Joseph Gauthier

Assistant Professor & Sanderson Faculty Fellow · Texas Tech University

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Appointments

Texas Tech University; Assistant Professor of Chemical Engineering	07/21–
Texas Tech University; Sanderson Faculty Fellow	03/26–
Lawrence Berkeley National Lab; Affiliate Faculty, Chemical Sciences Division	07/21–01/23
U.C. Berkeley/LBNL; Postdoc; A.T. Bell & M. Head-Gordon	05/20–06/21

Education

Stanford University; Ph.D. in Chem. Eng.; J.K. Nørskov	Stanford, CA (09/15–05/2020)
Technical University of Denmark; Visiting Ph.D. student	Lyngby, DK (09/18–09/19)
The Ohio State University; B.S. Chemical Engineering	Columbus, OH (09/11–05/15)

Selected Honors and Awards

NSF CAREER Award	2026
Whitacre Engineering Research Award, TTU	2024
STEM Teaching, Education, & Pedagogy Fellowship, TTU	2021-2022
Outstanding Teaching Assistant Award, Stanford University	2018
Barry M. Goldwater Scholarship	2014

Teaching Experience

Process Control, CHE 4353	Fall 2021
Engineering Experimentation, CHE 4372/5372	Spring 2022–2025
Advanced Chemical Engineering Techniques, CHE 5310	Fall 2022–2025
Fundamental Concepts in Heterogeneous Catalysis, CHE 4390/5390	Spring 2026

Research Group

Ph.D.(8)	Samuel Olusegun, Mikael Maraschin, Mahsa Askari, Luis Zimmermann Veena Chauhan, Princess Yiadom, Minjun Baik, Md. Intesar Labib
M.S. (1)	Natasha Basu
UG(4)	Salem Rice, Lindsey Bostain, Destin Maleka Sean McDonald (Abilene Christian University)
B.S. Alumni	Kyle Markel (2025), Leeson Weaver (2025), Lane Behnke (2025) Nithin Lalith (2024), Reagan Huckabee (2024), Alena Jairamsingh (2024) Allen Bushman (2023), Shaina Field-Farias (2023)

Funded External Support

[1] **National Science Foundation**
Title: NSF Engineering Research Center for Advancing Sustainable and Distributed Fertilizer Production (CASFER)
Total amount: $26,000,000
JG credit: 4%
Years active: 2022-2027

[2] **The Robert A. Welch Foundation**
Title: Biomimetic conversion of carbon dioxide to value added fuels and chemicals
Total amount: $300,000
JG credit: 100%
Years active: 2024-2027

[3] **ACS Petroleum Research Fund**, Doctoral New Investigator
Title: Fundamental Study of Electrochemical Propylene Epoxidation: Unraveling the Mechanism and Drivers of Selectivity
Total amount: $110,000
JG credit: 100%
Years active: 2024-2026

[4] **Army Research Laboratory**
Title: Advanced Semiconductor Power Devices
Total amount: $14,000,000
JG credit: 10%
Years active: 2025-2030

[5] **Army Research Laboratory**
Title: Instrumentation Acquisition for Advanced Semiconductor Power Devices Research
Total amount: $6,000,000
JG credit: 10%
Years active: 2025-2030

[6] **National Science Foundation**
Title: Research Experience for Undergraduates Site: Wide/Ultrawide Bandgap Semiconductor Technologies and Applications (WUBSTA)
Total amount: $439,233
JG credit: 10%
Years active: 2025-2028

[7] **Department of Energy**, Basic Energy Sciences, Catalysis Science

Title: Identifying structure-property relationships that govern stability and catalytic oxygen evolution activity on crystalline and amorphized IrOx
Total amount: $345,026
JG credit: 100%
Years active: 2025-2028

[8] **National Science Foundation**
Title: CAREER: Engineering Earth-abundant and corrosion-resistant water oxidation electrocatalysts
Total amount: $613,347
JG credit: 100%
Years active: 2026-2031

Invited Talks and Seminars

[28] **University of Kentucky** Dept. of Chem. Eng. Lexington, KY, 04/26

Title: Extending the reach of density functional theory: capturing charge transfer and making electrons behave

[27] **Dow Chemical** Catalysis Community of Practice. Midland, MI, 03/26
Title: New approaches towards capturing disorder in models of heterogeneous (electro)catalysis

