

YU-TSUN SHAO

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ACADEMIC APPOINTMENTS

- 2023–present Assistant Professor, MFD Chemical Engineering and Materials Science, USC
2024–present Technical Director, Core Center of Excellence in Nano Imaging (CNI), USC
** Supervised the installation and customized upgrades of aberration corrected S/TEM*

EDUCATION

- 2019–2022 Postdoctoral Researcher, School of Applied & Engineering Physics, Cornell University
Advisor: Prof. David A. Muller
2017.06-07 Invited scientist of Lars Onsager Professorship, Department of Physics, NTNU, Norway
Faculty host: Prof. Randi Holmestad
2016.04-06 Exchange Graduate Student, Monash University, Australia
Faculty host: Prof. Philip Nakashima
2013–2018 Ph.D. in Department of Materials Science and Engineering, UIUC
Advisor: Prof. Jian-Min Zuo
Thesis title: Determination of Local Crystal Symmetry in Complex, Multi-element, Ferroelectric Perovskites and Alloys
2008–2012 B.S. in Physics, National Taiwan University, Taiwan.

HONORS AND AWARDS

- 2025 Functional Materials Division (FMD) Young Leaders Professional Development Award, The Minerals, Metals & Materials Society
2024 Early Career Award, Department of Energy
2023 Faculty Research Award, Charles Lee Powell Foundation
2021 Robert P. Apkarian Memorial Scholar Award, Microscopy Society of America
2018 Racheff-Intel Award for Outstanding Graduate Research, Department of Materials Science and Engineering, UIUC
2018 Ludo Fevel Crystallography Scholarship, International Centre for Diffraction Data
2018 Conference Travel Award, Department of Materials Science and Engineering, UIUC
2016 Presidential Student Scholar Award, Microscopy Society of America

Awards of Doctoral and Undergraduate Research Advisees

- 2024 Advisee: Murat Pamuk, Mork Family Department Graduate Fellowship, USC
2024 Advisee: Ting-Ran Liu, Presidential Student Scholar, Microscopy Society of America
2024 Advisee: Ann Ngo, Trojan Transfer Award, Viterbi School of Engineering, USC
2024 Advisee: Carlos Alvarez, Provost's Summer Research Fellowship, USC
2024 Advisee: Ann Ngo, Undergraduate Poster Award, MFD Research Symposium, USC
2024 Advisee: Nicholas Phillips, CURVE Fellowship, Viterbi School of Engineering, USC
2023 Advisee: Ting-Ran Liu, Taiwan-USC PhD Scholarship, Ministry of Education, Taiwan
2023 Advisee: Ann Ngo, CURVE Fellowship, Viterbi School of Engineering, USC
2023 Advisee: Raina Kweon, CURVE Fellowship, Viterbi School of Engineering, USC
2023 Advisee: Carlos Alvarez, CURVE Fellowship, Viterbi School of Engineering, USC

PROFESSIONAL SERVICES

Conference Organization

- 2025 Microscopy and Microanalysis meeting, Salt Lake City July 27–31, 2025
Symposium organizer for “A10-Advances in Cryogenic Transmission Electron Microscopy and Spectroscopy for Quantum and Energy Materials”.
- 2025 Electronic Materials and Applications ACerS meeting, Denver, CO Feb 25–28, 2025
Symposium organizer for “Frontiers in Ferroic oxides: Synthesis, Properties, and Applications”.
- 2024 Microscopy and Microanalysis meeting, Cleveland July 28–August 1, 2024
Symposium organizer for “P07-Understanding Structure-Property Relationships in Quantum Materials with Emerging Electron Microscopy Methods”.
- 2024 MRS Spring Meeting & Exhibit, Seattle April 22–26, 2024
Symposium organizer for “QTO6-Quantum Phenomena in Oxides—Synthesis, Characterization and Automation”.
- 2023 MRS Fall Meeting & Exhibit, Boston November 26–December 1, 2023
Symposium organizer for “CH04-Emerging Electron Microscopy Techniques to Understand Structure-Property Relationship in Quantum Materials”.
- 2023 Microscopy and Microanalysis meeting, Minneapolis July 23–27, 2023
Session chair for “A04-The Praxis of 4D-STEM—Extracting Information from Biological and Functional Materials”.
- 2023 MRS Spring Meeting & Exhibit, San Francisco April 10–14, 2023
Session chair for “QM04-Charged Topological Defects in Functional Materials”.
- 2023 Organizer for the MFD Student Research Symposium March 31, 2023
- 2022 MRS Fall Meeting & Exhibit, Boston November 27–December 2, 2022
Session chair for “EQ08: Higher-Order Topological Structures in Real Space—From Charge to Spin”.

