Yao Yang

Assistant Professor of Chemistry
ST Olin G60, 162 Sciences Drive, Cornell University, Ithaca NY 14850
E-mail: yaoyang@cornell.edu; Tel：607-379-9028

Professional Appointments and Education

- **07/2024-Present:** Assistant Professor, Department of Chemistry and Chemical Biology, Cornell University. www.yang.chem.cornell.edu
  11/2024-Present: Faculty Fellow, Cornell Atkinson Center for Sustainability
  04/2025-Present: Graduate Field Faculty, Department of Chemical and Biomolecular Engineering
  06/2025-Present: Graduate Field Faculty, Department of Materials Science and Engineering
  01/2026-Present: Faculty Fellow and Executive Committee, Cornell Center for Materials Research
- **08/2021~07/2024:** Miller Fellow at UC Berkeley
  Post-Doctoral Advisor: Prof. Peidong Yang (Chemistry & MSE)
- **07/2015~07/2021:** Ph.D. in Chemistry at Cornell University
  Ph.D. Advisor: Prof. Héctor D. Abruña (Chemistry)
  Co-Advisor: Prof. David A. Muller (Applied Physics)
  Graduate Committee: Prof. Francis J. DiSalvo (Chemistry)
- **09/2011~07/2015:** B.S. (Honors) in Chemistry at Wuhan University
  Research Mentors: Prof. Li Xiao, Prof. Lin Zhuang

Awards and Honors

❖ National Science Foundation CAREER Award	2026-2031
❖ *ACS Electrochemistry* Emerging Investigator	2026
❖ Elsevier *Materials Today* Rising Star Award (Energy Conversion and Storage)	2026
❖ *MRS Communications* Early Career Distinguished Presenter	2026
❖ ACS *Materials & Interfaces* Outstanding Presentations by Young Investigators	2025
❖ MRS *Journal of Materials Research* Distinguished Invited Speaker	2024
❖ MRS Best Early Career Presentation	2023
❖ ACS AC/DC Rising Stars in Analytical Chemistry	2022
❖ Miller Postdoctoral Fellowship at UC Berkeley	2021-2024
❖ Wentink Award (Highest Graduate Award in Chemistry at Cornell)	2020
❖ Harvard Rowland Fellowship Finalist	2019
❖ Cornell High-Energy Synchrotron Source (CHESS) Student Research Award	2019
❖ Microscopy Society of America (MSA) Student Poster Award	2019
❖ Howard Neal Wachter Memorial Prize	2018
❖ Daoyu Liu Scholarship (6/8000 senior students), Wuhan University	2014

Selected Publications (†Equal contributions,*Corresponding authors)

(Full list in Google Scholar; Article link underlined in the journal name)

Independent Work from the Yang Group (Fall 2024-Present)

1. S. Kim, S. Liu, V. Briega-Martos, C. Shi, K. Je, K. Marusak, S. E. Zeltmann, J. Choi, Z. Zhang, W. Li, J. Jiang, R. Guzman-Soriano, S. Walden, N. Marthe, P. Wellborn, Y. Guo, J. Damiano, Y. Han, E. Thiede, **Y. Yang*** *Operando* Heating and Cooling Electrochemical 4D-STEM Probing Nanoscale Dynamics at Solid-Liquid Interfaces. ***J. Am. Chem. Soc***. 2025, 147, 23654. (Cover Story, Cornell Chronicle, 2025 R&D 100 Awards, 2025 Microscopy Today Award)

