

Gary F. Moore

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Education and Training

- 2009 – 2011 **Camille and Henry Dreyfus Postdoctoral Fellow**, Yale University, New Haven, CT
Advisors: Gary W. Brudvig and Robert H. Crabtree
- 2004 – 2009 **Ph.D.** Chemistry and Biochemistry Arizona State University, Tempe, AZ
Advisor: Ana L. Moore
- 1998 – 2004 **B.S.** Chemistry, The Evergreen State College, Olympia, WA
Advisor: Peter J. Pessiki

Research and Professional

- 2020 – present **Associate Professor**, Arizona State University, Tempe, AZ
2014 – 2020 **Assistant Professor**, Arizona State University, Tempe, AZ
2011 – 2014 **Research Staff Scientist**, Berkeley Lab, Berkeley, CA

10 Selected Fellowships, Awards, and Honors

1. **Presidential Early Career Award for Scientists and Engineers (PECASE)** (2025 with nomination from the U.S. Department of Energy) (*the highest honor bestowed by the U.S. government on outstanding scientists and engineers beginning their independent careers*)
2. **National Academy of Sciences (NAS) Kavli Foundation Fellow** (2023) (*one of 118 faculty nationwide, more than 6,200 young scientists have participated since the program's founding in 1989; to date, 323 participants have been elected to the NAS and 18 have been awarded the Nobel Prize*)
3. **Inter-American Photochemical Society (I-APS) Young Investigator Award** (2023) (*recognizes outstanding photoscientific contributions by Society members*)
4. **Department of Energy Early Career Research Award** (2020) (*one of 76 faculty nationwide*)
5. **Camille Dreyfus Teacher-Scholar Award** (2020) (*one of 14 faculty nationwide*)
6. **Scialog Fellow** (2020) (*One of ~50 early-career faculty named as Scialog Fellows in Negative Emission Science by the Alfred P. Sloan Foundation and the Research Corporation for Science Advancement*)
7. **ARCS Foundation Exceptional Mentor Award** (2018) (*one of three faculty recognized nationally*)
8. **National Science Foundation CAREER Award** (2017) (*the National Science Foundation's most prestigious award in support of early-career faculty*)
9. **Julie Ann Wrigley Global Institute for Sustainability Scholar** (2017 – present)
10. **Yale University Edward A. Bouchet Honor Society Fellow** (2011 – present)

40 Selected Publications (for a more complete list, see <https://www.gfmooreslab.com/publications.html>)

1. Hensleigh, L. K.; Nishiori, D.; Peterson, I.; **Moore, G. F. Exploring Attached-Buffer Effects and Gibbs-Donnan Equilibria in Ionomeric Energy Transduction Materials.** *Chem Comm.* **2026** <https://doi.org/10.1039/D5CC05614D> (Invited Contribution, Special Issue on Pioneering Investigators) (Cover Article).
2. Nishiori, D.; Reyes Cruz, E. A.; Hensleigh, L. K.; Nguyen, N. P.; **Moore, G. F. Shedding Light on Overpotentials and Underpotentials in (Photo)electrochemical Reactions.** *Chem Soc Rev.* **2026** <https://doi.org/10.1039/D4CS00695J> (Invited Contribution) (Cover article).