Community Training and Themed Workshop

- 2021 TA of the Tutorial Session on “X12-Guidelines for Performing 4D-STEM Characterization from the Atomic to >Micrometer Scales: Experimental Considerations, Data Analysis and Simulation”, Microscopy & Microanalysis Meeting
- 2021 TA of the PARADIM (NSF-MIP) Summer School on Scanning Transmission Electron Microscopy at Cornell, NY. Organizer of the tutorial module on “Diffraction Imaging and Simulations”

Review Service

Proposal Review

NSF DMR (Metals and Metallic Nanostructures, *Mailed-in*)

Manuscript Reviews

Science, Nature Communications, Nano Letters, Physical Review Materials, Physical Review B, Microscopy and Microanalysis, MRS Advances

PUBLICATIONS

Patent

Y-T Shao, K Jagadish, A Ngo, A Avishai, J Ravichandran, “Non-Destructive Imaging of Polar Domains and Crystallographic Symmetry in the Scanning Electron Microscope”, provisional application filed (2024)

Peer-Reviewed Journal Papers

46. Purnima P. Balakrishnan, Dan Ferenc Segedin, Lin Er Chow, P. Quarterman, Shin Muramoto, Mythili Surendran, Ranjan K. Patel, Harrison LaBollita, Grace A. Pan, Qi Song, Yang Zhang,