[26] **University of Pittsburgh** Dept. of Chem. Eng. Pittsburgh, PA, 03/26
Title: Extending the reach of density functional theory: capturing charge transfer and making electrons behave

[25] **Carnegie Mellon University** Dept. of Chem. Eng. Pittsburgh, PA, 03/26
Title: Extending the reach of density functional theory: capturing charge transfer and making electrons behave

[24] **ACS Spring National Meeting**. Atlanta, GA, 03/26
Title 1: Understanding the mechanism of glycine oxidation: Pathway towards nutrient recovery from waste sludge
Title 2: A painfully needed benchmark for evaluating density functionals in electrocatalysis

[23] **National Institute of Standards and Technology**, Gaithersburg, MD, 02/26
Title: Extending the reach of density functional theory: capturing charge transfer and making electrons behave

[22] **Lubbock Christian University**, Dept. of Chemistry. Lubbock, TX, 02/26
Title: Rationalizing The Glycine Oxidation Mechanism: Towards Waste Valorization

[21] **University of North Texas** Dept. of Chemistry. Denton, TX, 01/26
Title: Extending the reach of density functional theory: capturing charge transfer and making electrons behave

[20] **Northwestern University** CCSS. Evanston, IL, 10/25
Title: Extending the reach of density functional theory: capturing charge transfer and making electrons behave

[19] **ACS Fall National Meeting**. Washington DC, 08/25
Title: Unraveling activity-stability trends in rutile oxides

[18] **ACS Spring National Meeting**. San Diego, CA, 03/25
Title: Activity-stability trends in rutile oxides

[17] **Texas Tech University** Department of Chemistry, Lubbock, TX, 10/24
Title: Modeling charge transfer processes with density functional theory

[16] **ACS Fall National Meeting**. Denver, CO, 08/24
Title: Modeling charge transfer processes with density functional theory

[15] **Lorentz Center:** Multiscale modeling of echem. processes. Leiden, NL, 08/24.
Title: Modeling charge transfer processes with density functional theory

[14] **ACS Spring National Meeting**. New Orleans, LA, 03/24
Title: Activity-stability trends in rutile oxides

[13] **Stanford University** Department of Chem. Eng., Stanford, CA, 03/24
Title: Unraveling some mysteries in carbon and hydrogen electrocatalysis

[12] **The Ohio State University** Department of CBE. Columbus, OH, 01/24

Title: Unraveling some mysteries in carbon and hydrogen electrocatalysis

[11] **Canadian Chemistry Conference and Exhibition.** Vancouver, BC, CA, 06/23
Title: Towards an atomistic understanding of electrochemical carbon dioxide reduction on copper

[10] **McMaster University** Department of Chem. Eng., Hamilton, ON, CA, 04/23
Title: Unraveling some mysteries in carbon and hydrogen electrocatalysis

[9] **ACS Spring National Meeting**. Indianapolis, IN, 03/23
Title: Unraveling some mysteries in carbon electrocatalysis

[8] **Guelph University** Department of Chemistry, Guelph, ON, CA, 11/22
Title: New developments in probing coupled proton electron transfer barriers with density functional theory in the grand canonical ensemble

[7] **Catalysis and Modelling Symposium**. Copenhagen, DK, 09/22
Title: Why are roughened Cu electrodes more selective to C_{2+} products?

[6] **Canadian Chemistry Conference and Exhibition.** Calgary, AL, CA, 06/22
Title: Towards an atomistic understanding of electrochemical carbon dioxide reduction on copper

[5] **University of Dayton** Department of Chem. Eng., Dayton, OH, 02/20
Title: Theoretical Investigations in Electrocatalysis for Sustainable Energy Conversion and Storage

[4] **University of South Carolina** Department of Chem. Eng., Columbia, SC, 02/20
Title: Theoretical Investigations in Electrocatalysis for Sustainable Energy Conversion and Storage

[3] **Texas Tech University** Department of Chem. Eng., Lubbock, TX, 01/20
Title: Theoretical Investigations in Electrocatalysis for Sustainable Energy Conversion and Storage

[2] **National Renewable Energy Laboratory**, Golden, CO, 01/20
Title: Theoretical Investigations in Electrocatalysis for Sustainable Energy Conversion and Storage

[1] **Lawrence Livermore National Laboratory**, Livermore, CA, 08/19
Title: Theoretical Investigations in Electrocatalysis for Sustainable Energy Conversion and Storage

Papers in Refereed Journals

† denotes equal contribution

* denotes corresponding author

[44] M. Maraschin, **J.A. Gauthier***. Unraveling fundamental activity–stability relationships in rutile oxides. *Journal of Physical Chemistry C*. **2026**. 130, 10, 3803-3813. Link.