3. Sambur, J. B.; Kaufman, A. J.; Montoya-Castillo, A.; Kundman, A.; Nozik, A. J.; DesCarpentrie, A. G.; Jana, A.; Tews, A.; Banik, A.; Parkinson, B. A.; Frisbie, C. D.; Tossi, C.; Hallock, C. D.; Esposito, D. V.; Lustig, D. R.; Seo, D.; Solanki, D.; Wang, D.; Ratcliff, E. L.; Houle, F. A.; Toma, F. M.; Zhu, G.; Moore, G. F.; Meyer, G. J.; Liu, H.; Schneidewind, J.; Cahoon, J. F.; Mayer, J. M.; van de Lagemaat, J.; Brinker, J. R.; Dempsey, J. L.; Diederich, J.; Hart, J. N.; Brinkert, K.; Rajeshwar, K.; Choi, K.; Berben, L. A.; Salvi, M.; Spittler, M. T.; Rose, M. J.; Lewis, N. S.; Gomez, N. A.; Maurya, O.; Aghadiuno, P. O.; Kamat, P. V.; Evans, R. C.; Almaraz, R.; Sampaio, R. N.; Coridan, R. H.; Rvan de Krol, R.; Suo, S.; Magpantay, S. V.; Bae, S.; Cushing, S. K.; Ardo, S.; Boettcher, S. W.; Hu, S.; Maldonado, S.; Liu, T.; Cuk, T.; Hannappel, T.; Sayer, T.; Deutsch, T. G.; Streibel, V.; Stinson, W. D. H.; Jaegerman, W.; Surendranath, Y.; Mi, Z.; Ye, Z. **Gerischer Electrochemistry Today**, *ACS Energy Letters*, **2026**, *10*, 6578-6595.
4. Nishiori, D.; Hensleigh, L. K.; Nguyen, N. P.; Peterson, I.; Moore, G. F. **Wavelength-Resolving Catalytic Turnover Frequencies and Identifying Alternate Proton Donors in Solar-Fuel-Forming Reactions**. *ACS Catal.* **2025**, *8*, 9888-9898. (Cover article).
5. Nishiori, D.; Menzel, J. P.; Armada, N.; Reyes Cruz, E. A.; Nannenga, B. L.; Batista, V. S.; Moore, G. F. **Breaking a Molecular Scaling Relationship using an Iron-Iron Fused Porphyrin Electrocatalyst for Oxygen Reduction**. *J. Am. Chem. Soc.* **2024**, *146*, 11622-11633.
6. Nguyen, N. P.; Hensleigh, L. K.; Nishiori, D.; Reyes Cruz, E. A.; Moore, G. F. **Degrade-Repair Cycle of a Fuel-forming Photoelectrode**. *ACS Appl. Energy Mat.* **2022**, *5*, 13128-13133. (Cover Article)
7. Reyes Cruz, E. A.; Nishiori, D.; Wadsworth, B. L.; Nguyen, N. P.; Hensleigh, L. K.; Khusnutdinova, D.; Beiler, A. M.; Moore, G. F. **Molecular-Modified Photocathodes for Applications in Artificial Photosynthesis and Solar-to-Fuel Technologies**. *Chem. Rev.* **2022**, *122*, 16051-16109. (Cover Article).