- Ismail El Baggari, [Koushik Jagadish](#), [Yu-Tsun Shao](#), Berit H Goodge, Lena F Kourkoutis, Srimanta Middey, Antia S Botana, Jayakanth Ravichandran, A Ariando, Julia A. Mundy, Alexander J. Grutter, “Extensive hydrogen is not necessary for superconductivity in topotactically reduced nickelates”, *Nature Communications*, 15, 7387 (2024).
45. Keke He, Mengying Bian, Samuel D Seddon, [Koushik Jagadish](#), Andrea Mucchietto, He Ren, Erik Kirstein, Reza Asadi, Jaeil Bai, Chao Yao, Sheng Pan, Jie-Xiang Yu, Peter Milde, Chang Huai, Haolei Hui, Jiadong Zang, Renat Sabirianov, Xuemei M Cheng, Guoxing Miao, Hui Xing, [Yu-Tsun Shao](#), Scott A Crooker, Lukas Eng, Yanglong Hou, Jonathan P Bird, Hao Zeng, “Unconventional Anomalous Hall Effect Driven by Self-Intercalation in Covalent 2D Magnet Cr₂Te₃”, *Advanced Science*, 2407625 (2024).
 44. Robert Busch, Hsu-Chih Ni, [Yu-Tsun Shao](#), Jian-Min Zuo, “Large-Angle Rocking Beam Electron Diffraction of Large Unit Cell Crystals Using Direct Electron Detector”, *Microscopy and Microanalysis*, 00, 1-10 (2024).
 43. Pravin Kavle, Aiden M Ross, Harikrishnan KP, Peter Meisenheimer, Arvind Dasgupta, Jiyuan Yang, Ching-Che Lin, Hao Pan, Piush Behera, Eric Parsonnet, Xiaoxi Huang, Jacob A Zorn, [Yu-Tsun Shao](#), Sujit Das, Shi Liu, David A Muller, Ramamoorthy Ramesh, Long-Qing Chen, Lane W Martin, “Highly Responsive Polar Vortices in All-Ferroelectric Heterostructures”, *Advanced Materials*, 2410146 (2024).
 42. Boyang Zhao, Hongyan Mei, Zhengyu Du, Shantanu Singh, Tiejian Chang, Jiaheng Li, Batyr Ilyas, Qian Song, [Ting-Ran Liu](#), [Yu-Tsun Shao](#), Riccardo Comin, Nuh Gedik, Nicholas S Settineri, Simon J Teat, Yu-Sheng Chen, Stephen B Cronin, Mikhail A Kats, Jayakanth Ravichandran, “Infrared Optical Anisotropy in Quasi-1D Hexagonal Chalcogenide BaTiSe₃”, *Advanced Optical Materials*, 12, 2400327 (2024).
 41. Hongrui Zhang*, [Yu-Tsun Shao](#)*, Binhua Su*, Xiang Chen, Peter Meisenheimer, David A. Muller, Ramamoorthy Ramesh, “Spin Disorder Control of Topological Spin Texture”, *Nature Communications*, 15, 3828 (2024).
