as the Thrust Co-Lead in DOE's Energy Storage Research Alliance (ESRA) as well as Principal Investigator for several flagship battery programs, including the Battery500 Consortium, the Low-cost Earth-abundant Na-ion Storage (LENS) Consortium, Vehicle Technology Office's Battery Materials Research program, and three ARPA-E projects. He has secured over $25 million in research funding from federal and industrial sources, with an annual research expenditure of over $2 million.

Dr. Yao has authored over 180 research papers with more than 41,000 citations and an h-index of 83. He has received numerous awards, including the Edith and Peter O'Donnell Award in Engineering from TAMEST (2025), Research Excellence Award in Electrochemical Energy Storage from American Chemical Society's ENFL division (2025), Texas Academic Leadership Academy Fellow (2023), Senior Faculty Research Excellence Award from the University of Houston (2022), Highly Cited Researchers list by Clarivate Analytics (2025), Scialog Fellow on Advanced Energy Storage (2017), and the Office of Naval Research Young Investigator Award (2013). He is a Fellow of the Royal Society of Chemistry and a senior member of the National Academy of Inventors and the IEEE. He holds 24 U.S. patents and has co-founded two start-ups.

Professional Experience

2026–Present	**Professor** Department of Earth and Environmental Engineering at Fu Foundation School of Engineering and Applied Science & Columbia Climate School Columbia University, New York, NY
2022–2026	**Hugh Roy and Lillie Cranz Cullen Distinguished Professor** Department of Electrical and Computer Engineering, Chemical and Biomolecular Engineering (Affiliated) & Materials Science and Engineering Program (Affiliated) University of Houston, Houston, TX
2020–2022	**Professor** Department of Electrical and Computer Engineering, Chemical and Biomolecular Engineering (Affiliated) & Materials Science and Engineering Program (Affiliated) University of Houston, Houston, TX
2017–2020	**Associate Professor** (with Tenure) Department of Electrical and Computer Engineering, Chemical and Biomolecular Engineering (Affiliated) & Materials Science and Engineering Program (Affiliated) University of Houston, Houston, TX
2012–2017	**Assistant Professor**

	Department of Electrical and Computer Engineering, Materials Science and Engineering Program (Affiliated) University of Houston, Houston, TX
2010–2012	**Postdoctoral Scholar**, Department of Materials Science and Engineering Stanford University, Stanford, CA
2008–2010	**Senior Scientist**, Polyera Corporation, Skokie, IL
2003–2008	**Research Assistant**, Department of Materials Science and Engineering University of California, Los Angeles, CA

Education

University of California Los Angeles, Los Angeles, CA
Ph.D. in Materials Science and Engineering, 2003–2008

Fudan University, Shanghai, China
M.S. in Materials Science, 2000–2003
B.S. in Materials Science, 1996–2000

Awards and Recognitions

- **Cullen College of Engineering Faculty Excellence Award** – Cullen College of Engineering (2026)
- **ENFL Research Excellence Award in Electrochemical Energy Storage** – American Chemical Society (2025)
- **Highly Cited Researchers** – Clarivate (2025)
- **2025 Edith and Peter O'Donnell Award in Engineering** – TAMEST (2025)
- **Thrust Co-Lead of Energy Storage Research Alliance** – DOE Basic Energy Science (2024)
- **Principal Investigator of Low-cost Earth-abundant Na-ion Storage (LENS) Consortium** – DOE Vehicle Technology Office (2024)
- **Career Innovator Award** – Cullen College of Engineering (2024)
- **Fellow of IAAM** (2024)
- **Invited Speaker of 2024 Batteries Gordon Research Conference** (2024)
- **Texas Academic Leadership Academy Fellow** (2023)
- **Hugh Roy and Lillie Cranz Cullen Distinguished Professor** – University of Houston (2022)
- **TAMEST Protégé Program** – TAMEST (2022)
- **Senior Level Research Excellence Award** – Cullen College of Engineering (2022)
- **World's Top 2% Most-Cited Scientists** – Stanford/Elsevier (2021-2025)
- **Excellent Paper of the Year** – International Magnesium Society (2021)
- **Fellow of Royal Chemical Society** (2020)
- **Senior Member of National Academy of Inventors** (2020)
- **Cullen College of Engineering Professorship** – College of Engineering (2020–2022)
- **50-in-5 Scholars** – University of Houston (2021, 2020, 2019, 2018)
- **Emerging Investigators in Electrochemical Energy Conversion and Storage** – Journal of Electrochemical Energy Conversion and Storage (2020)

- **Senior Member of IEEE** (2019)
- **Top 1% Highly Cited Researchers List** – Clarivate Analytics (2018)
- **Award for Excellence in Research, Scholarship, or Creative Activity** – University of Houston (2018)
- **Scialog Fellow on Advanced Energy Storage** – Research Corporation (2017)
- **Junior Level Research Excellence Award** – University of Houston Cullen College of Engineering (2016)
- **Teaching Excellence Award** – University of Houston Cullen College of Engineering (2016)
- **Office of Naval Research Young Investigator Award** – U.S. Office of Naval Research (2013)
- **Principal Investigator** – Advanced Research Projects Agency-Energy (2013, 2015, 2022)
- **Ralph E. Powe Junior Faculty Enhancement Award** – Oak Ridge Associated Universities (2013)
- **TcSUH Welch Foundation Professorship Award** – The Welch Foundation (2012)
- **Excellence in Graduate Polymer Science Research** – American Chemical Society (2008)
- **Chinese Government Award for Outstanding Students Abroad** – Chinese Scholarship Council (2007)
- **ICI Student Award Finalist in Applied Polymer Science** –American Chemical Society (2007)
- **Dissertation Year Fellowship** – UCLA (2007)
- **Chun–Tsung Scholar** – Chun–Tsung Endowment (2000)
- **Outstanding Undergraduate Student Award** – Shanghai Education Council (2000)

Professional Services

- **Editorial Advisory Board**
  - Energy & Fuels, ACS (2023−Present)
  - Sustainable Energy & Fuels, Royal Society of Chemistry (2023−Present)
  - Next Energy, Elsevier (2022−Present)
  - eScience, KeAi (2020−Present)
  - Scientific Reports, Nature Publishing Group (2014−2018)
  - Guest editor of Special Issue of Organic Batteries, Batteries & Supercaps (2023)
  - Guest editor of Special Issue of Energy Storage: Rechargeable Batteries Beyond Organic Electrolytes, Current Opinion in Electrochemistry (2021)
  - Guest editor of Special Issue of Organic Batteries, ChemSusChem (2020)

- **Professional Memberships and Service**
  - Board member, NATTBatt Sodium-ion Battery Committee (2023−Present)
  - Board member, Organic Battery Days (2017−Present)
  - Board member, Molecular Foundry's Proposal Review Board (2024−Present)
  - Electrochemical Society Battery Division Member (2012−Present)
  - Materials Research Society (MRS) Member (2012−Present)
  - Materials Research Society Student Award Committee (2019)
  - Fellow of Royal Society of Chemistry (UK) (2019−Present)
  - Senior Member of Institute of Electrical and Electronics Engineers (IEEE) (2013−Present)
  - Treasurer, IEEE Nanotechnology Council Houston Chapter (2015−Present)
  - Senior Member, National Academy of Inventors (NAI) (2019−Present)

- **US Department of Energy Proposal Reviewer**
  - EERE, Vehicle Technology Office Annual Review (2025, 2024, 2023)
  - EERE, Office of Electricity Energy Storage Program (2023, 2021)
  - EERE, Office of Advanced Materials and Manufacturing Technologies Office (2023)
  - MESC, Bipartisan Infrastructure Law (BIL) Battery Materials Processing and Battery Manufacturing (2024, 2022)
  - BES, Chemical and Materials Sciences to Advance Clean Energy Technologies and Low-Carbon Manufacturing (2022)
  - BES, Battery Innovation Hub ($120M program) reviewer (2021)
  - BES, Energy Frontier Research Center ($16M program) (2018)
  - BES, Materials Chemistry Program (2023, 2022, 2019)
  - SBIR/STTR (2023, 2020, 2019)

- **US National Science Foundation Proposal Reviewer**
  - DMREF, Battery Science (2023)
  - DMR, Electronics/Photonics Materials (2022)
  - CBET, Electrochemical Systems (2020)

- **Other US Funding Agency**
  - ACS Petroleum Research Fund (2014−2020)
  - NASA Graduate Student Fellowship (2018)
  - NASA EPSCoR Proposal (2015)
  - AAAS on an Indo-US Joint Center on Solar Cells (2015)

- **International Funding Agency**
  - European Research Council Priority Grant (2023)
  - Germany Science Foundation (DFG) "Polymer-based batteries" priority program (2023)
  - Canada Ontario Research Fund (2022)
  - German-Israel Electrochemistry Proposal (2017)
  - European Research Council (2015)

- **Academic External Reviewer**
  - Nanyang Technology University proposal (2021)
  - City University of New York proposal (2021)
  - Hong Kong Polytechnic University proposal (2021)
  - Nazarbayev University Proposal (2019, 2020)
  - Qiu Shi Outstanding Young Scholar Award Committee (2017, 2019)
  - University of Maryland Industrial Partnership Program (2018)
  - Kentucky Science and Technology Corp. Proposal (2017)
  - Tenure and promotion evaluation, Penn State University (2025)
  - Tenure and promotion evaluation, University of Colorado Boulder (2025)
  - Tenure and promotion evaluation, Dartmouth College (2023)
  - Tenure and promotion evaluation, University of Alberta (2023)
  - Tenure and promotion evaluation, National University of Singapore (2023)
  - Tenure and promotion evaluation, Washington University in St. Louis (2022)
  - Tenure and promotion evaluation, University of Alberta (2022)
  - Tenure and promotion evaluation, Ohio State University (2022)
  - Tenure and promotion evaluation, Hong Kong University of Science and Technology (2022)