8. Odella, E.; Secor, M.; Reyes Cruz, E. A.; Guerra, W. D.; Urrita, M. N.; Liddell, P. A.; Moore, T. A.; Moore, G. F.; Hammes-Schiffer, S.; Moore, A. L. **Managing the Redox Potential of PCET in Grothuss-Type Proton Wires**. *J. Am. Chem. Soc.* **2022**, *144*, 15672-1567.
9. Nishiori, D.; Wadsworth, B. L.; Moore, G. F. **Parallels Between Enzyme Catalysis, Electrocatalysis, and Photoelectrosynthesis**. *Chem Catalysis*. **2021**, *1*, 978-996.
10. Khusnutdinova, D.; Karcher, T.; Landrot, G.; Lassalle-Kaiser, B.; Moore, G. F. **Six-Electron Chemistry of a Binuclear Fe(III) Fused Porphyrin**. *ChemElectroChem*. **2021**, *8*, 3614-3620 (Special issue honoring Prof. Jean-Michel Savéant) (Cover Article).
11. Yoneda, Y.; Mora, S. J.; Shee, J.; Wadsworth, B. L.; Arsenault, E.; Hait, D.; Kodis, G.; Gust, D.; Moore, G. F.; Moore, A. L.; Head-Gordon, M.; Moore, T. A.; Fleming, G. **Electron-Nuclear Dynamics Accompanying Proton-Coupled Electron Transfer**. *J. Am. Chem. Soc.* **2021**, *143*, 3104-3112.
12. Nguyen, N. P.; Wadsworth, B. L.; Nishiori, D.; Reyes Cruz, E. A.; Moore, G. F. **Understanding and Controlling the Performance-Limiting Steps of Catalysts-Modified Semiconductors**. *J. Phys. Chem. Lett.* **2021**, *12*, 199-203.
13. Guerra, W. D.; Odella, E.; Sector, M.; Goings, J. J.; Wadsworth, B. L.; Gervaldo, M.; Sereno, L. E.; Moore, T. A.; Moore, G. F.; Hammes-Schiffer, S.; Moore, A. L. **Role of Intact Hydrogen-Bond Networks in Multiproton-Coupled Electron Transfer**. *J. Am. Chem. Soc.* **2020**, *142*, 21842-21851.
14. Wadsworth, B. L.; Nguyen, N. P.; Nishiori, D.; Beiler, A. M.; Moore, G. F. **Addressing the Origin of Photocurrents and Fuel Production Activities in Catalyst-Modified Semiconductor Electrodes**. *ACS Appl. Energy Mater.* **2020**, *8*, 7512-7519. (Cover article).
15. Odella, E.; Mora, S. J.; Wadsworth, B. L.; Goings, J. J.; Gervaldo, M.; Sereno, L. E.; Groy, T. L.; Gust, D.; Moore, T. A.; Moore, G. F.; Hammes-Schiffer, S.; Moore, A. L. **Proton-Coupled Electron Across Benzimidazole Bridges in Bioinspired Proton Wires**. *Chem. Sci.* **2020**, *11*, 3820-3828.