[43] R. Sartape, V.V. Gande, R.R. Bhawnani, L. H-Z. Feistel, **J.A. Gauthier**,* M.R. Singh.* Nonaqueous Electrochemical Reactive CO_2 Capture and Conversion of 10% CO_2 Feed to Mixed Carboxylic Acids. *Chemical Engineering Journal*. **2025**. 526, 171274. Link.

[42] J.H. Stenlid,† **J.A. Gauthier**,† M. Head-Gordon, A.T. Bell, F. Abild-Pedersen. Atomic Origins of Roughness-Enhanced Multicarbon Selectivity in Copper-Catalyzed CO_2 Electroreduction. *ACS Energy Letters*. **2025**. *10*, 4730-4739. Link.

[41] N. Govindarajan,† G. Kastlunger,† **J.A. Gauthier**,† J. Cheng, I. Filot, A. Hagopian, H.A. Hansen, J. Huang, P.M. Kowalski, J. Liu, J.M. Lombardi, M. Maraschin, A. Peterson, H.S. Pillai, H. Prats, C.J. Price, R. van Roij, J. Rossmeisl, R.R. Seemakurthi, S.-J. Shin, A. Smith, J.-X. Zhu, K. Doblhoff-Dier*. The Intricacies of Computational Electrochemistry. *ACS Energy Letters*. **2025**. *10*, 4277-4288. Link.

[40] J. Ortega, M. Maraschin, G.G. Botte, **J.A. Gauthier***. Theoretical determination of a model molecule for the catalytic upcycling of polyolefins. *Physical Chemistry Chemical Physics*. **2025**. *27*, 11405 - 11412 Link.

[39] V.V. Gande, N.C. Kani, I. Goyal, R. Chauhan, Y. Qi, S. A. Olusegun, **J.A. Gauthier**,* M.R. Singh.* Advancements in Dinitrogen Activation for Catalytic Breakthroughs. *EES Catalysis*. 3, 883-920. **2025**. Link.

[38] J.A. Abarca, X. Wu, C. Gonzalez-Fernandez, I.H. Karampelas, A. Gutierrez-Carballo, **J.A. Gauthier**, G.G. Botte, J. Solla-Gullon, G. Diaz-Sainz, A. Irabien, J. Gomez-Pastora. Magnetically enhanced electrochemical conversion of CO_2 to formate: Experimental studies. *Chemical Engineering Journal*. **2025**. 515, 163614. Link.

[37] M. Maraschin, S.A. Olusegun, M. Askari, L.F. Zimmerman, J.A. Ortega, V. Chauhan, **J.A. Gauthier***. Recent developments in modeling the electric double layer with density functional theory. *Current Opinion in Electrochemistry*. **2025**, 101654. Link.

[36] N.C. Kani, I. Goyal, S.A. Olusegun, R.R. Bhawnani, **J.A. Gauthier*** , M.R. Singh* Screening transition metal electrodes for achieving near 100% selectivity to urea via electroreduction of NO_3^- and CO_2 at 100 mA cm^{-2} current density. *RSC Sustainable Energy & Fuels*. **2025**, *9*, 115-128. Link.

[35] S.A. Olusegun, Y. Qi, N.C. Kani, M.R. Singh*, **J.A. Gauthier***. Understanding trends in electrochemical dinitrogen oxidation. *ACS Catalysis*. **2024**, *14* (22), 16885–16896. Link.

[34] I. Goyal, N.C. Kani, S.A. Olusegun, S. Chinnabattigalla, R. Bhawnani, K.D. Glusac, A.R. Singh*, **J.A. Gauthier***, M.R. Singh. Metal Nitride as a Mediator for the Electrochemical Synthesis of NH_3. *ACS Energy Letters*. **2024**, *9* (8), 4188–4195. Link.

[33] M. Askari, R.C. Huckabee, **J.A. Gauthier*** A simple evaluation of adiabatic proton tunneling across the electrified double layer *J. Phys. Chem. C*. **2024**, *128* (30), 12386–12398. Link.