- **Organizer of Professional Conferences**

- Program Committee Topic Area Lead, Division of Energy & Fuels (ENFL), American Chemical Society (2024−Present)
- Symposium Lead-Organizer, MRS Fall Meeting, "Materials, Characterization, and Manufacturing for Solid-State Batteries", Boston, MA (2026)
- Symposium Co-Organizer, MRS Spring Meeting, "Solid State Batteries", Seattle, WA (2024)
- Symposium Lead-Organizer, 251st ECS Spring Meeting, "Performance Benchmarking of Solid-State Batteries: From Materials, Interfaces to Cell Design", Washington DC (2027)
- Symposium Lead-Organizer, 250th ECS Fall Meeting, "Organic Materials for Electrochemical Energy Storage", Calgary, Canada (2026)
- Symposium Co-Organizer, 249th ECS Spring Meeting, "Li and Beyond Li Chemistries for Rechargeable Batteries: Electrodes, Electrolytes, and Interphase", Seattle, WA (2026)
- Conference Co-Organizer, NATTBatt Sodium and Zinc Battery Workshop, Houston, TX, USA (11/30-12/1/2023)
- Chair, Organic Battery Days 2022, Houston, TX, USA (2022)
- Conference Co-Organizer, Organic Battery Days, Tianjin, China (2018)
- Conference Organizer, Nature Conference on Materials Electrochemistry: Fundamentals and Applications, Shenzhen, China (2018)
- Symposium Co-Organizer, MRS Spring, "Organic Materials in Electrochemical Energy Storage", Phoenix, AZ (2019)
- Symposium Co-Organizer, European Materials Research Society, "Frontiers in Electrochemical Energy Storage", Strasbourg, France (2017)
- Symposium Co-Organizer, Electrochemical Society, "Electrochemistry and Batteries for Safe and Low-cost Energy Storage", 229th ECS meeting, San Diego, CA (2016)
- Symposium Co-Organizer, International Materials Research Congress, "Materials and Technologies for Stationary Electrochemical Energy Storage", Cancun, Mexico (2016)
- Symposium Lead-Organizer, MRS Fall, "Materials and Architectures for Safe and Low-cost Electrochemical Energy Storage Technologies", Boston, MA (2015)
- Symposium Co-Organizer TMS, "Nanostructured Materials for Rechargeable Batteries and for Supercapacitors III", Orlando, FL (2015)
- Symposium Co-Organizer, ACS, "Batteries and Fuel Cell Technologies: Challenges and Solutions, San Francisco, CA (2014)

- **Institutional Service**
  - Member of University of Houston Faculty Senate (2019−2022, 2023−2025)
  - Member of University Graduate & Professional Studies Committee (2019−2022, 2023−2025)
  - Member of University Intellectual Property Committee (2020−2023)
  - Cullen College of Engineering Promotion and Tenure Committee (2021, 2022, 2023)
  - Cullen College of Engineering Best Dissertation Award Committee (2019)
  - Shell Endowed Chair Search Committee Member (2024)
  - ECE Provost Future Faculty Search Committee Chair (2024)
  - ECE Faculty Search Committee Chair (2022, 2023)
  - ECE Post-tenure Review Committee (2020−2023)
  - ECE Faculty Governance Committee (2019−2022)
  - ECE Graduate Admission Committee (2014−Present)

- Co-Director, Power electronics-Energy storage-Microgrids and Subsea Electrical Consortium (PEMSEC) at the University of Houston (2018−2022)

- **Outreach activities**
  - Key organizer of NSF ExLENT summer camp: Experiential Learning for the Future Critical Minerals Workforce (June 2026)
  - Served as Grand Award judge for Regeneron International Science and Engineering Fair (ISEF) (2024)
  - Advisor for 7 high school students conducting 6-week summer research (2024, 2023, 2013)
  - Host undergraduate summer research for Energy Scholar (2023)
  - NASA High School Aerospace Scholars (HAS) lab tour with hands-on activity (2019)
  - Program for Mastery in Engineering Studies (PROMES) Engineering Summer Camp lab tour with hands-on activity (2019)
  - NSF REU lab tour (2019)
  - Lemelson-MIT InvenTeams lab tour (2017)
  - Science and Engineering Fair of Houston judge (2022, 2021, 2020, 2016, 2015, 2013)
  - International Sustainable World (Energy, Engineering & Environment) Project Olympiad (I-SWEEEP) International Science Fair judge (2017, 2014)

Publications

(a) Ten Most Cited Publications since Dr. Yao's independent career

1. Universal quinone electrodes for long cycle life aqueous rechargeable batteries. Y. Liang, Y. Jing, S. Gheytani, K.Y. Lee, P. Liu, A. Facchetti*, Y. Yao*, ***Nature Materials*** 2017, *16*, 841-848. https://www.nature.com/articles/nmat4919
2. Interlayer-expanded molybdenum disulfide nanocomposites for electrochemical magnesium storage. Y. Liang, H. D. Yoo, Y. Li, J. Shuai, H. A. Calderon, F. R. Hernandez, L. C. Grabow, Y.Yao*, ***Nano Letters*** 2015, *15*, 2194-2202. https://pubs.acs.org/doi/abs/10.1021/acs.nanolett.5b00388
3. Fast kinetics of magnesium monochloride cations in interlayer-expanded titanium disulfide for magnesium rechargeable batteries. H. D. Yoo, Y. Liang, H. Dong, J. Lin, H. Wang, Y. Liu, L. Ma, T. Wu, Y. Li, Q. Ru, Y. Jing, Q. An, W. Zhou, J. Guo, J. Lu, S. T. Pantelides, X. Qian, Y. Yao*, ***Nature Comm.*** 2017, *8*, 339. https://www.nature.com/articles/s41467-017-00431-9
4. High-power Mg batteries enabled by heterogeneous enolization redox chemistry and weakly coordinating electrolytes. H. Dong, O. Tutusaus, Y. Liang, Y. Zhang, Z. Lebens-Higgins, W. Yang, R. Mohtadi*, Y. Yao* ***Nature Energy*** 2020, *5*, 1043-1050. https://www.nature.com/articles/s41560-020-00734-0
5. Heavily n-dopable π-conjugated redox polymers with ultrafast energy storage capability" Y. Liang, Z. Chen, Y. Jing, Y. Rong, A. Facchetti*, Y. Yao*, ***J. Am. Chem. Soc.***, 2015, *137*, 4956-4959. https://pubs.acs.org/doi/full/10.1021/jacs.5b02290
6. Tailored organic electrode material compatible with sulfide electrolyte for stable all-solid-state sodium batteries" X. Chi, Y. Liang, F. Hao, Y. Zhang, J. Whiteley, H. Dong, P. Hu, S. Lee, Y. Yao*, ***Angewandte Chemie Int. Ed.*** 2018, *130*, 2660-2264. https://onlinelibrary.wiley.com/doi/10.1002/anie.201712895

7. Current status and future directions of multivalent-ion batteries. Y. Liang, H. Dong, D. Aurbach*, Y. Yao*, ***Nature Energy*** 2020*, 5,* 646-656. https://www.nature.com/articles/s41560-020-0655-0

8. Designing modern aqueous batteries. Y. Liang, Y. Yao*, ***Nature Review Materials*** 2022, *8*, 109-122. https://www.nature.com/articles/s41578-022-00511-3

9. The contrast between monovalent and multivalent metal battery anodes. Y. Li, S. Kumar, G. Yang, J. Lu*, Y. Yao*, K. Kang*, Z. W. She*, ***Science*** 2025, *389, 1201.* *https://www.science.org/doi/10.1126/science.adl5482*

10. Imaging solid-electrolyte-interphase dynamics using in-operando reflection interference microscopy. G. Feng, H. Jia, K. Xu*, Y. Yao*, W. Xu*, X. Shan* et al, ***Nature Nanotechnology***, 2023, 18, 780-789. https://www.nature.com/articles/s41565-023-01316-3

(b) Journal Articles

1. Seungwoo Choi, Juyoung Kim, Jiyeon Seo, Khalil Amine, Peng Bai, Dae-Kwon Boo, Zheng Chen, Yujang Cho, Jang Wook Choi, Nam-Soon Choi, Tae Young Choi, Wootaek Choi, Yi Cui, Betar M. Gallant, Shiyu Ge, Kelsey B. Hatzell, Yushin Jang, Zhengyu Ju, Ji-Won Jung, Hee-Tak Kim, Ilgyu Kim, Min-Ho Kim, Mun Sek Kim, Patrick Joohyun Kim, Sang Cheol Kim, Yaejin Kim, Seongjae Ko, Hyegang Koo, Hochun Lee, Jiyoung Lee, Ju Li, Yuzhang Li, Ping Liu, Yijin Liu, Jeffrey Lopez, Matthew T. McDowell, Thanh Nguyen, Solomon T. Oyakhire, Sapna L. Ramesh, Mingyu Sagong, Nanyang Wang, Jamie H. Warner, Sujeong Woo, Gui-Liang Xu, Kang Xu, **Yan Yao**, Guihua Yu, Ji-Guang Zhang, Il-Doo Kim*, Hongkyung Lee*, and Hyun-Wook Lee*, *Targeting 100% Lithium Utilization in Lithium Metal Batteries*. **ACS Nano,** 2026, 10.1021/acsnano.6c06180.