2. J. Choi, S. Kim, J. Y. Choi, S. Park, K. Je, J. Jiang, S. Liu, K. Yang, C. Pollock, P. J. Milner, E. Thiede, Y. J. Hwang,* J. Park,* **Y. Yang***, Dynamic Evolution from Single-Atom Catalysts to Active Nanograins for CO_2 Reduction. ***J. Am. Chem. Soc.*** 2025, 147, 37808.
3. V. Briega-Martos, L. Smith, R. Guzman-Soriano, J. Jiang, S. Hammes-Schiffer,* **Y. Yang***. Facet Modulation of Interfacial Water Structure Tunes Alkaline Hydrogen Reaction Kinetics. ***J. Am. Chem. Soc.*** 2026, 148, 44323 (Cover Story, Highlighted by *Nature Chemistry* News & View)
4. D. Mal, N. Redkar, K Liu, E. Kennedy, S. Kim, W. Li, **Y. Yang***, Y. Qi,* M. Neurock,* L. Luo,* Electrosynthesis of Agrochemicals via Alternating-Current-Driven Selective, Continuous Dehalogenation. ***J. Am. Chem. Soc***. 2025, 37611.
5. Z. Zhang, S. Kim, V. Briega-Martos, E. R. Kennedy, S. E. Zeltmann, E. H. Thiede, **Y. Yang***, Benchmarking Nanoscale Electrochemistry in *Operando* TEM with Standard Reference Electrode. ***Nano Lett.*** 2026, 26, 3463.
6. S. Liu, C. Shi, C. Xu, W. Li, H. Zhang, Y. Han,* **Y. Yang***. Epitaxial Growth of Atomic-Layer Cu on Pd Nanocatalysts for Electrocatalytic CO_2 Reduction. ***Chem. Mater.*** 2025, 37, 290.
7. J. Jiang, N. Chalmpes, R. Sinha, J. Choi, I. Tantis, V. Briega-Martos, S. McInnis, W. Li, Y. Joo, E. Giannelis, **Y. Yang*** *Operando* X-Ray Spectroscopy Tracking Dynamic Evolution of MOF-derived Bimetallic Single-Atom Catalysts for CO_2 Reduction. ***Chem. Mater***. 2026, 38, 9205.
8. Y. Ko, J. Choi, **Y. Yang***, P. Zelenay* Hollow-structured Ni-N-C catalysts for highly selective CO_2 electroreduction. ***Appl. Catal. B: Environ***. 2026, 397, 126919
9. C. Shi, Z. Cheng, A. Leonardi, **Y. Yang**, M. Engel, M. R. Jones, Y. Han* Preserving Surface Strain in Nanocatalysts via Morphology Control. ***Science Adv.*** 2024, 10, eadp3788.
10. H. Li…**Y. Yang**…C. Wang, Pattern-enhanced Resonant Soft X-ray Scattering for *Operando* monitoring of electrochemical solid-liquid interfaces. ***Nature. Commun.*** 2024, 17, 2997.
11. S. Danitz, H. Zhang, L. Wan, **Y. Yang**, J. Yang*, J. Xiao* Mechanical Atomic Scale Defects Enable Stable Ni-rich Single Crystal Cathodes. ***Joule*** 2026, 102686
12. Y. Li, S. Kim, Y. Han, **Y. Yang,*** Y. Cui,* Isotopic Solvation Directs Metal Oxide Electrodeposition under Mild Conditions. ***Science*** Under Revision
13. S. Kim, H. Zhang, W. Li, S. Zeltmann, **Y. Yang***, *Operando* 4D-STEM Reveal Atomic-Scale Structural Heterogeneity in Ultrathin Liquids. ***Nature Mater.*** Under Review

Invited Reviews/Perspective:

14. S. Kim, H. Zhang, D. Li, Q. Chen, J. Park, **Y. Yang***, A New Era in *Operando*, ***Nature Catal.*** 2026, 9, 245.
15. V. Briega-Martos, R. Guzman-Soriano, J. Jiang, **Y. Yang***. The (Mis)Uses of Tafel Slope. ***Nature Catal***. 2025, 8, 863.
16. R. Guzman-Soriano, Y. Yang* Proximal Single-Atoms for Stable Electrocatalysts. ***Nature. Mater.*** 2026, Invited Viewpoint.
17. V. Briega-Martos, **Y. Yang***, Single-Crystal Metals and Oxides as Atomically Precise Energy Materials Platforms for Fundamental Electrocatalysis. ***Acc. Mater. Res.*** 2024, 5, 518.
18. S. Kim, E. Kennedy, Z. Zhang, Y. Li*, Y. Han*, **Y. Yang***, Advancing Energy Materials by Multimodal *Operando* Electrochemical Transmission Electron Microscopy. ***ACS Energy Lett.*** 2026, 11, 4792.
19. B. Tackett, M. Schreier, E. Clark, E. Jahrman, L. Seitz, A. Hoffman, Q. Chang, S. Bare, J. G. Chen, M. M. Waegele*, E. Corson, A. S. Hall, S. Kim, J. Jiang, **Y. Yang***, D. Raciti* Rigor and Reproducibility in Electrocatalysis: Best Practices for Operando Studies. ***ACS Catal***. 2026, 16, 13861 (**Based on 2025 NSF Workshop**)

