

## LÍNEY ÁRNADÓTTIR

*Professor and Callahan Faculty Scholar in Chemical Engineering  
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### Academic Background

2007	Ph.D.	Univ. of Washington, Seattle, WA (Chem.Engr.)
2003	M.S.	Univ. of Washington, Seattle, WA (Chem.Engr.)
2001	B.S.	University of Iceland, Reykjavik, Iceland (Chemistry)

### Professional History

2023–	Professor	Oregon State University
2019–2023	Associate Professor	Oregon State University
2013–2019	Assistant Professor	Oregon State University
2011–2013	Assistant Professor (Sr. Research)	Oregon State University
2008–2011	Post. Doc. (surface analysis)	University of Washington
2007–2008.	Post. Doc. (theoretical catalysis)	University of Washington
2001–2007	Research/Teaching Assistant	University of Washington
2001	Research Assistant	University of Iceland

### Affiliation and visiting faculty positions

2023–	Theory lead, Physical and Computational Sciences Directorate, Institute for Integrated Catalysis. Joint Appointment	Pacific Northwest National Laboratory
2023–	Adjunct Faculty, Faculty of Physical Sciences, School of Engineering and Natural Sciences, (unsalaried)	University of Iceland
2021–	Affiliated Faculty, Chem. Eng, (unsalaried)	University of Washington
2019–2020	Visiting Scholar, Chemistry, (sabbatical)	University of Washington
2019 summer	SRP visiting faculty	Lawrence Berkeley Nat. Lab

### Awards and Honors

OSU College of Engineering Alumni Professor Award 2024  
Callahan Faculty Scholar, 2024  
AVS fellow 2023  
UW Chemical Engineering Early Career Alumni Impact Award 2021  
OSU College of Engineering Graduate Mentoring Award 2020  
Margaret and Thomas Meehan Honors College Eminent Mentor award 2019  
Emerging Scholar Award, Phi Kappa Phi honors society 2019

Sustainable Research Pathways program award for visiting faculty to spend summer at Lawrence Berkeley National Lab, summer 2019

Invited speaker in “*Future Stars of AVS*” fall 2018

OSU College of Engineering the Engelbrecht Young Faculty Award 2018

Electrochemical Society Best Student/ Post-Doc presentation in the Direct Fuel Cells section 2008

Helga Jónsdóttir and Sigurliði Kristjánsson Award for Excellent Academic Achievement 2007

American Vacuum Society, Dorothy M. and Earl S. Hoffman Travel Grant 2005 American Vacuum Society, Dorothy M. and Earl S. Hoffman Travel Grant 2003

### **Editorial Responsibilities:**

Editor of Surface Science (2024-present)

Editor of Surface Science Reports (2019-present)

Editorial Board member of Computational and Theoretical Chemistry (2020-present)

Associate Editor for the Modeling, Theory, and Computational Catalysis section of Frontiers in Catalysis (2020-present)

### **Scientific advisory boards**

*Cantera Scientific Advisory Board*, an NSF-supported project to develop open-source computational tools for chemical kinetics, thermodynamics, and transport processes (<https://cantera.org>) 2019-current

*Member of the Advanced Light Source Proposal Study Panel (PSP)* which oversees the general user and approved program of proposal evaluation for Advance Light source DOE user facility at Lawrence Berkley National Laboratory, 2018-2024

### **Invited talks**

43. ACS National Meeting, Marks-Ipatieff Award Symposium, *The role of transition-metal dopants in urea oxidation on Ni(OH)<sub>2</sub>/NiOOH surfaces*, San Diego, CA, March, 2025
42. Gordon conference, Chemical Reactions on Surfaces, *Computational Studies of Reactivity and Degradation of Iron and Iron Oxide Surfaces*, Ventura, CA, February, 2025
41. Southern Illinois University, department seminar, *Exploring catalytic reaction on surfaces using computational and surface science tools*. Carbondale, IL, December, 2024
40. AVS International Symposium, Celebration of Robert J Madix and his Contributions to Surface Science, *Modeling of reaction mechanisms and kinetics on metal surfaces and the connection to experimental catalysis*. Tampa, FL, November, 2024