2. Maureen Kitheka, Yan Jing, **Yan Yao**, Puja Goyal*, *Efficient Organic Molecular Crystal Structure Prediction Using the Density Functional Tight-Binding Method*. **ACS Phys. Chem. Au.** 2026, 10.1021/acsphyschemau.6c00036.

3. Kevin Llopart*, Jie Zheng, Liqun Guo, **Yan Yao**, Andrew M. Ullman, Jagjit Nanda, and Robert L. Sacci*, *Comparison of $Li_3In_xY_{(1-x)}Cl_6$ Solid Electrolytes Synthesized by Mechanochemical and Water-Based Methods for All-Solid-State Batteries*. **ChemEngineering**, 2026, 10.3390/chemengineering10060079.

4. Yanliang Liang, and **Yan Yao***, *Two Functions, One Site: Accelerating Lithium–Sulfur Chemistry*. **Matter** 2026, 10.1016/j.matt.2026.102902.

5. Sungil Hong, Alae Eddine Lakraychi, Artur Lyssenko, Abhishek Ashwin Panchal, Harshan Reddy Gopidi, Pieremanuele Canepa, Rafael Gómez-Bombarelli, **Yan Yao***, and Rajeev Surendran Assary*, *Molecular Design Strategies for High-Voltage Organic Cathodes*. **Adv. Energy Mater.** 2026, 10.1002/aenm.71122.

6. Qing Ai, Boyu Zhang, Xing Liu, Bongki Shin, Wenhua Guo, Guanhui Gao, Lihong Zhao, Xintong Weng, Qiyi Fang, Tianshu Zhai, Doug Steinbach, Yifan Zhu, Yifeng Liu, Fan Wang, Xiaoyin Tian, Hua Guo*, Youtian Zhang, Xuan Zhao, Yimo Han, Ming Tang, Yan Yao*, Ting Zhu*, Huajian Gao*, Jun Lou*, *Strong and Brittle Lithium Dendrites*, **Science**, 2026, 391, 1125-1129.

7. Thanh-Nhan Tran*, Vadim Shipitsyn, Huong T. D. Nguyen, Yaobin Xu, Peiyuan Gao, Yuxin Yang, Changyu Yuan, Khanh T. Nguyen, Kha Minh Le, Thuy-Dung Tran, An L. Phan, Brett L Lucht, **Yan Yao**, Tao Li, Chongmin Wang, Lin Ma*, Phung ML Le*, *Tailoring electrolyte solvation structure to enhance rate capability, cycle life, and safety in Prussian-blue-based sodium-ion battery*. **Nano Energy**, 2026, doi.org/10.1016/j.nanoen.2026.111919.

8. Dong-Min Kim, Gan Chen, Michael A. Baird, Livia Pugens Matte, Youngmin Ko, Carson O. Zellmann-Parrotta, Jiwoong Bae, Zhaoyang Chen, **Yan Yao**, Mary C. Scott, Ying Chen, and Brett A. Helms*, *Thermoformable Electrolytes for Solid-State Sodium Metal Batteries Employing Organic Cathodes*. **ACS Energy Letters**, 2026, 11, 2316-2323.

9. Gaoliang Yang, Tanmay Ghosh, Yuanjian Li, Zhengyu Ju, Carina Yi Jing Lim, Wen Ren, Zhi Chang, Jianbiao Wang, Jinliang Du, Ying Li, Chang Zhang, Wei Liu, **Yan Yao***, Guihua Yu*, and Zhi Wei Seh*, *Cryogenic nanoscale visualization of intrinsic magnesium deposition in magnesium metal batteries.* **Nature Comm.**, 2026, 17, 323.

10. Harshan Reddy Gopidi, Alae Eddine Lakraychi, Abhishek A. Panchal, Yiming Chen, V. S. Chaitanya Kolluru, Jiaqi Wang, Ying Chen, Liu Jue, Kamila Wiaderek, Maria K.Y. Chan, **Yan Yao***, and Pieremanuele Canepa*, *Search for active and inactive ion insertion sites in organic crystalline materials*, **Chemical Science**, 2026, 17, 5404-5415.

11. Lihong Zhao, Qiuyi Yuan*, Wen Ren, Toshihiro Asada, Chaoshan Wu, Takanori Itoh, Suusaku Ogiu, Takashi Sanada, Shohei Yamashita, Daisuke Shibata, and **Yan Yao***, *Chemical imaging of cathode–electrolyte interphase in sulfide solid-state batteries*. **ACS Energy Lett**., 2026, 11, 2668-2676.

12. Yuanjian Li, Sonal Kumar, Gaoliang Yang, Jun Lu*, **Yan Yao***, Kisuk Kang*, and Zhi Wei Seh*, *The contrast between monovalent and multivalent metal battery anodes*, **Science**, 2025, 389, 1201.

13. Ifeanyi Emmanuel Udom, **Yan Yao***, Lihong Zhao*, *A Dual-Stabilization Strategy for Tubular Zinc–Iodine Flow Batteries*, **Journal of Materials Chemistry A**, 2025, 13, 31623.

14. Lihong Zhao, Min Feng, Chaoshan Wu, Liqun Guo, Zhaoyang Chen, Samprash Risal, Qing Ai, Jun Lou, Zheng Fan, Yue Qi* & **Yan Yao***, *Imaging the Evolution of Lithium-solid Electrolyte Interface using Operando Scanning Electron Microscopy*, **Nature Comm.**, 2025, 16, 4283.

15. Alae Eddine Lakraychi, Leonard Linshin Jiang, Wen Ren, Ye Zhang, Yanliang Liang, Mark Wayne Lee Jr., **Yan Yao***, *Understanding the Role of Cathode Solubility in Magnesium Batteries: A Case Study of Substituted Bis-Benzoquinones*, **Batteries & Supercaps**, 2025, doi.org/10.1002/batt.202500361.

16. Alae Eddine Lakraychi,* Ifeanyi Emmanuel Udom, Wen Ren, and **Yan Yao***, *Air-Stable High-Voltage Li-Ion Organic Cathode Enabled by Localized High-Concentration Electrolyte*, **ChemSusChem**, 2025, e202402779.

17. Wen Ren, Migo Szeman Ng, Ye Zhang, Alae Eddine Lakraychi, Yanliang Liang, Dawei Feng, Michelle Lehmann, Guang Yang, Judith Jeevarajan, Wan Si Tang,* and **Yan Yao***, *Fluorine-Free Ion-Selective Membrane with Enhanced Mg2+ Transport for Mg-Organic Batteries* **ACS Nano**, 2025, 19, 5, 5781–5788.

18. Jianbin Zhou, Shen Wang, Chaoshan Wu, Ji Qi, Hongli Wan, Shen Lai, Shijie Feng, Tsz Wai Ko, Zhaohui Liang, Ke Zhou, Nimrod Harpak, Nick Solan, Mengchen Liu, Zeyu Hui, Paulina J. Ai, Kent Griffith, Chunsheng Wang,* Shyue Ping Ong,* **Yan Yao**,* Ping Liu,* *Superionic surface Li-ion transport in carbonaceous materials*, **Nano Lett.** 2025, 25, 12876.

19. Zhaoyang Chen, Qing Ai, Alae Eddine Lakraychi, Chaoshan Wu, Lihong Zhao, Liqun Guo,Viktor G. Hadjiev, Hua Guo, Zheng Fan, Jun Lou, Yanliang Liang,* **Yan Yao,*** *Manipulating Hardness to Construct Favorable Electrode Microstructures for All-Solid-State Batteries*, **Advanced Energy Materials**, 2024, 2403050. (Journal Front Cover)

20. Wenyue Ding, Josiah Hanson, Yi Shi, **Yan Yao**, Megan L. Robertson*, *Enhancing Mechanical Properties of Sustainable Thermoplastic Elastomers through Incorporating Ionic Interactions*, **Macromolecules**, 2024, 57, 8306-8319.

21. Jianbin Zhou, Manas Likhit Holekevi Chandrappa, Sha Tan, Shen Wang, Chaoshan Wu, Howie Nguyen, Canhui Wang, Haodong Liu, Sicen Yu, Quin R. S. Miller, Gayea Hyun, John Holoubek, Junghwa Hong,

Yuxuan Xiao, Charles Soulen, Zheng Fan, Eric E. Fullerton, Christopher J. Brooks, Chao Wang, Raphaële J. Clément, **Yan Yao**, Enyuan Hu, Shyue Ping Ong*, Ping Liu*, *Healable and conductive sulfur iodide for solid-state Li–S batteries*. **Nature**, 2024, 627, 301-305.

22. Jian Chen, Thomas Hannan, **Yan Yao**,* Gangbing Song,* *Estimating state of charge of cylindrical lithium-ion cells using multiple random convolutional kernel transform and low-frequency stress waves*, **Energy Storage Materials**, 2024, 72, 103730.

23. Ruqing Fang, Wei Li, Junning Jiao, Lihong Zhao, Yan Yao, Juner Zhu,* *Modeling the electro-chemo-mechanical failure at the lithium-solid electrolyte interface: Void evolution and lithium penetration*, **Journal of the Mechanics and Physics of Solids**, 2024, 192, 105799.