Selected PhD/Post-doc. Work (2015-2023)

1. **Y. Yang**, S. Louisia, S. Yu, D. Muller, H. Abruña, P. Yang et al. *Operando* Studies Reveal Active Cu Nanograins for CO_2 Electroreduction. ***Nature*** 2023, 614, 262. (Highlighted by Lawrence Berkeley Lab News and Kavli Foundation News)
2. **Y. Yang**, J. Feijoo, M. Mavrikakis, P. Yang et al. *Operando* Probing Dynamic Migration of Copper Carbonyl Species During CO_2 Electroreduction ***Nature Catal.*** 2025, 8, 579-594 (Cover Story, UW Madison University News).
3. **Y. Yang**, J. Feliu, S. Hammes-Schiffer, J. Mayer, H. Abruña et al. Inverse Kinetic Isotope Effects on the Oxygen Reduction Reaction at Pt Single Crystals. ***Nature Chem.*** 2023, 15, 271.
4. **Y. Yang**, J. Feijoo, Y. Shan, M. P. Yang, *Operando* Methods for CO_2 Reduction Electrocatalysis. ***Nature Nanotech***. 2026, Accepted.
5. **Y. Yang**, Y. Xiong, M. Holtz, X. Feng, R. Zeng, F. DiSalvo, D. Muller, H. Abruña. Octahedral Spinel Electrocatalysts for Alkaline Fuel Cells. ***Proc. Natl. Acad. Sci***. 2019, 116, 244425.
6. **Y. Yang,*,†** C. Shi,† J. Feijoo, J. Jin, C. Chen, Y. Han*, P. Yang*. Dynamic Evolution of Copper Nanowires during CO_2 Electroreduction Probed by *Operando* Electrochemical 4D-STEM and X-ray Spectroscopy. ***J. Am. Chem. Soc***. 2024, 146, 23398.
7. **Y. Yang**, I. Roh, S. Louisia, C. Chen, J. Jin, S. Yu, M. B. Salmeron, C. Wang, P. Yang, *Operando* Resonant Soft X-ray Scattering Studies of Chemical Environment and Interparticle Dynamics of Cu Nanocatalysts for CO_2 Electroreduction. ***J. Am. Chem. Soc***. 2022, 144, 8927.
8. **Y. Yang**, Y. Wang, Y. Xiong, J. Brock, L. Zhuang, H. Abruña et al. *In Situ* X-ray Absorption Spectroscopy of a Synergistic Co−Mn Oxide Catalyst for the Oxygen Reduction Reaction. ***J. Am. Chem. Soc.*** 2019, 141, 1463. (CHESS Award)
9. **Y. Yang**, Y.-T. Shao, F. DiSalvo, D. Muller, H. Abruña, et al. Elucidating Cathodic Corrosion Mechanisms with *Operando* Electrochemical Transmission Electron Microscopy. ***J. Am. Chem. Soc.*** 2022, 144, 15698. (First Demonstration of 4D-STEM in Liquid)
10. **Y. Yang**, R. Zeng, Y. Xiong, F. DiSalvo, H. Abruña. Cobalt-Based Nitride-Core Oxide-Shell Oxygen Reduction Electrocatalysts. ***J. Am. Chem. Soc.*** 2019, 141, 19241.
11. **Y. Yang**, G. Chen, R. van Dover, H. Abruña, Combinatorial Studies of Palladium-Based Oxygen Reduction Electrocatalysts for Alkaline Fuel Cells, ***J. Am. Chem. Soc***. 2020, 142, 8, 3980.
12. Y. Xiong,† **Y. Yang**,† H. Abruña. Metal−Organic-Framework-Derived Co−Fe Bimetallic Oxygen Reduction Electrocatalysts for Alkaline Fuel Cells. ***J. Am. Chem. Soc***. 2019, 141, 10744.
13. Y. Xiong,† **Y. Yang,**† F. DiSalvo, H. Abruña, A Strategy for Increasing the Efficiency of the Oxygen Reduction Reaction in Mn-Doped Cobalt Ferrites. ***J. Am. Chem. Soc***. 2019, 141, 4412.
14. Y. Xiong,† **Y. Yang**,† F. DiSalvo, H. Abruña. Pt-Decorated Composition-Tunable Pd-Fe@Pd/C Core-Shell Nanoparticles with Enhanced Electrocatalytic Activity towards the Oxygen Reduction Reaction. ***J. Am. Chem. Soc***. 2018, 140, 7248. (**Cover Story**).
15. P.-C. Chen,† C. Chen,† **Y. Yang**,† P. Yang et al. Chemical and Structural Evolution of AgCu Catalysts in Electrochemical CO2 Reduction. ***J. Am. Chem. Soc***. 2023, 145, 10116.
16. Y. Gao,† **Y. Yang**,† R. Schimmenti, F. DiSalvo, D. Muller, L. Xiao, H. Abruña, L. Zhuang et al. A Completely Precious-Metal-Free Alkaline Fuel Cell with Enhanced Performance Using a Carbon-Coated Nickel Anode. ***Proc. Natl. Acad. Sci.*** 2022, 119, e2119883119. (Highlighted by This Week in PNAS, IEEE Spectrum and DOE Office of Science University News on 03/25).
17. Y. Xiong,† **Y. Yang**,† H. Joress, E. Padgett, U. Gupta, F. Escobedo, J. Brock, D. Muller, H. Abruña, et al. Revealing the Atomic Ordering of Binary Intermetallics Using *In Situ* Heating Techniques at Multilength Scales. ***Proc. Natl. Acad. Sci.*** 2019, 116, 1974. (MSA Poster Award)
18. R. Zeng,† **Y. Yang**,†…F. DiSalvo, H. Abruña. Nonprecious Transition Metal Nitrides as Efficient