 40. [Yu-Tsun Shao](#), Sujit Das, Zijian Hong, Ruijuan Xu, Swathi Chandrika, Fernando Gómez-Ortiz, Pablo García-Fernández, Long-Qing Chen, Harold Y Hwang, Javier Junquera, Lane W Martin, Ramamoorthy Ramesh, and David A. Muller, “Emergent Chirality in a Polar Meron to Skyrmion Phase Transition”, *Nature Communications*, 14, 1355 (2023).
 - ◆ Click [here](#) for the news report by USC Viterbi News.
 39. Lucas Caretta*, [Yu-Tsun Shao](#)*, Jia Yu, Antonio B. Mei, Bastien F. Grosso, Cheng Dai, Piush Behera, Daehun Lee, Margaret McCarter, Eric Parsonnet, Fei Xue, Ed Barnard, Steffen Ganschow, Archana Raja, Lane W. Martin, Long-Qing Chen, Manfred Fiebig, Keji Lai, Nicola A. Spaldin, David A. Muller, Darrell G. Schlom, Ramamoorthy Ramesh, “Nonvolatile Electric-Field Control of Inversion Symmetry”, *Nature Materials*, 22, 207 (2023).
 - ◆ Click [here](#) for the news report by Cornell Chronicles.
 38. Hongrui Zhang*, David Raftrey*, Ying-Ting Chan*, [Yu-Tsun Shao](#)*, Rui Chen, Xiang Chen, Xiaoxi Huang, Jonathan T. Reichanadter, Kaichen Dong, Sandhya Susarla, Lucas Caretta, Zhen Chen, Jie Yao, Peter Fischer, Jeffrey B. Neaton, Weida Wu, David A. Muller, Robert J. Birgeneau, Ramamoorthy Ramesh, “Room Temperature Skyrmion Lattice in a Layered Magnet (Fe_{0.5}Co_{0.5})₅GeTe₂”, *Science Advances*, 8, eabm7103 (2022).
 - ◆ Click [here](#) for the news report in EurekaAlert! by AAAS.
 37. Hongrui Zhang*, [Yu-Tsun Shao](#)*, Rui Chen*, Xiang Chen*, Sandhya Susarla, Jonathan T. Reichanadter, Lucas Caretta, Xiaoxi Huang, Nicholas S. Settineri, Zhen Chen, Jingcheng Zhou, Edith Bourret-Courchesne, Peter Ercius, Jie Yao, Jeffrey B. Neaton, David A. Muller, Robert J. Birgeneau, Ramamoorthy Ramesh, “A Room Temperature Polar Ferromagnetic Metal”, *Physical Review Materials*, 6, 044403 (2022).
 - ◆ Click [here](#) for the news report by Physics Magazine.
 36. Xiang Chen, [Yu-Tsun Shao](#), Rui Chen, Sandhya Susarla, Tom Hogan, Yu He, Hongrui Zhang, Siqi Wang, Jie Yao, Peter Ercius, David A. Muller, Ramamoorthy Ramesh, Robert J. Birgeneau,