[32] S.M. Sharada*, **J.A. Gauthier*** Modeling Heterogeneous Catalysis and Electrocatalysis. *ChemPhysChem*. **2024**, *25* (15), e202400507. Link

[31] N.C. Kani, S.A. Olusegun, D. House, S.-W. Lee, R. Chauhan, A. Jairamsingh, R. Bhawnani, D. Choi, A.C. Nielander, T.F. Jaramillo, H.-S. Lee, A. Oroskar, **J.A. Gauthier***, M.R. Singh* Record-High 33% Solar-to-Hydrogen Efficiency at 1 Sun via Sub-Volt Water Electrolysis Enabled by Biochar Oxidation. *Cell Reports Physical Science*. **2024**, *5* (19), 102013 Link

[30] N. Lalith, A.R. Singh*, **J.A. Gauthier*** The importance of reaction energy in predicting chemical reaction barriers with machine learning models. *ChemPhysChem*. **2024**, *25* (13), e202300933. Link

[29] R. Kang, D. Hait, Y. Zhao, **J.A. Gauthier**, P. Kempler, S.W. Boettcher, M. Head-Gordon First-Principles Based Study of Ag (100) Corrosion via DFT Constant Electrode Potential Model and Nanocluster Corrosion. *Chemical Science*. **2024**, *15*, 4996-5008. Link

[28] N.C. Kani, I. Goyal, **J.A. Gauthier**, W. Shields, M. Shields, M.R. Singh* Pathway towards Scalable Energy-Efficient Li-Mediated Ammonia Synthesis. *ACS Applied Materials & Interfaces*. **2024**, *16* (13), 16203-16212. Link

[27] N.C. Kani, S.A. Olusegun, C. Chauhan, **J.A. Gauthier***, M.R. Singh* High-Pressure Electrochemistry: A New Frontier in Decarbonization. *EES Catalysis*. **2023**, *2*, 507-521. Link

[26] N.C. Kani, N.H.L. Nguyen, K. Markel, B. Shindel, K. Sharma, V.P. Dravid, V. Berry*, **J.A. Gauthier***, M.R. Singh* Electrochemical Reduction of Nitrates on CoO Nanoclusters-Functionalized Graphene with Highest Mass Activity and Nearly 100% Selectivity to Ammonia. *Advanced Energy Materials*. **2023**, *13* (17), 2204236. Link

[25] X. Yang, Y. Hou*, M.R. Singh, **J.A. Gauthier**, G. Wu* Perspectives and Challenges of Nitrogen Electrocatalysis for Carbon-free and Sustainable Energy Conversion and Storage. *Angewandte Chemie*. **2022**, *62* (10), e202215938. Link

[24] A. Prajapati, R. Sartape, N.C. Kani, **J.A. Gauthier***, M.R. Singh* Chloride-Promoted, High-Rate Ambient Electrooxidation of Methane to Methanol on a Patterned Cu-Ti Bimetallic Oxides. *ACS Catalysis.* **2022**, *12* (22), 14321–14329. Link

[23] A. Prajapati, N.C. Kani, **J.A. Gauthier***, J. Xie, I. Bessa, M.T. Galante, S.L. Leung, M.H.S. Andrade, R.T. Somich, M.V. Reboucas, G.T. Hutras, N. Diniz, M.R. Singh* CO_2-Free, High Purity Ethylene from Electroreduction of CO_2 on a 3D Cu Mesh with 4% Solar–to–Ethylene Efficiency. *Cell Reports Physical Science.* **2022**, *3* (9), 101053. Link

[22] H.H. Heenen, G. Kastlunger, H. Shin, S. Overa, **J.A. Gauthier**, F. Jiao, K. Chan* Mechanism for acetate formation in CO (2) reduction on Cu: Selectivity trends with pH and nanostructuring derive from mass transport. *Energy Environ. Sci.* **2022**, *15*, 3978-3990. Link

[21] S. Vijay, G. Kastlunger, **J.A. Gauthier**, A. Patel, K. Chan* Force-Based Method to Determine the Potential Dependence in Electrochemical Barriers. *J. Phys. Chem. Lett.* **2022**, *13* (25), 5719–5725. Link