Oxygen Reduction Electrocatalysts for Alkaline Fuel Cells. ***Science Adv.*** 2022, 8, eabj1584.

19. **Y. Yang**,* Y.-T. Shao, D. Muller, H. Abruña,* P. Yang,* *Operando* Electrochemical Liquid-Cell Scanning Transmission Electron Microscopy (EC-STEM) Studies of Evolving Cu Nanocatalysts for CO_2 Electroreduction. ***ACS Sustainable Chem. Eng***. 2023, 11, 4119 (**Cover Story**).
20. **Y. Yang**, W. Xiao, X. Feng, Y. Xiong, H. Abruña, D. Wang. Golden Palladium Zinc Ordered Intermetallics as Oxygen Reduction Electrocatalysts. ***ACS Nano*** 2019, 13, 5968.
21. **Y. Yang**, H. Peng, Y. Xiong, Q. Li, J. Lu, L. Xiao, L. Zhuang, H. Abruña. High-loading Composition-Tolerant Co-Mn Spinel Oxides with Performance beyond 1 W/cm^2 in Alkaline Polymer Electrolyte Fuel Cells. ***ACS Energy Lett.*** 2019, 4, 1251.
22. **Y. Yang**, Y.-T. Shao, F. DiSalvo, D. Muller, H. Abruña. Metal Monolayers on Command: Underpotential Deposition at Nanocrystal Surfaces: A Quantitative *Operando* Electrochemical Transmission Electron Microscopy Study. ***ACS Energy Lett***. 2022, 7, 1292.
23. **Y. Yang**, R. Zeng, Y. Xiong, F. DiSalvo, H. Abruña, Rock-salt-type $MnCo_2O_3$/C as Efficient Oxygen Reduction Electrocatalysts for Alkaline Fuel Cells. ***Chem. Mater***. 2019, 31, 9331.
24. **Y. Yang**, F. DiSalvo, D. Muller, J. Suntivich, H. Abruña. Epitaxial Thin-Film Spinel Oxides as Oxygen Reduction Electrocatalysts in Alkaline Media. ***Chem. Mater.*** 2021, 33, 4006-4013.
25. **Y. Yang**, L. Xiao, L. Zhuang et al. Tuning the Morphology of Li_2O_2 by Noble and 3d Metals – A Planar Model Electrode Study for Li-O_2 Battery. ***ACS Appl. Mater. Interfaces*** 2017, 9, 19800.
26. **Y. Yang**, L. Xiao, L. Zhuang et al. Tuning the Morphology and Crystal Structure of Li_2O_2: A Graphene Model Electrode Study for Li–O_2 Battery. ***ACS Appl. Mater. Interfaces*** 2016, 8, 21350.
27. **Y. Yang**, W. Liu, Y. Wang, X. Liu, L. Xiao, J. Lu, L. Zhuang. PtRu Catalyzed Rechargeable Oxygen Electrode for Li-O_2 Batteries: Performance Improvement through Li_2O_2 Morphology Control, ***Phys. Chem. Chem. Phys***. 2014, 16, 20618.