24. Lin Ma*, Travis P. Pollard, Marshall A. Schroeder*, Chao Luo, Ye Zhang, Glenn Pastel, Longsheng Cao, Jiaxun Zhang, Vadim Shipitsyn, **Yan Yao**, Chunsheng Wang, Oleg Borodin* and Kang Xu*, *Engineering a zinc anode interphasial chemistry for acidic, alkaline and non-aqueous electrolytes*. **Energy & Environmental Science**, 2024, 17, 2468-2479.

25. Gaoliang Yang, Yuanjian Li, Jianbiao Wang, Yawei Lum, Carina Lim, Man-Fai Ng, Chang Zhang, Zhi Chang, Zhonghan Zhang, Albertus D. Handoko, Tanmay Ghosh, Shuzhuo Li, Zdenek Sofer, Wei Lu, **Yan Yao***, Zhi Wei Seh*, *Realizing horizontal magnesium platelet deposition and suppressed surface passivation for high-performance magnesium metal batteries*, **Energy & Environmental Science**, 2024, 17, 1141-1152.

26. Sandesh Risal, Navdeep Singh*, Yan Yao, Li Sun, Samprash Risal, and Weihang Zhu*, *Accelerating Elastic Property Prediction in Fe-C Alloys through Coupling of Molecular Dynamics and Machine Learning*, **Materials**, 2024, 17, 601.

27. Alae Eddine Lakraychi, Erin Picton, Yanliang Liang, Devin Shaffer*, **Yan Yao***, *Suppressing Shuttle Effect with a Size-selective Covalent Organic Framework Based Bilayer Membrane*, **ACS Energy Lett**. 2023, 8, 5032-5040.

28. Hua Xie, Ning Liu, Qian Zhang, Hongtao Zhong, Liqun Guo, Xinpeng Zhao, Daozheng Li, Shufeng Liu, Zhennan Huang, Aditya Dilip Lele, Alexandra H. Brozena, Xizheng Wang, Keqi Song, Sophia Chen, **Yan Yao**, Miaofang Chi, Wei Xiong, Jiancun Rao, Minhua Zhao, Mikhail N. Shneider, Jian Luo, Ji-Cheng Zhao*, Yiguang Ju*, Liangbing Hu* *A stable atmospheric-pressure plasma for extreme-temperature synthesis*, **Nature**, 2023, 623, 964.

29. Lihong Zhao, Wei Li, Chaoshan Wu, Qing Ai, Liqun Guo, Zhaoyang Chen, Jie Zheng, Matthew Anderson, Hua Guo, Jun Lou, Yanliang Liang, Zheng Fan, Juner Zhu, **Yan Yao***, *Taming metal-solid electrolyte interface instability via metal strain hardening*. **Advanced Energy Materials**, 2023, 2300679.

30. Benjamin Emley, Chaoshan Wu, Lihong Zhao, Qing Ai, Yanliang Liang, Zhaoyang Chen, Liqun Guo, Tanguy Terlier, Jun Lou, Zheng Fan*, and **Yan Yao***, *Impact of fabrication methods on binder distribution and charge transport in composite cathodes of all-solid-state batteries*, **Materials Future**, 2023, 2, 045102. Focus Issue on Solid State Batteries.

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(c) Conference Proceedings

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(d) Edited Books Chapters

183. Hui Dong, **Yan Yao***, *Development of cathode materials for rechargeable magnesium batteries: from intercalation to enolization*, **Encyclopedia of Nanomaterials**, 2022, doi:10.1016/B978-0-12-822425-0.00087-7.

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(e) Patents and Patent Applications

1. High ionic conductivity rechargeable solid state batteries with an organic electrode
   US Patent 11,621,420
   Inventors: **Yan Yao**, Yanliang Liang

2. Method of Activating Two-Dimensional Materials for Multivalent/Polyatomic-Ion Intercalation Battery Electrodes
   US Patent 10,749,795
   Inventors: **Yan Yao**, Hyun Deog Yoo

3. Rechargeable alkaline battery using organic materials as negative electrodes
   US Patent 10,749,180
   Inventors: **Yan Yao**, Yanliang Liang

4. Lead-acid batteries with fast charge acceptance
   US Patent 10,522,875
   Inventors: **Yan Yao**, Yanliang Liang, Saman Gheytani, Yan Jing

5. Aqueous energy storage devices with organic electrode materials
   US Patent 10,411,262
   Inventors: **Yan Yao**, Yanliang Liang

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   US Patent 10,033,039
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7. Non-lithium metal ion battery electrode materials architecture
   US Patent 9,745,205
   Inventors: **Yan Yao**, Yanliang Liang

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   US Patent 9,725,331
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9. Conjugated polymers and their use in optoelectronic devices
US Patent 8,748,739
Inventors: Zhengguo Zhu, Martin Drees, Hualong Pan, **Yan Yao**, He Yan, Shaofeng Lu, Antonio Facchetti

10. Conjugated polymers and their use in optoelectronic devices
US Patent 8,598,449
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US Patent 8,598,448
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US Patent 8,598,450
Inventors: Hualong Pan, Martin Drees, Zhengguo Zhu, **Yan Yao**, Shaofeng Lu, Antonio Facchetti

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US Patent 8,334,456
Inventors: Zhengguo Zhu, Martin Dress, Hualong Pan, **Yan Yao**, He Yan, Shaofeng Lu, Antonio Facchetti

14. **Yan Yao**, Xiaowei Chi, Solid electrolyte for sodium batteries, US Application 2021/0066748 A1.

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17. **Yan Yao**, Benjamin Emley, Chaoshan Wu, Zheng Fan, Lihong Zhao, All-solid-state lithium secondary battery and method of preparing the same, US Application 63/533,518, 8/18/2023, UH 2023-066.

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19. Gangbing Song, Thomas Hannan, Jian Chen, **Yan Yao**, Monitoring batteries using low-frequency stress-waves, US Application 63/556,630, 2/22/2024, UH 2024-022.

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23. Brett A. Helms, Dong-Min Kim, Carson Zellman, Gan Chen, **Yan Yao**, Alae Eddine Lakraychi, Zhaoyang Chen, Wei Wang, Ruozhu Feng, Litao Yan, All-organic solid-state batteries, US Application, 63/807,135, 5/16/2025, UH 2025-069.

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Presentations

(a) Plenary/Keynote Presentations

1. (Keynote) "All-Solid-State Batteries: Bridging Fundamental Science and Scalable Manufacturing", 16th Beyond Lithium Ion Conference, UC Berkeley, Berkeley, CA, 6/23/2026.
2. (Keynote) "Low-Pressure Operation of All-Solid-State Batteries Enabled by Creep-Prone Organic Electrodes", ELectroLytes and Interfaces in PoSt-Li BatteriEs (ELLIPSE) Meeting, Ulm, Germany, 9/16/2025.
3. (Keynote) "Addressing the Key Challenge of All-Solid-state Batteries with Organic Electrode Materials", Organic Battery Days 2024, Suwon, South Korea, 6/19-21/2024.
4. (Keynote) "Unveiling Lithium-Solid Electrolyte Interface Evolution in All-Solid-State Batteries through Operando Characterizations", Biannual International Conference on Energy Storage, Monterrey, Mexico, 11/16-17/2023.
5. (Plenary) "Organic Electrode Materials for Multivalent and Solid-state Batteries", Organic Battery Days 2023, Donostia-San Sebastian, Spain, 6/8/2023.
6. (Plenary) "Redox active polymers for beyond Li-ion batteries", International Conference on Functional Polymer Synthesis and Application, International Conference on Functional Polymer Synthesis and Application, Online, 12/9/2021.
7. (Keynote) "Organic electrode material design for beyond lithium ion batteries", 8th International Conference on Nanoscience & Technology (ChinaNANO 2019), Topical Session on Energy Nanotechnology, Beijing, China, 8/17-19/2019.
8. (Keynote) "Universal quinone electrode for long cycle life energy storage", Special Symposium in Honor of Michael Armand, ECS Fall Meeting, Cancun, Mexico, 10/2/2018.
9. (Keynote) "Versatile quinones for long cycle life aqueous batteries", First International Conference on Energy Storage Materials, Shenzhen, China, 11/19-21/2017

(b) Invited Presentations at U.S. and International Conferences

1. (Invited) "All-Solid-State Batteries: Materials, Characterization and Manufacturing", ACS Northwest Regional Meeting (NORM), Boise, ID, 6/28/2026.
2. (Invited) "Challenges and Innovation for All-Solid-State Batteries", ECS Spring Meeting, Seattle, WA, 5/24/2026.
3. (Invited) "Mechanistic Study on First Cycle Capacity Loss in $Na_4Fe_3(PO_4)_2P_2O_7$ Cathodes", ECS Spring Meeting, Seattle, WA, 5/24/2026.
4. (Invited) "All-Solid-State Batteries: Materials, Characterization, and Manufacturing", ACS Spring Meeting, Atlanta, GA, 3/16/2026.
5. (Invited) "Award Symposium in Honor of Dr. Brett Helms", ACS Spring Meeting, Atlanta, GA, 3/16/2026.
6. (Invited) "All-Solid-State Batteries: Materials, Characterization, and Manufacturing", Pittcon Conference, San Antonio, TX, 3/10/2026.
7. (Invited) "Stabilizing Li–Solid Electrolyte Interface Using an MIEC Interlayer", MRS Fall Meeting, Boston, MA, 12/3/2025.