- “Pervasive Beyond Room-Temperature Ferromagnetism in a Doped van der Waals Magnet”, *Physical Review Letters*, 128, 217203 (2022).
35. Yao Yang*, Yu-Tsun Shao*, Xinyao Lu, Yan Yang, Hsin-Yu Ko, Robert A. DiStasio Jr., Francis J. DiSalvo, David A. Muller, Héctor D. Abruña, “Elucidating Cathodic Corrosion Mechanisms with Operando Electrochemical Transmission Electron Microscopy”, *Journal of American Chemical Society*, 144, 34, 15698 (2022).
 34. Zhen Chen, Yi Jiang, Yu-Tsun Shao, Megan E. Holtz, Michal Odstrčil, Manuel Guizar-Sicairos, Isabelle Hanke, Steffen Ganschow, Darrell G. Schlom, and David A. Muller, “Electron Ptychography Achieves Atomic-Resolution Limits Set by Lattice Vibrations”, *Science*, 372, 826-831 (2021).
 - ◆ Click [here](#) for news report by Scientific American.
 - ◆ Click [here](#) for news report by Cornell Chronicle.
 33. Yu-Tsun Shao, Renliang Yuan, Haw-Wen Hsiao, Qun Yang, Yang Hu, and Jian-Min Zuo, “Cepstral Scanning Transmission Electron Microscopy Imaging of Severe Lattice Distortions”, *Ultramicroscopy*, 231, 113252 (2021).
 - ◆ Invited special issue, a tribute to Professor John C. H. Spence.
 32. Maryam Vatanparast*, Yu-Tsun Shao*, Mohana Rajpalke, Bjørn-Ove Fimland, Turid Reenaas, Randi Holmestad, Per Erik Vullum, and Jian-Min Zuo, “Detecting minute amounts of nitrogen in GaNAs thin films using STEM and CBED”, *Ultramicroscopy*, 231, 113299 (2021).
 - ◆ Invited special issue, a tribute to Professor John C. H. Spence.
 31. Yu-Tsun Shao and Jian-Min Zuo, “Lattice-Rotation Vortex at the Charged Monoclinic Domain Boundary in a Relaxor Ferroelectric Crystal”, *Physical Review Letters*, 118, 157601 (2017).
 30. Yu-Tsun Shao and Jian-Min Zuo, “Nanoscale Symmetry Fluctuations in Ferroelectric Barium Titanate, BaTiO₃”, *Acta Crystallographica Section B*, 73, 708-714 (2017)
 - ◆ Invited special issue, a tribute to Professor Philip Coppens.
 29. Mythili Surendran, Shantanu Singh, Huandong Chen, Claire Wu, Amir Avishai, Yu-Tsun Shao, Jayakanth Ravichandran, “A Hybrid Pulsed Laser Deposition Approach to Grow Thin Films of Chalcogenides”, *Advanced Materials*, 12620 (2024).
 28. Hongrui Zhang, Xiang Chen, Tianye Wang, Xiaoxi Huang, Xianzhe Chen, Yu-Tsun Shao, Fanhao Meng, Peter Meisenheimer, Alpha N’Diaye, Christoph Klewe, Pdraic Shafer, Hao Pan, Yanli Jia, Michael F. Crommie, Lane W. Martin, Jie Yao, Ziqiang Qiu, David A. Muller, Robert J. Birgeneau, and Ramamoorthy Ramesh, “Room-Temperature, Current-Induced Magnetization Self-Switching in a van der Waals Ferromagnet”, *Advanced Materials*, 2308555 (2023).
 27. Peter Meisenheimer, Hongrui Zhang, David Raftrey, Xiang Chen, Yu-Tsun Shao, Ying-Ting Chan, Reed Yalisove, Rui Chen, Jie Yao, Mary C. Scott, Weida Wu, David A. Muller, Pter Fischer, Robert J. Birgeneau, and Ramamoorthy Ramesh, “Ordering of Room-Temperature Magnetic Skyrmions in a Polar van der Waals Magnet”, *Nature Communications*, 14, 3744 (2023).
 26. Purnima P. Balakrishnan, Dan F. Segedin, Lin e. Chow, P. Quarterman, Shin Muramoto, Mythili Surendran, Ranjan K. Patel, Harrison LaBolita, Grace A. Pan, Qi Song, Yang Zhang, Ismail El Baggari, Koushik Jagadish, Yu-Tsun Shao, Berit H. Goodge, Lena F. Kourkoutis, Srimanta Middey, Antia S. Botana, Jayakanth Ravichandran, A. Ariando, Julia A. Mundy, Alexander J. Grutter, “Hydrogen is not necessary for superconductivity in topotactically reduced nickelates”, arXiv:2403.01796 (2024).
 25. Zeming Sun, Zhaslan Baraissov, Liana Shpani, Ryan D. Porter, Yu-Tsun Shao, Thomas Oseroff, Mochael O. Thompson, David A. Muller, Matthias U. Liepe, “Smooth, homogeneous, high-purity Nb₃Sn superconducting RF resonant cavity by seed-free electrochemical synthesis”, *Superconductor Science and Technology* (2023).
 24. Yao Yang, Sheena Louisia, Sunmoon Yu, Jianbo Jin, Inwhan Roh, Chubai Chen, Maria V Fonseca Guzman, Julian Feijóo, Peng-Cheng Chen, Hongsen Wang, Christopher J Pollock, Xin