28. Y. Xiong,† **Y. Yang**,† F. DiSalvo, H. Abruña. Synergistic Bimetallic MOF-Derived Pt-Co Oxygen Reduction Electrocatalysts. ***ACS Nano*** 2020, 14, 13069-13080.
29. Z. Li,† **Y. Yang**,† H. Abruña, L. Zhuang et al. Interface Enhanced Catalytic Selectivity on the C_2 Products of CO_2 Electroreduction. ***ACS Catal***. 2020, 11, 2473.
30. X.-C. Liu,† **Y. Yang**,† D. Muller, H. Abruña, F.-S. Ke et al. Dynamic Hosts for High-Performance Li-S Batteries Studied by Cryo-TEM and In Situ XRD. ***ACS Energy Lett.*** 2018, 3, 1325.
31. J. Zhu,† **Y. Yang**,† L. Chen, W. Xiao, H. Liu, H. Abruña, D. Wang. Copper-Induced Formation of Ordered Pt-Fe-Cu Ternary Intermetallic Electrocatalysts with Tunable Phase Structure and Improved Stability. ***Chem. Mater.*** 2018, 30, 5987.
32. N. Zhang,† **Y. Yang**,† X. Feng, S. Yu, J. Seok, D. Muller, H. Abruña, Sulfur Encapsulation by MOF-Derived CoS_2 Hosts for High-Performance Li–S Batteries. ***J. Mater. Chem. A*** 2019, 7, 21128. (**Hot Papers**)
33. D. Ren,† **Y. Yang**,† H. Abruña. Ni-Rich $LiNi_{0.88}Mn_{0.06}Co_{0.06}O_2$ Cathode Interwoven by Carbon Fiber with Improved Rate Capability and Stability. ***J. Power Sources***. 2019, 447, 227344.
34. **Y. Yang**, C. Peltier…G. Coates, H. Abruña (50 co-authors). Electrocatalysis in Alkaline Media and Alkaline-Based Energy Technologies. ***Chem. Rev***. 2021, 122, 6117-6321. (**Cover Story**)
35. **Y. Yang**, Y. Xiong, R. Zeng, X. Lu, M. Krumov, H. Wang, J. Brock, D. Muller, F. DiSalvo, H. Abruña, *Operando* Methods in Electrocatalysis. ***ACS Catal.*** 2021, 11, 1136.
36. J. Huang, **Y. Yang**, D. Weinstock, C. Bundschu, Q. Li, S. Sarker, J. Ruff, T. Arias, H. Abruña, **A. Singer**. Multimodal *In Situ* X-ray mechanistic studies of a bimetallic oxide electrocatalyst in alkaline media. ***Nature Catal***. 2025, 8, 116.
37. J. Feijoo, **Y. Yang**, M. V. Fonseca Guzman, A. Vargas, C. Chen, C. J. Pollock, P. Yang, *Operando* High-Energy-Resolution X-ray Spectroscopy of Evolving Cu Nanoparticle Electrocatalysts for

CO2 Reduction. ***J. Am. Chem. Soc.*** 2023, 145, 20208-20213.