16. Wadsworth, B. L.; Khusnutdinova, D.; Urbine, J. M.; Reyes, A.; Moore, G. F. **Expanding the Redox Range of Surface-Immobilized Metallocomplexes using Molecular Interfaces.** *ACS Appl. Mater. Interfaces.* **2020**, *12*, 3903-3911. (Cover article).
17. Wadsworth, B. L.; Beiler, A. M.; Khusnutdinova, D.; Reyes Cruz, E. A.; Moore, G. F. **Interplay Between Light Flux, Quantum Efficiency, and Turnover Frequency in Molecular-Modified Photoelectrosynthetic Assemblies.** *J. Am. Chem. Soc.* **2019**, *141*, 15932-15941. (Cover article).
18. Odella, E.; Wadsworth, B. L.; Mora, S. J.; Goings, J. J.; Huynh, M. T.; Gust, D.; Moore, T. A.; Moore, G. F.; Hammes-Schiffer, S.; Moore, A. L. **Proton-Coupled Electron Transfer Drives Long-Range Proton Translocation in Bioinspired Systems.** *J. Am. Chem. Soc.* **2019**, *141*, 14057-14061. (Cover Article).
19. Khusnutdinova, D.; Wadsworth, B. L.; Flores, M.; Beiler, A. M.; Reyes Cruz, E. A.; Zenkov, Y.; Moore, G. F. **Electrocatalytic Properties of Binuclear Cu(II) Fused Porphyrins for Hydrogen Evolution.** *ACS Catal.* **2018**, *8*, 9888-9898. (Cover article).
20. Wadsworth, B. L.; Khusnutdinova, D.; Moore, G. F. **Polymeric Coatings for Applications in Electrocatalytic and Photoelectrosynthetic Fuel Production.** *J. Mater. Chem. A.* **2018**, *6*, 21654-21665. (Invited contribution for a special issue on emerging investigators).
21. Odella, E.; Mora, S. J.; Wadsworth, B. L.; Huynh, M. T.; Goings, J. J.; Liddell, P. A.; Groy, T. L.; Gervaldo, M.; Sereno, L. E.; Gust, D.; Moore, T. A.; Moore, G. F.; Hammes-Schiffer, S.; Moore, A. L. **Controlling Proton-Coupled Electron Transfer in Bioinspired Artificial Photosynthetic Relays.** *J. Am. Chem. Soc.* **2018**, *140*, 15450-15460.
22. Khusnutdinova, D.; Beiler, A. M.; Wadsworth, B. L.; Nanyangwe, S. K.; Moore, G. F. **Vibrational Structure Analysis of Cobalt Fluoro-Porphyrin Surface Coatings on Gallium Phosphide.** *J. Porphyrins Phthalocyanines.* **2018**, *22*, 461-466. (Invited research article) (Cover article).
23. Ardo, S.; Rivas, D. F.; Modestino, M.; Greiving, V. S.; Abdi, F.; Llado, E. A.; Artero, V.; Ayers, K.; Battaglia, C.; Becker, J-P.; Bederak, D.; Berger, A.; Buda, F.; Chinello, E.; Dam, B.; Palma, V. D.; Edvinsson, T.; Fujii, K. Gardeniers, H.; Geerlings, H.; Hashemi, M.; Haussener, S.; Houle, F.; Huskens, J.; James, B.; Konrad, K.; Kudo, A.; Kunturu, P. P.; Lohse, D Mei, B.; Miller, E.; Moore, G. F.; Muller, J.; Orchard, K.; Post, R.; Rosser, T.; Saadi, F.; Schüttauf, J-F.; Seger, B.; Sheehan, S.; Spurgeon, J.; Tang, M.; van de Krol, R.; Vesborg, P.; Westerik, P. **Pathways to Electrochemical Solar Hydrogen Technologies.** *Energy Environ. Sci.* **2018**, *11*, 2768-2783.
24. Khusnutdinova, D.; Beiler, A. M.; Wadsworth, B. L.; Jacob, S. I.; Moore, G. F. **Metalloporphyrin-Modified Semiconductors for Solar Fuel Production.** *Chem. Sci.* **2017**, *8*, 253-259.
25. Wadsworth, B. L.; Beiler, A. M.; Khusnutdinova, D.; Jacob, S. I.; Moore, G. F. **Electrocatalytic and Optical Properties of Cobaloxime Catalysts Immobilized at a Surface-Grafted Polymer Interface.** *ACS Catal.* **2016**, *6*, 8048-8057.
26. Beiler, A. M.; Khusnutdinova, D.; Jacob, S. I.; Moore, G. F. **Solar Hydrogen Production Using Molecular Catalysts Immobilized on Gallium Phosphide (111)A and (111)B Polymer-Modified Photocathodes.** *ACS Appl. Mater. Interfaces.* **2016**, *8*, 10038-10043.
27. Krawicz, A.; Yang, J.; Anzenberg, E.; Yano, J.; Sharp, I. D.; Moore, G. F. **Photofunctional Construct That Interfaces Molecular Cobalt-Based Catalysts for H₂ Production to a Visible-Light-Absorbing Semiconductor.** *J. Am. Chem. Soc.* **2013**, *135*, 11861-11868.
28. Faunce, T. A.; Lubitz, W.; Rutherford, A. W.; MacFarlane D.; Moore, G. F.; Yang, P.; Nocera, D. G.; Moore, T. A.; Gregory, D. H.; Fukuzumi, S.; Yoon, K. B.; Armstrong, F. A.; Wasielewski, M. R. **Energy and Environment Policy Case for a Global Project on Artificial Photosynthesis.** *Energy Environ. Sci.* **2013**, *6*, 695-698.
29. Moore, G. F.; Sharp, I. D. **A Noble-Metal-Free Hydrogen Evolution Catalyst Grafted to Visible Light-Absorbing Semiconductors.** *J. Phys. Chem. Lett.* **2013**, *13*, 568-572.