8. (Invited) “Scalable Manufacturing of All-Solid-State Lithium Batteries”, ECS Fall Meeting, Chicago, IL, 10/15/2025.
9. (Invited) “Revealing Transition Metal Intercalation in Hard Carbon for Enhanced Cycling Stability of Sodium-Ion Batteries”, ECS Fall Meeting, Chicago, IL, 10/12/2025.
10. (Invited) “Low-Pressure Operation of All-Solid-State Batteries Enabled by Creep-Prone Organic Electrodes”, E-conversion Symposium, Munich, Germany, 9/17/2025.
11. (Invited) “Lithium Transport Mechanism in Percolating Mixed Ionic-and-Electronic Conductor Interlayer for Solid-state Lithium Metal Batteries”, 76th Annual Meeting of the International Society of Electrochemistry, Mainz, Germany, 9/7-12/2025.
12. (Invited) “Transition metal intercalation in hard carbon and effect of electrolyte additives for sodium-ion batteries”, 2nd Sodium-Ion Technology: Research, Innovations and Key Enhancements Symposium, Swansea University, 8/28/2025.
13. (Invited) “Scalable Noble-metal-free Interlayer Design for Sheet-type Dendrite-free Solid-state Lithium Metal Batteries”, DOE Vehicle Technologies Office Annual Merit Review, Washington, DC, 6/5/2025.
14. (Invited) “Manipulating Hardness to Construct Favorable Electrode Microstructure and Low-Pressure Operation for All-Solid-State Batteries”, MRS Spring Meeting, Seattle, WA, 4/8/2025.
15. (Invited) “Stabilizing Li–Solid Electrolyte Interface Using MIEC Interlayers—Insights from Operando Electron Microscopy and Modeling”, MRS Spring Meeting, Seattle, WA, 4/9/2025.
16. (Invited) “Lithium- and transition metal-free high-energy fast-charging batteries”, ARPA-E Energy Innovation Summit, Washington DC, 3/17-19/2025.
17. (Invited) “University of Houston CERAWeek Presentation”, CERAWeek, Houston, TX, 3/11/2025.
18. (Invited) “2025 Edith and Peter O’Donnell Award in Engineering Presentation”, TAMEST 2025 Annual Meeting, Irving, TX, 2/4-6/2025.
19. (Invited) “Design All-Solid Sodium Batteries under Low Stack Pressure”, 9th International Conference on Sodium Batteries (ICNaB-2024), Pacific Northwest National Laboratory, WA, 11/11-14/2024.
20. (Invited) “Innovations of Materials and Characterization for All-Solid-State Batteries”, ACS Fall Meeting, Energy Summit, Denver, CO, 8/18-22/2024.
21. (Invited) “Design Organic Electrode Materials for All-Solid-State Batteries”, Beyond Lithium Ion XIV Symposium, Knoxville, TN, 7/23-25/2024.
22. (Invited) “Unveiling Lithium-Solid Electrolyte Interface Evolution in All-Solid-State Batteries through Operando Characterizations”, MRS Spring Meeting, Seattle, WA, 4/22/2024.
23. (Invited) “Organic electrode materials for multivalent and solid-state batteries”, Batteries Gordon Research Conference, Ventura, CA, 2/25-3/1/2024.
24. (Invited) “Ambient temperature all-solid sodium-sulfur batteries”, NAATBatt Sodium-Zinc Battery Workshop, Houston, TX, 11/30/2023.
25. (Invited) “Beyond Li-ion battery chemistries based on organic electrode materials”, The 13th Annual Battery Safety Summit, Tysons, VA, 11/6/2023.
26. (Invited) “Organic electrode materials for magnesium and solid-state batteries”, 2nd Annual Texas Pore Engineering Conference, Denton, TX, 10/21/2023.
27. (Invited) “Visualizing the evolution of lithium-solid electrolyte interface through operando characterizations in all-solid-state batteries”, LLNL Workshop on Electrochemical Interfaces: Integration Between Multiscale Modeling and Multimodal Characterization, Livermore, CA, 9/29/2023.

28. (Invited) “Analytical characterization for solid-state lithium batteries”, Clean Energy Forum 2023, San Diego, CA, 9/26/2023.
29. “Analysis of binder effects in dry and wet processed composite cathodes for all-solid-state lithium batteries”, Dry Coating Forum: shaping the future of dry battery electrode processing, Dresden, Germany, 9/13/2023.
30. “Understanding the role of mixed ionic-electronic conductor interlayer in all-solid-state lithium-metal batteries”, 74th Annual Meeting of the International Society of Electrochemistry, Lyon, France, 9/7/2023.
31. (Invited) “Understanding solid state electrolyte−lithium interfaces via operando characterizations”, FY23 Solid State Engineering Lab Review Meeting, Berkeley, CA, 8/30/2023.
32. (Invited) “Understanding the role of mixed ionic-electronic conductor interlayer in all-solid-state lithium-metal batteries”, Materials Challenges in Alternatives & Renewable Energy 2023 Meeting (MCARE 2023), Seattle, WA, 8/22/2023.
33. (Invited) “Understanding the role of mixed ionic-electronic conductor interlayer in all-solid-state lithium-metal batteries”, 243rd ECS Meeting, Boston, MA, 5/28/2023.
34. (Invited) “Lithium- and transition metal-free fast-charging batteries”, ARPA-E EVs4All Kick-off Meeting, Alexandria, VA, 5/9/2023.
35. (Invited) “Multidimensional characterizations for all-solid-state batteries”, MRS Fall Meeting, Boston, MA, 11/28/2022.
36. (Invited) “Lithium- and transition metal-free fast-charging batteries”, MRS Fall Meeting, Boston, MA, 11/28/2022.
37. (Invited) “Redox-active polymers for energy storage”, ACS Fall 2022 Meeting, Chicago, IL, 8/23/2022.
38. (Invited) “Understanding solid electrolyte-lithium interfaces via operando characterizations”, ACS Fall 2022 Meeting, Chicago, IL, 8/22/2022.
39. (Invited) “Rational design of high-power Mg batteries: from intercalation to conversion chemistry”, ACS Fall 2022 Meeting, Chicago, IL, 8/21/2022.
40. (Invited) “Multidimensional characterizations for all-solid-state batteries”, 2022 Molecular Foundry User Meeting, Berkeley, CA, 8/19/2022.
41. (Invited) “Understanding Solid Electrolyte-lithium Interfaces via Multiscale Characterizations”, Pittcon 2022, Online, 6/9/2022.
42. (Invited) “Advanced Characterizations of Interfaces in Solid-State Batteries”, 241st ECS Meeting, Vancouver, BC, Canada, 5/29-6/2/2022.
43. (Invited) “Understanding solid electrolyte-lithium interfaces via operando multiscale characterizations”, 2022 MRS Spring Meeting, Honolulu, HI, 5/8-11/2022.
44. (Invited) “Next-generation batteries for electric transportation and stationary energy storage”, IEEE NMDC 2021, Online, 12/12-15/2021.
45. (Invited) “Multidimensional diagnostics of solid-state lithium batteries”, 2021 MRS Fall Meeting, Boston, MA, 12/2/2021.
46. (Invited) “Rational design of multivalent metal batteries: enolization cathode and nonporous separator”, 2021 MRS Fall Meeting, Boston, MA, 11/30/2021.
47. (Invited) “Cobalt-free all-solid-state lithium batteries and air-free vessels for operando diagnosis”, Organic Battery Days 2021, Online, 11/25-28/2021.

48. (Invited) “Impact of electrolytes on cathode reaction mechanism in Mg batteries: from intercalation to enolization chemistry”, Mg Batteries and Key Materials Workshop, Online, 10/29-30/2021.
49. (Invited) “Cobalt-free all-solid-state lithium batteries and air-free vessels for operando diagnosis”, Nano Korea 2021, Online, 7/7-9/2021.
50. (Invited) “Multidimensional diagnostics of the interface evolutions in solid-state lithium batteries”, VTO Annual Merit Review, Online, 6/24/2021.
51. (Invited) “High-energy solid-state lithium batteries with organic cathode materials”, VTO Annual Merit Review, Online, 6/24/2021.
52. (Invited) “Rational design of high-power Mg batteries: from intercalation to enolization Chemistry”, Beyond Lithium-ion XIII Conference, Online, 6/9-11/2021.
53. (Invited) “Quinone-based organic materials for all-solid-state lithium batteries”, IUPAC-MACRO Conference, Online, 5/19/2021.
54. (Invited) “High-energy all-solid-state organic-lithium batteries”, 2021 Virtual MRS Spring Meeting, Online, 4/22/2021.
55. (Invited) “Beyond Li-ion battery chemistries based on organic electrode materials”, International Battery Seminar, Online, 3/9/2021.
56. (Invited) “High-energy all-solid-state organic-lithium batteries”, 2020 Virtual MRS Spring/Fall Meeting, Online, 12/1/2020.
57. (Invited) “Charge storage mechanism of a quinone polymer electrode for aqueous zinc-ion batteries”, 2020 Virtual MRS Spring/Fall Meeting, Online, 12/1/2020.
58. (Invited) NSF CBET Energy Storage Workshop, Austin, TX, 8/13/2020
59. (Invited) “Potential alternatives of lithium-ion batteries for the motive application”, NATTBATT 2020, Pasadena, CA, 2/13/2020.
60. (Invited) “Electrolyte dictated organic electrode materials design for energy storage”, MRS Fall Meeting, Boston, MA, 12/4/2019.
61. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, ACS Meeting, San Diego, CA, 8/27/2019.
62. (Invited) “Developing all-solid-state batteries with organic electrode materials”, 5th International Conference on Energy Conversion and Storage (5th ICECS), Beijing, China, 8/15-16/2019.
63. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, 10th International Conference on Materials for Advanced Technologies (ICMAT 2019), Singapore, 6/23-29/2019
64. (Invited) “Taming electrode-electrolyte interfaces using organic electrode materials in all -solid-state batteries”, International Conference on Solid State Ionics (SSI-22), PyeongChang, Korea 6/16-21/2019.
65. (Invited) “Directing Mg-Storage Chemistry in Organic Polymers Toward High-Energy Mg Batteries”, ECS Meeting, Dallas, TX, 5/26-31/2019.
66. (Invited) “Long Cycle Life All-Solid-State Batteries using Organic Electrode Materials”, Nature Conference on Emergent Materials and Devices: Electronic Structures and Properties, Chengdu, China, 4/12-14/2019.
67. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, International Coalition for Energy Storage and Innovation and Pacific Power Source and Pacific Power Sources Symposium Joint Meeting, Hawaii, 1/5-10/2019.