38. C. Chen, S. Yu, **Y. Yang**, P. Yang et al. Exploration of the Bio-Analogous Asymmetric C–C Coupling Mechanism in Tandem CO_2 Electroreduction. ***Nature Catal.*** 2022, 5, 878.
39. Y. Wang, **Y. Yang**, D. Muller, H. Abruña, L. Zhuang et al. Synergistic Mn-Co Catalyst Outperforms Pt on High-Rate Oxygen Reduction for Alkaline Polymer Electrolyte Fuel Cells. ***Nature Commun.*** 2019, 10, 1506.
40. P.-C. Chen…**Y. Yang**…K. A. Persson, P. Yang, Complete Miscibility of Immiscible Elements at the Nanometre Scale. , ***Nature Nanotech***. 2024, 19, 775

Patents

- Manganese-Cobalt Spinel Oxide/Carbon Catalyst. ***U.S. Patent,*** 2019, 11394033B2
- Titanium Disulfide-Sulfur Composites. ***U.S. Patent***, 2017, 11417884B2 (Licensed to Conamix)

Invited Departmental/Institutional Seminars:

1. Invited Speaker for BrainLink X-Lab Day (Innovations in Water Electrolysis for Hydrogen) Korean Federation of Science and Technology Societies, Incheon, South Korea 11/2026
2. Invited Speaker for the 6th International Symposium on Advanced Microscopy and Spectroscopy (ISAMS-6), University of California, Irvine 12/2025
3. Special Seminar for Texas Materials Institute, University of Texas, Austin 11/2025
4. Invited Speaker for Center for Nanoscale Imaging Science (NIS) Conference, Department of Materials Science and Nanoengineering, Rice University 11/2025
5. Plenary Speaker, The Annual ABCD Research Symposium, Department of Chemistry, University of Texas, El Paso 03/2025
6. Invited Speaker for Nature Conference on Electron Microscopy, Materials Research Institute, Princeton University 10/2024
7. Spotlight Presentation for Nanoscience, The Kavli Assembly, Los Angeles, CA 07/2024
8. Invited Talk for Electron Microscopy-X (EM-X) Workshop, Stanford University 06/2024
9. Keynote Speaker, Canadian Centre for Electron Microscopy (CCEM) workshop: Beyond the Basics: Advanced In-Situ Electron Microscopy Techniques and Applications, McMaster University, Ontario, Canada 05/2024
10. Invited Speaker for Electrocatalysis Conference, Helmholtz Institute, Erlangen-Nürnberg, Nuremberg, Bavaria, Germany 05/2024
11. Invited Seminar, Department of Materials Science and Engineering, North Carolina State University 05/2024
12. Invited Speaker for Advanced TEM Lecture, Department of Materials Science and Engineering, Binghamton University 08/2019

Symposium Organizers/Presiders

13. Chair, Pre-Meeting Congress Tutorial on Operando/In Situ TEM in Liquids and Gases, *Microscopy & Microanalysis*, Milwaukee, WI 08/2027
14. Chair, Symposium on *Operando*/*In Situ* Characterizations of Energy Materials Electrocatalysis, MRS Fall, Boston, MA 12/2025
15. Presider for Electroanalytical Chemistry, Pacifichem, Hawaii 12/2025
16. Chair, Symposium on Advances in Electrochemistry, Division of Analytical Chemistry, ACS Fall, DC 08/2025
17. Co-Chair, Symposium on Heterogeneous Electrocatalysis, MRS Spring 2025, Seattle WA 04/2025
18. Co-Chair, Symposium on Advances in Electrochemistry, ACS Spring, San Diego 03/2025

19. Presider for Symposium on *Operando*/*In Situ* Microscopy of Energy Materials, Microscopy and Microanalysis (MM), Salt Lake City, Utah 08/2025
20. Co-Chair, Advances in Electrochemistry, ACS Fall Meeting, Denver, CO 08/2024
21. Chair of GRS, Gordon Liquid-Phase TEM Conference, Tuscany, Italy 01/2024
22. Presider for Advances in Electrochemistry, ACS Fall Meeting, San Francisco, CA 08/2023
23. Discussion Leader for GRS, Gordon Liquid-Phase TEM Conference, Ventura, CA 09/2022