[20] **J.A. Gauthier**, Z. Lin, M. Head-Gordon, A.T. Bell* Pathways for the formation of C_{2+} products under alkaline conditions during the electrochemical reduction of CO_2. *ACS Energy Lett.* **2022**, *7* (5), 1679–1686. Link

[19] **J.A. Gauthier**, J.H. Stenlid, F. Abild-Pedersen, M. Head-Gordon, A.T. Bell. The role of roughening to enhance selectivity to C_{2+} products during CO_2 electroreduction on copper. *ACS Energy Lett.* **2021**, *6* (9), 3252–3260. Link

[18] N.C. Kani, **J.A. Gauthier**, A. Prajapati, J. Edgington, I. Bordawekar, W. Shields, M. Shields, L.C. Seitz, A.R. Singh, M.R. Singh* Solar-driven electrochemical ammonia synthesis using nitrate with 11% solar-to-fuel efficiency at ambient conditions. *Energy Environ. Sci.* **2021**, *12*, 6349-6359. Link

[17] C.N. Lininger, **J.A. Gauthier**, W-L Li, E. Rossomme, V.V. Welborn, Z. Lin, T. Head-Gordon*, M. Head-Gordon*, A.T. Bell*. Challenges for density functional theory: calculation of CO adsorption on electrocatalytically relevant metals. *Phys. Chem. Chem. Phys.* **2021**, *23*, 9394-9406. Link

[16] T.K. Ludwig, **J.A. Gauthier**, C.F. Dickens, K.S. Brown, S. Ringe, K. Chan, J.K. Nørskov* Atomistic Insight into Surface Charge Effects in Carbon Dioxide Reduction Electrocatalysis on Cu. *J. Phys. Chem. C.* **2020**, *124* (45), 24765–24775. Link

[15] S. Vijay, **J.A. Gauthier**, H.H. Kristoffersen, V.J. Bukas, H.H. Heenen, K. Chan* Dipole-field interactions determine the CO_2 reduction activity of 2D Fe-N-C single atom catalysts. *ACS Catal.* **2020**, *10* (14), 7826-7835. Link

[14] H.H. Heenen, **J.A. Gauthier**, T.K. Ludwig, H.H. Kristoffersen, S. Vijay, K. Chan* Benchmarking Continuum Solvation Energies in Density Functional Theory. *J. Chem. Phys.* **2020**, *152*, 144703. Link

[13] B.A. Rohr, A.R. Singh, **J.A. Gauthier**, M.J. Statt, J.K. Nørskov* Micro-Kinetic Model of Electrochemical Carbon Dioxide Reduction in Non-Aqueous Solvents. *Phys. Chem. Chem. Phys.* **2020**, *16*, 9040-9045. Link

[12] **J.A. Gauthier**, L.D. Chen, M. Bajdich, K. Chan* Implications the Fractional Charge of Hydroxide at the Electrochemical Interface. *Phys. Chem. Chem. Phys.* **2020**, *22*, 6964-6969. Link

[11] **J.A. Gauthier**, M. Bajdich, M. Fields, L.D. Chen, R.B. Sandberg, K. Chan, J.K. Nørskov* Facile Electron Transfer to CO2 during Adsorption at the Metal|Solution Interface. *J. Phys. Chem. C.* **2019**, *123* (48), 29278–29283. Link

[10] **J.A. Gauthier**, C.F. Dickens, H.H. Heenen, S. Vijay, S. Ringe, K. Chan* Unified approach to implicit and explicit solvent simulations of electrochemical reaction energetics. *J. Chem. Theory Comput.* **2019**, *15* (12), 6895-6906. Link

[9] **J.A. Gauthier**†, L.A. King†, F.T. Stults, R.A. Flores, J. Kibsgaard, Y.N. Regmi, K. Chan, T.F. Jaramillo* Transition Metal Arsenide Catalysts for the Hydrogen Evolution Reaction. *J. Phys. Chem. C.* **2019**, *123* (39), 24007-24012. Link

[8] **J.A. Gauthier**†, C.F. Dickens†, S. Ringe, K. Chan* Practical Considerations for Continuum Models Applied to Surface Electrochemistry. *ChemPhysChem.* **2019**, *20* (22), 3074-3080. Link