68. (Invited) “Versatile redox-active organic molecules for long cycle life safe batteries”, MRS Fall Meeting, Boston, MA, 11/28/2018.

69. (Invited) “Positioning organic electrode materials in the battery landscape”, 2018 International Photonics and Optoelectronics Meetings, Wuhan, China, 11/3/2018.

70. (Invited) “Versatile redox-active organic molecules for long cycle life safe batteries”, *Symposium on Electrochemical Storage Materials and Devices*, AIChE Annual Conference, Pittsburgh, PA, 10/28/2018.

71. (Invited) “Progress of safe lithium ion batteries for electric vehicles”, 2018 CAPA Petroleum Technical Symposium, Houston, TX, 10/19/2018.

72. (Invited) “Redox-active organic electrode materials for safe energy storage”, Symposium *L05 Electroactive and Redox Active Polymers 2,* ECS Meeting, Cancun, Mexico, 10/2/2018.

73. (Invited) “High-energy solid-state lithium batteries with organic cathode materials”, DOE Battery500 Review Meeting, San Francisco, CA, 8/1/2018.

74. (Invited) “Electrolyte Dictated Organic Redox Materials Design for Beyond Li Ion Batteries”, Chinese Chemical Society Meeting, Hangzhou, China, 5/7/2018.

75. (Invited) “Electrolyte dictated materials design in beyond lithium-ion batteries”, *Symposium on Energy Harvesting and Storage: Materials, Devices, and Applications VIII*, SPIE Defense and Commercial Sensing Conference, Orlando, FL, 4/16/2018

76. (Invited) “Universal aqueous energy storage with organic electrodes”, *Symposium EN14 Materials Science and Device Engineering for Safe and Long-Life Electrochemical Energy Storage*, MRS Spring Meeting, Phoenix, AZ, 4/2/2018.

77. (Invited) “Versatile quinones for long cycle life aqueous batteries”, First Annual Meeting of the International Coalition for Energy Storage and Innovation (ICESI), Dalian, China, 1/17-19/2018.

78. (Invited) “Versatile quinones for long cycle life aqueous batteries”, Nature Conference on Materials Electrochemistry: Fundamentals & Applications, Shenzhen, China, 1/13-15/2018.

79. (Invited) “Versatile quinones for long cycle life aqueous batteries”, 5th Advanced Batteries for xEV/ESS Conference, Shantou, Guangdong, China, 11/23-25/2017

80. (Invited) “Development of two-dimensional materials and quinones for rechargeable magnesium batteries”, Beyond Lithium Ion-X Symposium on Energy Storage, IBM, Almaden, CA 6/27-29/2017

81. (Invited) “Design quinone electrodes for proton and metal ion storage with long cycle life”, 3rd International Symposium on Energy Conversion and Storage, Nanjing University, Nanjing, China 6/24-25/2017

82. (Invited) “Design quinone electrodes for proton and metal ion storage with long cycle life”, Organic Battery Days, Uppsala, Sweden 6/8-10/2017

83. (Invited) “Transforming two-dimensional materials for high capacity rechargeable magnesium batteries”, *Symposium H03 Properties and Applications of 2-Dimensional Layered Materials*, ECS Meeting, New Orleans, LA 5/2017

84. (Invited) “High Performance Magnesium Rechargeable Batteries”, *Symposium ES3 Materials for Multivalent Electrochemical Energy Storage*, MRS Spring Meeting, Phoenix, AZ 4/17-21/2017

85. (Invited) “Organic Redox Materials for Stationary Energy Storage”, *Symposium BM7 Functional Nanostructured Polymers for Emerging Energy Technologies*, MRS Fall Meeting, Boston, MA, 12/2016

86. (Invited) “A High Performance Magnesium Rechargeable Battery Enabled by a MgCl-ion Storage

Mechanism", *Symposium ES1 Materials Science and Chemistry for Grid-Scale Energy Storage*, MRS Fall Meeting, Boston, 12/2016

87. (Invited) "Transforming two-dimensional materials for high capacity rechargeable magnesium batteries", *Organic Inorganic Hybrid Materials*, 2016 ACS Southwest Regional Meeting, Galveston, TX 11/2016

88. (Invited) "Redox-active organic materials for sustainable energy storage", *Colloidal & Surface Phenomena*, 2016 ACS Southwest Regional Meeting, Galveston, TX 11/2016

89. (Invited) "Research progress of rechargeable magnesium batteries", 11th International Forum on Li battery technology and industrial development, Hefei, Anhui, 10/2016

90. (Invited) "Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage" Energy & Sustainable Materials Symposium at the University of Oregon, 9/2016

91. (Invited) "Critical kinetic control of non-stoichiometric intermediate phase transformation for efficient perovskite solar cells", Symposium B7 *Solar Fuels/Artificial Photosynthesis: Materials and Devices*, XXV International Materials Research Congress, Cancun, Mexico, 8/14-19/2016

92. (Invited) "Rational Nanostructured Cathode Design for Rechargeable Magnesium Batteries", *Symposium B3 Materials and Technologies for Energy Conversion, Saving and Storage (MATECSS),* XXV International Materials Research Congress, Cancun, Mexico, 8/14-19/2016

93. (Invited) "Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage", Chinese Chemical Society Annual Conference, Dalian, China, 7/1-4/2016.

94. (Invited) "Organic Redox Materials for Stationary Energy Storage", International Conference of Synthetic Metal 2016, Guangzhou, China, 6/26-30/2016

95. (Invited) "Organic Redox Materials for Stationary Energy Storage", 11th US-China Nano Forum, Nanjing, China, 6/18-20/2016

96. (Invited) "Transforming Two-dimensional Transition Metal Chalcogenides for High Capacity Rechargeable Magnesium Batteries", Nature Conference on Materials for Energy 2016, Wuhan, China, 6/11-14/2016

97. (Invited Panelist) 2016 US China Innovation and Investment Summit, Houston, TX, 5/17/2016.

98. (Invited) "Heavily n-Dopable π-Conjugated Redox Polymers for Ultrafast Energy Storage", Symposium *ACS Award for Creative Invention: Symposium in honor of Antonio Facchetti*, ACS Meeting, San Diego, 3/14/2016

99. (Invited) "Rational Nanostructure Design for High Performance Mg Rechargeable Batteries", *Interplay of Structure & Transport Properties in Materials for Energy Applications*, ACS Meeting, San Diego, 3/16/2016

100. (Invited) "Modification of Magnesium Ion Cathode and Electrolyte for Mg Rechargeable Batteries", TMS Meeting, Orlando, FL, USA, 3/16/2015.

101. (Invited) "Advanced Aqueous Lithium Ion Batteries using Organic Materials", ARPA-E Program Review Meeting, Tempe, AZ, 1/28/2015.

102. (Invited) "Atomic-Level Manipulation of Magnesium Ion Intercalation Materials for High-Density Energy Storage", 2014 Electrochemical Conference on Energy & Environment, Shanghai, China, 3/13/2014.

103. (Invited) "Nanostructure Engineering of Layered Metal Chalcogenides for Magnesium Battery Cathode", TMS Meeting, San Diego, CA, USA, 2/20/2014.

104. (Invited) “High Energy Density Silicon Anodes for Lithium-ion Batteries: Combining Hollow Nanospheres with Conductive Polymer Binder”, 245th ACS National Meeting*, Division of Energy and Fuels*, New Orleans, LA, 4/7-11/2013.

105. (Invited) “Nanostructure Design for Efficient Energy Devices”, Workshop on Materials Science and Materials Chemistry for Energy, Beijing, China, 9/16-18/2012.

106. (Invited) “Nanostructured Materials and Devices for Energy Harvesting and Storage”, Master Lecture in Printed Electronics, San Jose, CA, 12/2011.

(c) University, National Laboratory, and Industry Seminars

107. (Invited) “All-Solid-State Batteries: Bridging Fundamental Science and Scalable Manufacturing”, Department of Earth and Environmental Engineering, Columbia University, New York, NY, 4/9/2026.
108. (Invited) “All-Solid-State Batteries: Bridging Fundamental Science and Scalable Manufacturing”, Department of Chemical and Biomolecular Engineering, Rice University, Houston, TX, 4/2/2026.

109. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, School of Materials Science and Engineering, Georgia Tech, Atlanta, GA, 3/9/2026.

110. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Chemical and Biomolecular Engineering, Vanderbilt University, Nashville, TN, 1/19/2026.

111. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Chemical Engineering, Yonsei University, Seoul, South Korea, 1/13/2026.

112. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Chemical Engineering, Korea University, Seoul, South Korea, 1/13/2026.

113. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Chemistry, Seoul National University, Seoul, South Korea, 1/12/2026.

114. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, School of Energy and Chemical Engineering, Ulsan National Institute of Science & Technology, Ulsan, South Korea, 1/9/2026.

115. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Chemistry, Pusan National University, Busan, South Korea, 1/6/2026.

116. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC, 11/20/2025.

117. (Invited) “Scalable Noble-metal-free Interlayer Design for Sheet-type Dendrite-free Solid-state Lithium Metal Batteries”, Samsung SDI, Boston, MA, 10/20/2025.

118. (Invited) “Powering the Future with Low-cost, High-Performance Sodium-Ion Batteries”, S&P Global, Houston, TX, 8/19/2025.

119. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Mechanical Engineering, Penn State University, University Park, PA, 4/15/2025.

120. (Invited) “Redox-active Organic Materials for Energy Storage”, Department of Chemistry, Texas A&M University, College Station, TX, 11/21/2024.

121. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Mechanical Engineering & Materials Science, Washington University in St. Louis, St. Louis, MO, 10/24/2024.

122. (Invited) “All-Solid-State Batteries: Materials, Characterization, and Manufacturing”, Department of Chemistry, University of North Carolina, Chapel Hill, NC, 10/3/2024.

123. (Invited) “Materials and Characterization Innovations for Solid-state Batteries”, National Renewable Energy Laboratory, Golden, CO, 8/21/2024.
124. (Invited) “Materials and Characterization Innovations for Solid-State Batteries”, Department of Mechanical Aerospace and Biomedical Engineering, University of Tennessee, Knoxville, Knoxville, TN, 8/15/2024.
125. (Invited) “Materials Innovation for Multivalent and Solid-state Batteries”, Department of Chemical and Biomolecular Engineering, Yonsei University, South Korea, 6/20/2024.
126. (Invited) “Materials Innovation for Multivalent and Solid-state Batteries”, Department of Photonics, National Cheng Kung University, Taiwan, 6/17/2024.
127. (Invited) “Materials Innovation for Multivalent and Solid-state Batteries”, Institute of Physics, Academia Sinica, Taiwan, 6/14/2024.
128. (Invited) “Imaging Lithium-Solid Electrolyte Interface Evolution in All-Solid-State Batteries through Operando Characterizations”, 24M Technologies, Cambridge, MA, 5/30/2024.
129. (Invited) “Materials and Characterization Innovations for Solid-State Batteries”, Department of Mechanical Engineering and Materials Science, Duke University, Durham, NC, 4/3/2024.
130. (Invited) “Materials and Characterization Innovations for Solid-State Batteries”, Department of Materials Science and Engineering, University of Texas Dallas, Richardson, TX, 3/29/2024.
131. (Invited) “Materials Innovations for Multivalent and Solid-State Batteries”, Department of Materials Science and Engineering, University of Wisconsin, Madison, MI, 2/1/2024.
132. (Invited) “Organic Electrode Materials for Multivalent and Solid-state Batteries”, Dresden University of Technology, Dresden, Germany, 9/12/2023.
133. (Invited) “Visualizing Lithium-Solid Electrolyte Interface Evolution via Operando Characterizations in All-solid-state Batteries”, Factorial Energy, Woburn, MA, 5/30/2023.
134. (Invited) “Visualizing Lithium-Solid Electrolyte Interface Evolution via Operando Characterizations in All-solid-state Batteries”, Lyten Corporation, San Jose, CA, 4/12/2023.
135. (Invited) “Visualizing Lithium-Solid Electrolyte Interface Evolution via Operando Characterizations in All-solid-state Batteries”, Prof. Yi Cui’s group, Stanford University, Stanford, CA, 4/11/2023.
136. (Invited) “Next-Generation Batteries for Electric Vehicles and Grid Energy Storage”, Department of Chemical Engineering, Imperial College London, London, UK, 1/27/2023.
137. (Invited) “The Key Challenges for Lithium-metal-based All-Solid-State Batteries”, AMOLF, Amsterdam, Netherlands, 1/26/2023.
138. (Invited) “Multidimensional Characterizations for All-Solid-State Batteries”, Ford Motors, Virtual, 10/18/2022.
139. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Department of Industrial and Systems Engineering Seminar, Hong Kong Polytechnic University, Virtual, 9/15/2022.
140. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Materials Science and Engineering Department Seminar, UCLA, Los Angeles, CA, 4/15/2022.
141. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Chemistry and Biochemistry Department Biochemistry Divisional Seminar, Ohio State University, Columbus, OH 4/6/2022.
142. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Materials Science and Engineering/Applied Physics, KAUST, online, 3/31/2022.

143. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Mechanical Science and Engineering, University of Illinois Urbana-Champaign, Urbana, IL, 3/29/2022.

144. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Giner Inc., Online, 3/9/2022.

145. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Chemistry and Biochemistry Department Seminar, George Mason University, Online, 2/11/2022.

146. (Invited) “Multiscale characterizations for solid-state lithium batteries”, Solid-state battery colloquium, Argonne National Laboratory, Online, 1/26/2022.

147. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Materials Science and Engineering, University of Texas Arlington, Online, 10/21/2021.

148. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Materials Science and Engineering, Iowa State University, Online, 10/4/2021.

149. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Lindsay Seminar of Chemical Engineering, Texas A&M University, College Station, TX, 9/29/2021.

150. (Invited) “All-solid-state lithium batteries: materials, processing and diagnosis”, SLAC Photon Science Seminar, Online, 4/20/2021.

151. (Invited) “Cobalt-free solid-state lithium batteries”, Nissan North America Battery Group, Online, 3/25/2021.

152. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, ECS Webinar, Online, 2/24/2021.

153. (Invited) “Organic electrode materials design for emerging rechargeable batteries”, Yonsei University Department of Chemical Engineering, Online, 1/18/2021.

154. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, University of Freiburg, Germany, Online, 1/13/2021.

155. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, Mexican Energy Storage Network Webinar Series, Online, 12/11/2020.

156. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, UH Energy Webinar Series, Online, 12/8/2020.

157. (Invited) “Next-generation batteries for electric vehicles and stationary storage”, UH ECE Luncheon, Online, 10/14/2020.

158. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, City University at New York Energy Institute, New York, NY, 11/25/2019.

159. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, Shell Technology Center Houston, Houston, TX, 11/21/2019.

160. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, Department of Chemistry, Binghamton University, Binghamton, NY, 11/1/2019.

161. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, Department of Materials Science and NanoEngineering, Rice University, Houston, TX, 10/10/2019.

162. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, Energy Storage and Membrane Materials Group, Oak Ridge National Laboratory, Oak Ridge, TN, 10/3/2019.

163. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, Institute of Physics Chinese Academy of Sciences, Beijing, China, 8/21/2019.

164. (Invited) “Electrolyte dictated organic electrode materials design for beyond lithium ion batteries”, College of Materials and Engineering, University of Chinese Academy of Sciences, Beijing, China, 8/20/2019.

165. (Invited) “Developing all-solid-state batteries with organic electrode materials”, Hanyang University, Seoul, Korea, 6/17/2019.

166. (Invited) “Positioning organic electrode materials in the battery landscape”, Institut des Maerlaux Jean Rouxel, CNRS, Nantes, France, 11/7/2018

167. (Invited) “Positioning organic electrode materials in the battery landscape”, Texas Center for Superconductivity, Houston, TX, 10/18/2018

168. (Invited) “Versatile organic electrode materials for long life safe batteries”, College of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China 6/12/2018

169. (Invited) “Versatile organic electrode materials for long life safe batteries”, Energy Processes & Materials Division, Pacific Northwest National Lab, 6/7/2018

170. (Invited) “Versatile organic electrode materials for long life safe batteries”, SABIC, Sugar Land, Texas 6/5/2018

171. (Invited) “Electrolyte dictated materials design for beyond lithium ion batteries”, Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, Shenzhen, China, 5/11/2018

172. (Invited) “Electrolyte dictated materials design for beyond lithium ion batteries”, College of Materials Science and Engineering, Zhejiang University of Technology, Hangzhou, China 5/9/2018

173. (Invited) “Versatile organic electrode materials for long life safe batteries”, Ningbo Material Technology and Engineering Institute, Ningbo, China, 5/8/2018

174. (Invited) “Versatile organic electrode materials for long life safe batteries”, College of Chemical and Biomolecular Engineering, Zhejiang University, Hangzhou, China, 5/7/2018

175. (Invited) “Versatile organic electrode materials for long life safe batteries”, Department of Materials Science and Engineering, University of California Los Angeles, 4/13/2018

176. (Invited) “Electrolyte dictated materials design for beyond lithium-ion batteries”, Department of Nanoengineering, University of California San Diego, 4/11/2018

177. (Invited) “Electrolyte dictated materials design for beyond lithium-ion batteries”, Department of Materials Science and Engineering, Iowa State University, 2/22/2018

178. (Invited) “Electrolyte dictated materials design for beyond lithium-ion batteries”, Department of Applied Physics & Applied Mathematics, Columbia University, 12/1/2017

179. (Invited) “Electrolyte dictated materials design for beyond lithium-ion batteries”, Department of Materials Science and Engineering, Fudan University, 11/18/2017

180. (Invited) “Electrolyte dictated materials design for beyond lithium-ion batteries”, Center for Advanced Computing and Data Systems, University of Houston, 11/9/2017

181. (Invited) “Electrolyte dictated materials design for beyond lithium-ion batteries”, Department of Materials Science and Engineering, Texas A&M University, 10/23/2017