Conference Presentations

24. Invited Speaker for ECS Spring Symposium in Honor of Dr. Piotr Zelenay 05/2027
25. Invited Plenary Speaker for Pittcon ACS Division of Analytical Chemistry 04/2027
26. Invited Speaker for Minerals, Metals & Materials Society (TMS) Symposium on 4D STEM for Quantitative Materials Characterization, Orlando 03/2027
27. Invited Speaker for ACS Spring Symposium on Interfacial Catalysis 03/2027
28. Invited Speaker for MRS Symposium on Operando Electron Microscopy 12/2026
29. Invited Speaker, The 21st International Microscopy Congress (IMC), Livepool, UK 09/2026
30. Invited Speaker for ACS Symposium on Catalysis at Solid-Liquid Interfaces 08/2026
31. Invited Speaker for International Microscopy Congress (IMC), Liverpool, UK 08/2026
32. Invited Speaker for The Electrochemical Society (ECS) Conference, Seattle 05/2026
33. Invited Speaker for Gordon Research Conference (GRC) Liquid Phase Electron Microscopy, Ventura CA 01/2026
34. Invited Speaker and Presider for Electroanalytical Chemistry, Pacifichem, Hawaii 12/2025
35. Invited Speaker for Scanning Probe Microscopy, ECS, Chicago 10/2025
36. Invited Speaker and Presider for Symposium on *Operando*/*In Situ* Microscopy of Energy Materials, Microscopy and Microanalysis (MM), Salt Lake City, Utah 08/2025
37. Invited Speaker and Presider for Symposium on Molecular Electrochemistry, Division of Physical Chemistry, ACS Fall DC 08/2025
38. Invited Speaker for Symposium on *Operando*/*In Situ* Characterizations of Energy Materials, Seattle WA 04/2025
39. Invited Speaker, NSF-PREM / DOE-RENEW PIRES-Puerto Rico Symposium, PR 01/2025
40. Invited Speaker for NY-BEST Battery Conference, Binghamton, NY 10/2024
41. Invited Attendee for DOE ARPA-E Workshop on Accelerating the Heterogeneous Catalyst Development Cycle for Net Zero Applications, Washinton, DC 06/2024
42. Invited Speaker and Session Chair for L05: Electrochemistry at the Nanoscale, 245th Electrochemical Society (ECS) Meeting, San Francisco, CA 05/2024
43. Invited Speaker, Electrocatalysis conference in Nürnberg, Germany 05/2024
44. Invited Presentation for ACS Spring 2024 03/2024
45. Invited Presentation for Advanced Analysis for Fuel Cell Materials and technologies, Materials Research Meeting 2023 (MRM2023/IUMRS-ICA2023), Kyoto, Japan 12/2023
46. Invited Presentation for Emerging Electrocatalytic Materials and Devices for Clean Energy and Environmental Applications, MRS Fall Meeting, Boston, MA 12/2023
47. Invited Presentation for In Situ TEM, MRS Fall Meeting 12/2023
48. Invited Talk for Liquid Sunlight Alliance (LiSA) Corrosion Crosscut Seminar, CA 09/2023
49. Invited Presentation for Applications of Liquid Phase Electron Microscopy, 20th International Microscopy Congress (IMC 20), Busan, Korea 09/2023
50. Oral Presentation for *Operando* Methods, MRS Spring Meeting, San Francisco, CA 04/2023
51. Invited Presentation for *Operando* Microscopy & Microanalysis, Minneapolis, MN 08/2023
52. Invited Presentation, Bakar Institute of Digital Materials for the Planet (BIDMaP), University

of California, Berkeley, CA 04/2023

53. Invited Presentation for Symposium, "Frontiers and Challenges in Nanoparticles-Mediated Chemical Transformations" ACS Spring 2023, Indianapolis, IN 03/2023
54. Invited Presentation, Berkeley Kavli Energy Nanoscience Institute (ENSI) Seminar 11/2022
55. Invited Speaker for GRS, Gordon Electrochemistry Conference, Ventura, CA 09/2022
56. Oral Presentation, LBNL Molecular Foundry User Meeting, Berkeley, CA 08/2022
57. Oral Presentation, 73rd International Society of Electrochemistry Conference, Prague 08/2022
58. Invited Presentation, Microscopy & Microanalysis, Portland, OR 08/2022
59. Invited Presentation, ACS Spring 2022, San Diego, CA 03/2022
60. Poster Presentation, Department of Energy EFRC PI Meeting, Washington, D.C. 02/2021
61. Oral Presentation, 72nd International Society of Electrochemistry, South Korea 08/2021
62. Oral Presentation, Microscopy & Microanalysis, Pittsburgh, PA 08/2021
63. Oral Presentation, Microscopy & Microanalysis, Milwaukee, WI 08/2020
64. Poster Presentation, Department of Energy EFRC Midterm Review, MD 08/2020
65. Poster Presentation, Gordon Electrochemistry Conference, Ventura, CA 01/2020
66. Oral Presentation, MRS Fall Meeting, Boston, MA 12/2019
67. Poster Presentation, Microscopy & Microanalysis, Portland, OR 08/2019
68. Poster Presentation, Department of Energy EFRC PI Meeting, Washington, D.C. 08/2019
69. Poster Presentation, Gordon Fuel Cell Conference, Smithfield, RI 07/2017