30. Ugeda, M.; Yu, M.; Bradley, A.; Doak, P.; Liu, W.; Moore, G. F.; Sharp, I.; Tilley, T. D.; Neaton, J.; Crommie, M. **Adsorption and Stability of π -Bonded Ethylene on GaP(110)**. *J. Phys. Chem. C* **2013**, *117*, 26091-26096.
31. Najafpour, M. M.; Shen, J.-R.; Barber, J.; Moore, G. F.; Govindjee **Running on Sun**. *Chemistry World* **2012**, November, 43.
32. Moore, G. F.; Konezny, S. J.; Song, H.; Milot, R. L.; Blakemore, J. D.; Lee, M. L.; Batista, V. S.; Schmuttenmaer, C. A.; Crabtree, R. H.; Brudvig, G. W. **Bioinspired High-Potential Porphyrin Photoanodes**. *J. Phys. Chem. C* **2012**, *116*, 4892-4509.
33. Moore, G. F.; Megiatto, J. D.; Hambourger, M.; Gervaldo, M.; Kodis, G.; Gust, D.; Moore, T. A.; Moore, A. L. **Optical and Electrochemical Properties of Hydrogen-Bonded Phenol-Pyrrolidino[60]fullerenes**. *Photochem. Photobiol. Sci.* **2012**, *6*, 1018-1025.
34. Moore, G. F.; Blakemore, J. D.; Milot, R. L.; Hull, J.; Song, H.; Cai, L.; Schmuttenmaer, C. A.; Crabtree, R. H.; Brudvig, G. W. **A Visible Light Water-Splitting Cell with a Photoanode Formed by Codeposition of a High-Potential Porphyrin and a Homogeneous Iridium Water-Oxidation Catalyst**. *Energy Environ. Sci.* **2011**, *4*, 2389-2892.
35. Moore, G. F.; Brudvig, G. W. **Energy Conversion in Photosynthesis: A Paradigm for Solar Fuel Production**. *Annu. Rev. Condens. Matter Phys.* **2011**, *2*, 303-327.
36. Moore, G. F.; Hambourger, M.; Kodis, G.; Michl, W.; Gust, D.; Moore, T. A.; Moore, A. L. **Effects of Protonation State on a Tyrosine-Histidine Bioinspired Mediator**. *J. Phys. Chem. B* **2010**, *114*, 14450-14457.
37. Hambourger, M.; Moore, G. F.; Kramer, D. M.; Gust, D.; Moore, A. L.; Moore, T. A. **Biology and Technology for Photochemical Fuel Production**. *Chem. Soc. Rev.* **2009**, *38*, 25-35. (.
38. Moore, G. F.; Hambourger, M.; Gervaldo, M.; Poluektov, O. G.; Rajh, T.; Gust, D.; Moore, T. A.; Moore, A. L. **A Bioinspired Construct that Mimics the Proton Coupled Electron Transfer between P680 and the TyrZ-His190 Pair of Photosystem II**. *J. Am. Chem. Soc.* **2008**, *130*, 10466-10467.
39. Rizzi, A. C.; van Gestel, M.; Liddell, P. A.; Palacios, R. E.; Moore, G. F.; Kodis, G.; Moore, A. L.; Moore, T. A.; Gust, D.; Braslavsky, S. E. **Entropic Changes Control the Charge Separation Process in Triads Mimicking Photosynthetic Charge Separation**. *J. Phys. Chem. A* **2008**, *112*, 4215-4223.
40. Berera, R.; Moore, G. F.; van Stokkum, I. H. M.; Kodis, G.; Liddell, P. A.; Gervaldo, M.; van Grondelle, R.; Kennis, J. T. M.; Gust, D.; Moore, T. A.; Moore, A. L. **Charge Separation and Energy Transfer in a Caroteno-C60 Dyad: Photoinduced Electron Transfer From the Carotenoid Excited States**. *Photochem. Photobiol. Sci.* **2006**, *5*, 1142-1149. (Cover article).