Huang, Yu-Tsun Shao, Cheng Wang, David A. Muller, Héctor D. Abruña, Peidong Yang, “Operando studies reveal active Cu nanograins for CO₂ electroreduction”, *Nature*, 614, 262 (2023).

◆ Click [here](#) for the news report by The Kavli Foundation.

23. Ruijuan Xu, Kevin J. Crust, Varun Harbola, Rémi Arras, Kinnary Y. Patel, Sergey Prosandeev, Hui Cao, Yu-Tsun Shao, Piush Behera, Lucas Caretta, Woo Jin Kim, Aarushi Khandelwal, Megha Acharya, Melody M Wang, Yin Liu, Edward S Barnard, Archana Raja, Lane W Martin, X Wendy Gu, Hua Zhou, Ramamoorthy Ramesh, David A. Muller, Laurent Bellaiche, Harold Y Hwang, “Size-Induced Ferroelectricity in Antiferroelectric Oxide Membranes”, *Advanced Materials*, 2210562 (2023).
22. Yao Yang, Yu-Tsun Shao, Jianbo Jin, Julian Feijóo, Inwhan Roh, Sheena Louisia, Sunmoon Yu, Maria V. Fonseca Guzman, Chubai Chen, David A. Muller, Héctor D. Abruña, Peidong Yang, “Operando Electrochemical Liquid-Cell Scanning Transmission Electron Microscopy (EC-STEM) Studies of Evolving Cu Nanocatalysts for CO₂ Electroreduction”, *ACS Sustainable Chemistry & Engineering*, 11, 10, 4119 (2023).
21. Hugh T. Philipp, Mark W. Tate, Katherine S. Shanks, Luigi Mele, Maurice Peemen, Pleun Dona, Reinout Hartong, Gerard van Veen, Yu-Tsun Shao, Zhen Chen, Julia Thom-Levy, David A. Muller, Sol M. Gruner, “Very-High Dynamic Range, 10,000 Frames/Second Pixel Array Detector for Electron Microscopy”, *Microscopy and Microanalysis*, 28, 425 (2022).
20. Kayla X. Nguyen, Xiyue S. Zhang, Emrah Turgut, Michael C. Cao, Jack Glaser, Zhen Chen, Matthew J. Stolt, Celesta S. Chang, Yu-Tsun Shao, Song Jin, Gregory D. Fuchs, David A. Muller, “Disentangling Magnetic and Grain Contrast in Polycrystalline Thin Films Using Four-Dimensional Lorentz Scanning Transmission Electron Microscopy”, *Physical Review Applied*, 17, 034066 (2022).
19. Yao Yang, Yu-Tsun Shao, Francis J. DiSalvo, David A. Muller, Héctor D. Abruña, “Metal Monolayers on Command: Underpotential Deposition at Nanocrystal Surfaces: A Quantitative Operando Electrochemical Transmission Electron Microscopy Study”, *ACS Energy Letters*, 7, 1292 (2022).
18. Jian-Min Zuo, Renliang Yuan, Yu-Tsun Shao, Haw-Wen Hsiao, Saran Pidaparthy, Yang Hu, Qun Yang, Jiong Zhang, “Data-Driven Electron Microscopy: Electron Diffraction Imaging of Materials Structural Properties”, *Microscopy*, 71, i116 (2022).
17. Julia A. Mundy*, Bastien F. Grosso*, Colin A. Heikes*, Dan Ferenc Segedin, Zhe Wang, Yu-Tsun Shao, Cheng Dai, Berit H. Goodge, Quintin N. Meier, Christopher T. Nelson, Bhagwati Prasad, Fei Xue, Steffen Granschow, David A. Muller, Lena F. Kourkoutis, Long-Qing Chen, William D. Ratcliff, Nicola A. Spaldin, Ramamoorthy Ramesh, Darrell G. Schlom, “Liberating a Hidden Antiferroelectric Phase with Interfacial Electrostatic Engineering”, *Science Advances*, 5, eabg5860 (2022).
◆ Click [here](#) for the news report by Cornell Chronicles.
16. Yang Xu, Ariana Ray, Yu-Tsun Shao, Shengwei Jiang, Daniel Weber, Joshua E. Goldberger, Kenji Watanabe, Takashi Taniguchi, David A. Muller, Kin Fai Mak, Jie Shan, “Coexisting Ferromagnetic-Antiferromagnetic State in Twisted Bilayer CrI₃”, *Nature Nanotechnology*, 17, 143 (2022).
15. Joseph Casamento, Ved Gund, Hyunjea Lee, Kazuki Nomoto, Takuya Maeda, Benyamin Davaji, Mohammad Javad Asadi, John Wright, Yu-Tsun Shao, David A. Muller, Amit Lal, Debdeep Jena, “Ferroelectricity in Polar ScAlN/GaN Epitaxial Semiconductor Heterostructures”, arXiv:2105.10114 (2021).
14. Sujit Das*, Zijian Hong*, Vladimir A. Stoica*, Mauro A.P. Gonçalves*, Yu-Tsun Shao, Eric Parsonnet, Eric J. Marks, Sahar Saremi, Margaret McCarter, A Reynoso, Christian J. Long, Aaron M. Hagerstrom, D Meyers, V Ravi, B Prasad, H. Zhou, Z. Zhang, H. Wen, Fernando Gómez-Ortiz, Pablo García-Fernández, J Bokor, Jorge Íñiguez, JW Freeland, Nathan D. Orloff, Javier Junquera, Long-Qing Chen, Sayeef Salahuddin, David A. Muller, Lane W. Martin,