[7] Witjen, J.H.J., R.L. Riemersma, **J.A. Gauthier**, L.D.B. Mandemaker, J.P. Hofmann, K. Chan, B.M. Weckhuysen* Electrolyte Effects on the Stability of Ni-Mo Cathodes for the Hydrogen Evolution Reaction. *ChemSusChem.* **2019**, *12* (15), 3491-3500. Link

[6] Singh, A.S.,† B.A. Rohr,† **J.A. Gauthier**†, J.K. Nørskov.* Predicting Chemical Reaction Barriers with a Machine Learning Model. *Catal. Lett.* **2019**, *149*, 2347-2354. Link

[5] T.K. Ludwig, **J.A. Gauthier**, K.S. Brown, S. Ringe, J.K. Nørskov, K. Chan.* Solvent-Adsorbate Interactions and Adsorbate-Specific Solvent Structure in Carbon Dioxide Reduction on a Stepped Cu Surface. *J. Phys. Chem. C.* **2019**, *123* (10), 5999–6009. Link

[4] **J.A. Gauthier**, S. Ringe, C.F. Dickens, A.J. Garza, A.T. Bell, M. Head-Gordon, J.K. Nørskov, K. Chan.* Challenges in Modeling Electrochemical Reaction Energetics with Polarizable Continuum Models. ACS Catal. **2019**, *9* (2), 920-931. Link

[3] Trinhammer, O.L.; **Gauthier, J.A.**; Høgh, H.H.; Katalyse i grænseområdet mellem fysik og kemi - En Bohr-guldmedalje værd. LMFK-Fysik. **2018**. Link

[2] L.D. Chen, M. Bajdich, J.M.P. Martirez, C.M. Krauter, **J.A. Gauthier**, E.A. Carter, A.C. Luntz, K. Chan, J.K. Nørskov.* Understanding the Apparent Fractional Charge of Protons in the Aqueous Electrochemical Double Layer. Nat. Commun. **2018**, *9*, 3202. Link

[1] **J.A. Gauthier**, C.F. Dickens, L.D. Chen, A.D. Doyle, J.K. Nørskov*. Solvation Effects for Oxygen Evolution Reaction Catalysis on IrO_2 (110). J. Phys Chem. C. **2017**, *121*, 11455-11463. Link

Submitted Manuscripts

† denotes equal contribution * denotes corresponding author

[4] S.J. Sahoo, M. Maraschin, D.S. Levine, Z. Ulissi, C.L. Zitnick, J.B. Varley, **J.A. Gauthier***, N. Govindarajan*, M. Shuaibi*. The Open Catalyst 2025 (OC25) Dataset for Solvated Interfaces. *Submitted.* Link to preprint.

[3] **J.A. Gauthier*** K. Bruening, K.A. Ritter, David Tuckerman, M.Q. Hovish*. Dynamic changes in hydrogen evolution catalysis impose an upper bound on electrochemical hydrogen storage in Pd. *Submitted.* Link to preprint.

[2] I. Goyal, V.V. Gande, M. Maraschin, **J.A. Gauthier**, M.R. Singh*. Overcoming Thermal Barrier to Magnesium Nitride Formation for Efficient Electrochemical Conversion of N_2 and H_2 to Ammonia at Ambient Conditions. *Submitted.*

[1] D. Shin, D.D. Lekamge, B. Chen, M. Maraschin, T. Liu, J.R. Wilkes, A.B. Maurer, W. Li, T.J. Murray, J. Guo, **Joseph A. Gauthier***, M.M. Waegele, D. Wang. Oxidation Driven Metal-Oxygen Connectivity Improves Stability of IrOx as a Water Oxidation Catalyst. *Submitted.*

Service, Leadership, and Outreach

TTU	Undergraduate Curriculum (2021–2022)
	Graduate Committee (2022–)
	Faculty search committees (2022–2025)
Reviewer	National Science Foundation (CBET), Department of Energy (BES), American Chemical Society Petroleum Research Fund (DNI)
Reviewer	Nature Catalysis, Nature Communications, ACS Energy Letters, Journal of the American Chemical Society, ACS Catalysis, the Journal of Physical Chemistry: Letters, and many others
Symposia	AIChE Annual Meeting (2020–2025)
	ACS Fall National Meeting (2025, 2026)
Outreach	Discussed topics related to sustainable energy to local middle school students (2022). Organized a workshop with middle school girls to get hands on experience with topics related to climate change and sustainability.