10 Selected Examples of Invited Research Presentations

1. A Slow Train Coming. Gary F. Moore. **Telluride Science Research Center Workshop: Molecular Transformations through Proton-Coupled Electron Transfer for Energy Storage and Conversion**. Telluride, CO. October 3-7, 2025.
2. Turn up the Light: Using Photon Flux to Control Local pH and Direct Fuel-Forming Reaction Pathway. **Photochemistry Gordon Research Conference**. Bates College, Lewiston, ME. July 27-August 1, 2025.
3. Generating Photoelectrosynthetic Tafel-like Plots and Identifying Alternate Proton Donors in Solar-Fuel-Forming Reactions. Gary F. Moore. **247th Electrochemical Society Meeting**. Montréal, Canada. May 18-22, 2025.

4. Shedding More Light on Solar Photoelectrochemistry. Gary F. Moore. **2024 Electron Donor-Acceptor Interactions Gordon Research Conference**. Salve Regina, Newport, RI. August 5-10, 2024.
5. Bond making and breaking in (photo)electrosynthesis. Gary F. Moore. **Telluride Science Research Center Workshop: Making and Breaking Bonds with Light**. Telluride, CO. June 3-7, 2024.
6. Molecular-modified Materials for (Photo)electrosynthesis. Gary F. Moore. **30th Winter Inter-American Photochemical Society Conference**. Miramar Beach, FL. January 4-7, 2023.
7. Bioinspired Surface Coatings for Solar Fuel Production. Gary F. Moore. **Telluride Science Research Center Workshop: Making and Breaking Bonds with Light**. Telluride, CO. July 12-16, 2022.
8. Porphyrinoids for Applications in Electrocatalysis and Photoelectrosynthesis. Gary F. Moore. **11th International Conference on Porphyrins and Phthalocyanines**. June 28-July 3, 2021.
9. Bioinspired Materials for Sustainable Chemistry. Gary F. Moore. **N.I.C.E. Conference 2020 Nature Inspires Creativity Engineers**. Nice, France. October 12-14, 2020 (**Keynote Speaker**)
10. Nanoscale Architectures for Applications in Electrocatalysis and Photoelectrosynthesis. Gary F. Moore. **The Sixth International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems**. Island of Corfu (Kerkyra), Greece. June 30-July 3, 2019.

10 Examples of Synergistic Activities

1. Co-chair of the **2026 Electron Donor-Acceptor Interactions Gordon Research Conference** (2026).
2. Serve on the Scientific Advisory Board for the U.S. Department of Energy **Center for Hybrid Approaches in Solar Energy to Liquid Fuels (CHASE)** (*The SAB reviews Hub research and management operations and provides guidance to the Directorate in areas including management, scientific direction, and research strategies*) (2025-current).
3. Serve on the Scientific Advisory Board for the NASA/NExSS **Extraterrestrial Photosynthesis Workshop** (2025-2026).
4. Principal Investigator of the **ASU-Berkeley Lab STEM Pathways Program** (*supported by the Alfred P. Sloan Foundation*) (2022-2025).
5. Co-Organizer of the **New Horizons in Spectroelectrochemistry and Photoelectrochemistry Session at the 247th ECS Meeting**, Montréal, Canada (2025).
6. Discussion Leader at the **2nd Gerischer Electrochemistry Today Symposium**, Colorado State University, Fort Collins, CO (2024).
7. Chair of the **30th Western Photosynthesis Conference**. (2021).
8. Co-Chair of the **29th Inter-American Photochemical Society Winter Conference**. Sarasota, FL (2020).
9. Contributing author of the U.S. Department of Energy **Factual Document for the Basic Energy Sciences Roundtable on Liquid Solar Fuels**. (Authors: Ager, J.; Deutsch, T.; Esposito, D.; Gregoire, J. Hahn, C.; Hammarström, L.; Jaramillo, T. King, L.; King, P.; Miller, D.; Miller-Link, E.; Moore, G.; Mulfort, K.; Neale, N.; Nozik, A.; Osterloh, F.; Geoff Ozin, D.; Peters, J.; Polyanski, D.; Seefeldt, L.; Smith, W.; Xiang, C.; Yu, J.) (2023).
10. Panel participant and contributing author of the U.S. Department of Energy **Report of the Basic Energy Sciences Roundtable on Research Opportunities in the Physical Sciences Enabled by Cryogenic Electron Microscopy**. (Authors: Augustyn, V.; Berman, D.; Chen, Q.; Cui, Y.; DeYoreo, J.; Gu, X.; Idrobo, J. C.; Jungjohann, K.; Kourkoutis, L.; Liu, A.; McComb, D.; Moore, G.; Nelson, H.; Ross, F.; Stemmer, S.; Streubel, R.; Wallace, A.; Wang, C.; Yan, H. et al.) (2021).