Mentorship (https://www.yao-yang-group.com/about-1)

PhD Students

1. Rafael Guzman-Soriano
2. Wenqi Li
3. Jiahong Jiang
4. Adam Silvernail
5. Jingzhi Hu
6. Haichuan Zhang
7. Ritwick Sinha (Joint PhD with Young Joo Lab, CBE; Seoul Oil Corporation Fellowship)

Postdoctoral Scholars

1. Dr. Valentín Briega-Martos
2. Dr. Sungin Kim (Gordon and Betty Moore Fellowship; Korea Sejong Science Fellowship)
3. Dr. Juhyung Choi (Korea NRF Fellowship)

Undergraduate Students

1. Himani Mishra (Cornell AEP '27, Hunter R. Rawlings Cornell Presidential Research Scholar, Cornell Nanoscale Facility REU Fellowship, 2025)
2. Anja Minty (Cornell Chem '27; Cornell Chemistry REU Fellowship 2025)
3. Sean McInnis (Cornell ChemE '26; Cornell Engineering Office of Inclusive Excellence, Aizen Climate Research Scholar; Pursuing PhD in ChemE at UC Berkeley)
4. Liam Markey (Cornell Chem, 28')
5. Lauryn Gibbs (Cornell Chem '22)
6. Jesse Green (Cornell Chem, 29')

PhD Committee Members

1. Joseph McAuliffe (Song Lin group, Cornell Chemistry, now Stanford Chemistry)
2. Sihun Lee (Judy Cha group, Cornell MSE)
3. Samuel Baffour Agyei (Lynden Archer group, Cornell Chem. & Bio. Eng. CBE)

4. Ritwick Sinha (Yong Lak Joo group, Cornell CBE)
5. Wenhao Yuan (Fengqi You group, Cornell Systems Engineering)
6. Vinamr Jain (Fengqi You group, Cornell Systems Engineering)
7. Suzatra Chatterjee (Carlos Cabrera Martinez group, The University of Texas at El Paso)

Professional Affiliations:

1. Member, American Chemical Society (ACS), Division of Analytical Chemistry since 2021
2. Member, Materials Research Society (MRS) since 2021
3. Member, The Electrochemical Society (ECS), Division of Analytical and Physical Electrochemistry since 2024
4. Member, International Society of Electrochemistry (ISE) since 2017
5. Lifetime Member, Society for Electroanalytical Chemistry (SEAC) since 2024
6. Member, Microscopy & Microanalysis (M&M) since 2015

Editorial Service:

Reviewers: Nature Materials, Nature Catalysis, Nature Portfolios, Nature Communications, Proceedings of the National Academy of Sciences, Science Advances Journal of the American Chemical Society, ACS Nano, ACS Catalysis, Chemistry of Materials, ACS Energy Letters, Journal of Physical Chemistry C, Nano Letters, ACS Sustainable & Chemical Engineering, Energy and Fuels, Electrochim Acta, Electrochemical Communications

Guest Editors:

1. *Current Opinion in Electrochemistry* (IF: 7.5) Physical and Nanoelectrochemistry
2. *Chemical and Biomedical Imaging* (IF: 5.7), Electrochemistry and Imaging

University/Departmental Service:

3. Physical Chemistry PhD Admission Committee 12/2025
4. Faculty Seminar for College of Arts and Science Fall 2025 First-Year Undergraduate Advising 09/2025
5. Chemistry Faculty Host for Cornell Virtual Graduate School Fair Booth 10/2024
6. Safety Committee, Department of Chemistry and Chemical Biology 07/2024-Present

External Service:

1. American Chemical Society (ACS) Division of Analytical Chemistry Symposium on Advances in Electrochemistry, Symposium Chair 2023-Present
2. ACS Division of Analytical Chemistry Long Range Program Planning (LRPP) Committee on Symposium Topic Selection 2026-2029