- Ramamoorthy Ramesh, “Local Negative Permittivity and Topological Phase Transition in Polar Skyrmions”, *Nature Materials*, 20, 194-201 (2021).
13. Sujit Das, Zijian Hong, Margaret McCarter, Pedraic Shafer, Yu-Tsun Shao, David A. Muller, Lane W. Martin, and Ramamoorthy Ramesh, “A New Era in Ferroelectrics”, *APL Materials*, 8, 120902 (2020).
 12. Aram Yoon, Yu-Tsun Shao, Jane Howe, and Jian-Min Zuo, “Electron Image Contrast Analysis of Mosaicity in Rutile Nanocrystals Using Direct Electron Detection”, *Acta Crystallographica Section A*, 76, 687-697 (2020).
 11. Joseph Casamento, Celesta S. Chang, Yu-Tsun Shao, John Wright, David A. Muller, Huili Grace Xing, and Debdeep Jena, “Structural and Piezoelectric Properties of Ultra-Thin $\text{Sc}_x\text{Al}_{1-x}\text{N}$ Films Grown on GaN by Molecular Beam Epitaxy”, *Applied Physics Letters*, 117, 112101 (2020).
 10. Kevin lee, Shyam Bharadwaj, Yu-Tsun Shao, Len van Deurzen, Vladimir Protasenko, David A. Muller, Huili Grace Xing, and Debdeep Jena, “Light-Emitting Diodes with AlN Polarization-Induced Buried Tunnel Junctions: A second look”, *Applied Physics Letters*, 117, 061104 (2020).
 9. Elliot Padgett, Megan E. Holz, Paul Cueva, Yu-Tsun Shao, Eric Langenberg, Darrell G. Schlom, and David A. Muller, “The Exit-Wave Power-Cepstrum Transform for Scanning Nanobeam Electron Diffraction: Robust Strain Mapping at Subnanometer Resolution and Subpicometer Precision”, *Ultramicroscopy*, 214, 112994 (2020).
 8. Arnoud Everhardt, Thibaud Denneulin, Anna Grünebohm, Yu-Tsun Shao, Petr Ondrejko, Silang Zhou, Neus Domingo, Gustau Catalan, Jiří Hlinka, Jian-Min Zuo, Sylvia Matzen, and Beatriz Noheda, “Temperature-Independent Giant Dielectric Response in Transitional BaTiO₃ Thin Films”, *Applied Physics Reviews*, 7, 011402 (2020).
 7. Neil Wilson, Yung-Tin Pan, Yu-Tsun Shao, Jian-Min Zuo, Hong Yang, and David Flaherty, “Direct Synthesis of H₂O₂ on AgPt octahedra: The Importance of Ag-Pt Coordination for High H₂O₂ Selectivity”, *ACS Catalysis*, 8(4), 2880 (2018).
 6. Huigang Zhang, Hailong Ning, John Busbee, Zihan Shen, Chadd Kiggins, Yuyan Hua, Janna Eaves, Jerome Davis III, Tan Shi, Yu-Tsun Shao, Jian-Min Zuo, Xuhao Hong, Yanbin Chan, Shuangbao Wang, Peng Wang, Pengcheng Sun, Sheng Xu, Jinyun Liu, and Paul V. Braun, “Electroplating Lithium Transition Metal Oxides”, *Science Advances*, 3, e1602427 (2017).
 5. Yung-Tin Pan, Linqing Yan, Yu-Tsun Shao, Jian-Min Zuo, and Hong-Yang, “Regioselective Atomic Rearrangement of Ag-Pt Octahedral Catalysts by Chemical Vapor-Assisted Treatment”, *Nano Letters*, 16(12), 7988-7992 (2016).
 4. Yung-Tin Pan, Yuqi Yan, Yu-Tsun Shao, Jian-Min Zuo, and Hong-Yang, “Ag-Pt Compositional Intermetallics Made from Alloy Nanoparticles”, *Nano Letters*, 16(10), 6599-6603 (2016).
 3. Sheng-Yong Chang, Hsueh-Chung Liao, Yu-Tsun Shao, Yu-Ming Sung, Sheng-Hao Hsu, Yang-Fang Chen, and Wei-Fang Su, “Enhancing the Efficiency of Low Bandgap Conducting Polymer Bulk Heterojunction Solar Cell Using P3HT as a Morphology Control Agent”, *Journal of Materials Chemistry A*, 1(7), 2447-2452 (2013).
 2. Hsueh-Chung Liao, Cheng-Si Tsao, Yu-Tsun Shao, Sheng-Yong Chang, Tsung-Han Lin, Yu-Ching Huang, Chih-Ming Chuang, Charn-Ying Chen, Chun-Jen Su, U-Ser Jeng, Yang-Fang Chen, and Wei-Fang Su, “Bi-hierarchical Nanostructures of Donor-acceptor Copolymer and Fullerene for High Efficient Bulk Heterojunction Solar Cells”, *Energy & Environmental Science*, 6, 1938-1948 (2013).
 1. Hsueh-Chung Liao, Cheng-Si Tsao, Tsung-Han Lin, Meng-Huan Jao, Chih-Ming Chuang, Sheng-Yong Chang, Yu-Ching Huang, Yu-Tsun Shao, Charn-Ying Chen, Chun-Jen Su, U-Ser Jeng, Yang-Fang Chen, and Wei-Fang Su, “Nanoparticle-Tuned Self-Organization of a Bulk Heterojunction Hybrid Solar Cell with Enhanced Performance”, *ACS Nano*, 6, 1657-1666 (2012).