182. (Invited) “Materials design for beyond lithium-ion batteries”, Department of Mechanical and Aerospace Engineering, West Virginia University, 9/8/2017

183. (Invited) “Two-Dimensional Materials and Organic Redox Materials for Mg Rechargeable Batteries”, School of Materials Science and Engineering, Nanjing University of Posts and Telecomm, 6/26/2017

184. (Invited) “Two-Dimensional Materials and Organic Redox Materials for Mg Rechargeable Batteries”, School of Energy, Beijing University of Chemical Technology, 6/21/2017

185. (Invited) “Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage”, School of Materials Science and Engineering, South University of Science and Technology, 1/6/2017

186. (Invited) “Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage”, School of Chemical Engineering, Nantong University, 12/30/2016

187. (Invited) “Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage”, Department of Chemical Engineering and Material Science, Michigan State University, 10/27/2016

188. (Invited) “Two-Dimensional Materials and Redox-Active Organic Materials for Sustainable Stationary Energy Storage”, School of Materials Science and Engineering, Tsinghua University, Beijing, China, 7/7/2016

189. (Invited) “Two-Dimensional Materials and Redox-Active Organic Materials for Sustainable Stationary Energy Storage”, Institute of Applied Chemistry and Engineering, Nankai University, Tianjing, China, 7/5/2016

190. (Invited) “Two-Dimensional Materials and Redox-Active Organic Materials for Sustainable Stationary Energy Storage”, Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China, Chengdu, China, 6/23/2016

191. (Invited) “Two-Dimensional Materials and Redox-Active Organic Materials for Sustainable Stationary Energy Storage”, School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China, 6/20/2016

192. (Invited) “Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage”, Department of Chemical and Biochemical Engineering, University of Houston, Houston, TX 4/29/2016

193. (Invited) “Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage”, Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, 4/1/2016

194. (Invited) “Designing Two-Dimensional Materials and Conjugated Redox Polymers for Safe and Low-Cost Energy Storage”, Department of Materials and NanoEngineering, Rice University, Houston, TX, 3/24/2016

195. (Invited) “Low-Cost and Safe Magnesium Batteries”, Tianqi Lithium Industries Co., Sichuan, China 7/6/2015.

196. (Invited) “Interlayer-Expanded Molybdenum Disulfide Nanocomposites for Electrochemical Magnesium Storage”, Florida International University, Miami, FL 3/21/2015

197. (Invited) “Modification of Magnesium Ion Cathode and Electrolyte for Mg Rechargeable Batteries”, Department of Sustainable Energy Technologies, Brookhaven National Laboratory, Upton, NY 6/13/2014

198. (Invited) “Recent Development of Magnesium Rechargeable Batteries”, School of Materials Science and Engineering, Wuhan Institute of Technology, Wuhan, China 3/10/2014

199. (Invited) “Advanced Aqueous Lithium Ion Batteries using Organic Materials”, ARPA-E RANGE Kick-

off Meeting, Kennedy Space Center, Cape Canaveral, FL, 1/28/2014.

200. (Invited) “Rational Nanostructure Design for High Energy Density Batteries”, South University of Science and Technology of China, Shenzhen, China 12/13/2013.
201. (Invited) “Rational Nanostructure Design for High Energy Density Batteries”, Department of Electrical Engineering, Tsinghua University, Beijing, China 9/17/2013.
202. (Invited) “Rational Nanostructure Design for High Energy Density Batteries”, Department of Environmental Engineering, University of Shanghai for Science and Technology, Shanghai, China, 9/10/2013.
203. (Invited) “Nanostructure Design for Efficient Energy Devices”, Schlumberger Sugar Land Technology Center, Sugar Land, TX, 5/9/2013.
204. (Invited) “Nanostructure Design for Efficient Energy Devices”, Southwest Research Institute, San Antonio, TX, 3/13/2013.
205. (Invited) “Rational Nanostructure Design for High Energy Density Batteries”, Baylor College of Medicine, Houston, TX 3/4/2013.
206. (Invited) “Rational Nanostructure Design for High Energy Density Batteries”, Department of Mechanical Engineering, University of Houston, Houston, TX, 1/17/2013.
207. (Invited) “Rational Nanostructure Design for High Energy Density Batteries”, School of Materials Science and Engineering, Beijing University of Technology, Beijing, 9/19/2012.
208. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Mechanical Engineering, Yale University, New Haven, CT 5/2/2012.
209. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Materials Science and Engineering, University of Virginia, Charlottesville, VA 4/30/2012.
210. (Invited) “Nanostructure Design for Efficient Energy Devices”, College of Engineering, Dartmouth College, Hanover, NH 4/26/2012.
211. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Mechanical Engineering, University of Washington, Seattle, WA 4/16/2012.
212. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Materials Science and Engineering, University of Wisconsin Madison, Madison, WI 4/5/2012.
213. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Electrical and Computer Engineering, University of Houston, Houston, TX 4/2/2012.
214. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Mechanical and Automation Engineering, Chinese University of Hong Kong, Hong Kang, 3/27/2012.
215. (Invited) “Nanostructure Design for Efficient Energy Devices”, Suzhou Institute of Nanotechnology, Suzhou, China 3/23/2012.
216. (Invited) “Nanostructure Design for Efficient Energy Devices”, School of Engineering, Nanjing University, Nanjing, China 3/21/2012.
217. (Invited) “Nanostructure Design for Efficient Energy Devices”, Frontier Institute of Science and Technology, Xi’an Jiaotong University, Xi’an, China 3/19/2012.
218. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Mechanical Engineering, EPFL, Lausanne, Switzerland 3/8/2012.
219. (Invited) “Nanostructure Design for Efficient Energy Devices”, Department of Mechanical Engineering,

Johns Hopkins University, Baltimore, MD 2/16/2012.

220. (Invited) "Nanostructure Design for Efficient Energy Devices", Institute of Materials Research and Engineering, Singapore, 2/3/2012.
221. (Invited) "Nanostructure Design for Efficient Energy Devices", Nanyang Technology University, Singapore, 2/1/2012.
222. (Invited) "Nanostructure Design for Efficient Energy Devices", Department of Mechanical Engineering, University of Texas San Antonio, San Antonio, TX 1/26/2012.
223. (Invited) "Nanostructure Design for Efficient Energy Devices", Department of Materials Science and Engineering, Drexel University, Philadelphia, PA12/13/2011.
224. (Invited) "Nanostructured Energy Devices: Polymer Solar Cells and Lithium Ion Batteries", Institute of Chemistry of Chinese Academy of Sciences, China, 9/2011.
225. (Invited) "Nanostructured Energy Devices: Polymer Solar Cells and Lithium Ion Batteries", Department of Materials Science, Fudan University, Shanghai, China, 9/2011.

TEACHING EXPERIENCE

University of Houston Department of Electrical and Computer Engineering

Spring 2025 Advanced Batteries II, ECE 6397, Instructor
Spring 2024 Advanced Batteries, ECE 6308, Instructor
Spring 2023 Special Topics in Electrochemical Systems, ECE 6397, Instructor
Fall 2022 MSE Seminar, MTLS 6111, Coordinator
Spring 2022 Advanced Batteries, ECE 6308, Instructor
Fall 2021 Senior Design II, ECE 4336, Facilitator
Spring 2021 Senior Design I, ECE 4335, Facilitator
Fall 2020 Advanced Batteries II, ECE 6397, Instructor
Spring 2020 Advanced Batteries, ECE 6308, Instructor
Fall 2019 Senior Design I, ECE 4335, Facilitator
Spring 2019 Advanced Batteries, ECE 6308, Instructor
Fall 2017 Introduction to Nanotechnology, ECE 5319/ECE 6306/MECE 5319/CHEE5319/CHEE 6319/MLTS 6319, Instructor
Fall 2017 Nanotechnology Laboratory, ECE 5119, Instructor
Spring 2017 Advanced Batteries: Principles, Materials, and Devices, ECE 6308, Instructor
Fall 2016 Introduction to Nanotechnology, ECE 5319/ECE 6306/MECE 5319/CHEE5319/CHEE 6319/MLTS 6319, Instructor
Fall 2016 Nanotechnology Laboratory, ECE 5119, Instructor
Fall 2015 Introduction to Nanotechnology, ECE 5319/ECE 6306/MECE 5319/CHEE5319/CHEE 6319/MLTS 6319, Instructor
Fall 2015 Nanotechnology Laboratory, ECE 5119, Instructor
Spring 2015 Advanced Batteries: Principles, Materials, and Devices, ECE 6397, Instructor
Fall 2014 Introduction to Nanotechnology, ECE 5319/ECE 6306/MECE 5319/CHEE5319/CHEE 6319/MLTS 6319, Instructor

Fall 2014 Nanotechnology Laboratory, ECE 5119, Instructor
Spring 2014 Advanced Batteries: Principles, Materials, and Devices, ECE 6397, Instructor
Fall 2013 Introduction to Nanotechnology, ECE 5319/ECE 6306/MECE 5319/CHEE5319/CHEE 6319/MLTS 6319, Instructor
Fall 2013 Nanotechnology Laboratory, ECE 5119, Instructor
Spring 2013 Advanced Batteries: Principles, Materials, and Devices, ECE 5397/6397, Instructor

Stanford University Department of Materials Science and Engineering

Fall 2011 Principles of Batteries, Short course, Contributor

UCLA Department of Materials Science and Engineering

Fall 2004 Science of Engineering Materials, MSE 104, Teaching Assistant
Spring 2004 Science of Semiconductors, MSE 121, Teaching Assistant