INVITED TALKS

34. Symposium on “A09 – Quantitative Electron Diffraction for Materials Analysis, From Transmission Electron Diffraction to EBSD and ECCI”, 2025 Microscopy and Microanalysis Meeting, Salt Lake City, UT (July 26, 2025).
33. Electron Microscopy Society of India Annual Meeting, Bangalore, India (July 10, 2025).
32. Symposium on “ELO8 – Ferroic Materials and Heterostructures”, Spring 2025 MRS meeting, Seattle, WA (April 7-11, 2025).
31. Thermo Fisher Scientific and USC CNI Electron Microscopy Workshop, Los Angeles, CA (Oct 16, 2024).
30. Frontiers of Electron Microscopy in Materials Science (FEMMS) 2024 meeting, Catania, Italy (Oct 1, 2024).
29. International Cryo-EM (ICE) Workshop for Advanced Materials, Oak Ridge National Laboratory, Knoxville, TN (July 25, 2024)
28. Department Seminar in Department of Materials Science and Engineering, University of Toronto (July 18, 2024).
27. Symposium on “QTo2 – Low-Dimensional Magnetic Quantum Materials”, Spring 2024 MRS meeting, Seattle, WA (April 24, 2024).
26. Symposium on “QTo5 - Advances in Detection Methods for Emergent Phases in Quantum Materials”, Spring 2024 MRS meeting, Seattle, WA (April 24, 2024).
25. Symposium on “2D Magnets – vdW and Beyond”, APS March meeting, Minneapolis, MN (March 4, 2024).
24. Symposium on “S13 – Frontiers in Ferroic Oxides: Synthesis, Properties, and Applications”, Electronic Materials and Applications 2024 ACerS meeting (Feb 15, 2024).
23. Asian Pacific Young Electron Microscopist Forum (Nov 10, 2023, virtual).
22. Materials Research Lecture, California Institute of Technology, Pasadena, CA (Nov 8, 2023).
21. Department Seminar in Department of Materials Science and Engineering, University of California, Irvine (Oct 12, 2023).
20. Symposium on “A04 - The Praxis of 4D-STEM - Extracting Information from Biological and Functional Materials”, 2023 Microscopy and Microanalysis Meeting, Minneapolis, MN (July 26, 2023).
19. Symposium on “X32 - Technologist’s forum on 4D-STEM”, 2023 Microscopy and Microanalysis Meeting, Minneapolis, MN (July 25, 2023).
18. Ringberg castle workshop on “Functional Oxides and Interfaces”, Max Planck Institute for Solid State Research, Munich, Bavaria, Germany (July 13, 2023).
17. Stuttgart Center for Electron Microscopy, Max Planck Institute for Solid State Research, Stuttgart, Baden-Württemberg, Germany (July 11, 2023).
16. Workshop on “Emergent Opportunities for Data-Driven Electron Microscopy in Materials Science”, University of Illinois, Urbana, IL (June 8, 2023).
15. Symposium on “QMo4—Charged Topological Defects in Functional Materials”, Spring 2023 MRS meeting, San Francisco, CA (April 12, 2023).
14. Symposium on “Characterization of Materials through High Resolution Coherent Imaging”, 2023 TMS Meeting, San Diego, CA (March 21, 2023).
13. Symposium on “EQo8 - Higher-Order Topological Structures in Real Space—From Charge to Spin”, Fall 2022 MRS meeting, Boston, MA (Nov 27, 2022).
12. International Conference on Frontiers of Characterization and Metrology for Nanoelectronics (FCMN), Monterey, CA (June 22, 2022).

11. Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN (June 10, 2022, virtual).
10. Symposium on “NM01 - Beyond Graphene 2D Materials—Synthesis, Properties and Device Applications”, Spring 2022 MRS meeting, Honolulu, HI (May 10, 2022).
9. Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA (March 15, 2022).
8. Mork Family Department of Chemical Engineering and Materials Science, University of Southern California, Los Angeles, CA (Feb 14, 2022).
7. Department of Mechanical Engineering and Materials Science, Yale University, New Haven, CT (Jan 31, 2022, virtual).
6. Symposium on “IT6 – Diffraction techniques”, 19th International Microscopy Congress, Sydney, Australia (Sep 10, 2018).
5. School of Applied and Engineering Physics, Cornell University, Ithaca, NY (July 11, 2018).
4. School of Physical Science and Technology, ShanghaiTech University, Shanghai, China (May 14, 2018).
3. International Workshop on Scanning Transmission Electron Microscopy, University of Chinese Academy of Science, Beijing, China (May 12, 2018).
2. Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN (March 14, 2018).
1. Symposium on “2.2.5 – Electron diffraction of solid-state materials”, American Crystallography Association 67th annual meeting, New Orleans, LA (May 28, 2017).