39. ACS National Meeting, Fundamentals of Catalysis and Surface Science, *The role of surface structure and Al<sub>2</sub>O<sub>3</sub> coating in propane dehydrogenation on Pt surfaces*. Denver, CO, August, 2024
38. Catalysis Symposium TUM, *Propane dehydrogenation on modified Pt catalysts*, Technical University of Munich, Germany, July 2024
37. ACS National Meeting, Gabor A. Somorjai Award for Creative Research in Catalysis, *Propane dehydrogenation on Pt and Al<sub>2</sub>O<sub>3</sub> decorated Pt surfaces*, New Orleans, LA, March, 2024
36. Michigan Catalysis Society, *Computational study of the effect of surface structure and Al<sub>2</sub>O<sub>3</sub> modification of Pt catalyst for propane dehydrogenation*. Livonia, MI, November, 2023
35. Maria Flytzani-Stephanopoulos Symposium, Tufts University, *The role of computation and AI in the future of catalysis*. Medford, MA, September, 2023
34. AVS International Symposium, *The Role of Co-Adsorbed Water in Decomposition of Oxygenates*. Portland, OR, November, 2023
33. ACS National Meeting, Multiscale Modeling in Catalysis, *Combining DFT and ReaxFF to study iron oxide formation and chloride induced oxide degradation mechanism*. San Francisco, CA, August, 2023
32. Telluride workshop on Computational Materials Chemistry Telluride Workshop, *The role of water in decomposition of small oxygenates on metal surfaces*, Telluride, CO, July 2023
31. ACS National Meeting, Bridging Surface Science to Catalysis, *How Al<sub>2</sub>O<sub>3</sub> decorated catalysts effects dehydrogenation of propane on Pt surfaces*. Indianapolis, IN, March, 2023
30. The Ohio State University, *Combining experiments and theory to bridge the pressure gap, how water affects the decomposition of small oxygenates on Pd catalyst*, October 25, 2022
29. ACS National Meeting, Bridging Surface Science to Catalysis, *The role of water in dehydrogenation reactions on surfaces* San Diego, March, 2022
28. The Institute for Nano-Engineered Systems (NanoES), University of Washington (virtual seminar series), *Coupling together AP-XPS and DFT calculations for studies of surface reactions*, February, 2022
27. University of Houston, Houston, TX, Department of Chemical Engineering, *The role of water in dehydrogenation reactions on surfaces*, November 5, 2021

26. The University of Toledo, Toledo, OH, Department of Chemical Engineering, (virtual seminar) *Using density functional theory and other computational methods to understand surface reactions*. February 18, 2021
25. ACS National Meeting, Meeting the Challenges of Heterogeneous Catalysis Controlled at Atomic Level, *Trends in adsorbate interactions and reactivity with bimetal surfaces* Philadelphia, March, 2020 (meeting cancelled)
24. ACS National Meeting, Bridging Surface Science to Catalysis, *The role of water in dehydrogenation reactions on surfaces* Philadelphia, March, 2020 (meeting cancelled)
23. ACS National Meeting, Atomic-level Understanding and Design of Materials and Processes for Energy Applications, *Theoretical study of competitive reaction paths and the role of co-adsorbates* San Diego, August, 2019
22. High Temperature Corrosion Gordon Conference, *Insights from theory into the mechanism of CO<sub>2</sub> oxidation and the role of water in surface reactions*. Colby Sawyer College, New London, New Hampshire, July 21-16 2019
21. ACS National Meeting, Elucidation of Mechanisms and Kinetics on Surfaces, *Theoretical study of complex reaction mechanism, competitive reaction paths and the role of co-adsorbates* Orlando, FL, April, 2019
20. ACS National Meeting, New Frontiers in the Confluence of Experimental Thermodynamics, Structural Investigations & Theory/Computation, *Using DFT and the hindered translator/rotor models to determine entropy of adsorbates in catalytic reactions*. Orlando, FL, April, 2019
19. *Future Stars of AVS* session. AVS-65 international symposium Long Beach CA. “Trends in Adsorbate Interactions with Bimetal Surfaces” October 24, 2018
18. Washington State University, Pullman, WA, Department of Material science, *Computational studies of reactions on surfaces and corrosion mechanisms*, October 5, 2018
17. University of Iceland, Reykjavik, Iceland, Department of Chemistry and Chemical engineering, *Reactions on surfaces, from catalysis to corrosion*. September 28, 2018
16. 2018 SIAM Annual Meeting, Society for Industrial and Applied Mathematics. *Computational Affordable Approach to Calculate Computationally Expensive Properties of Chemical Reaction on Surfaces*. July 2018
15. University of Virginia, Charlottesville, VA, Department of Material science, *Computational studies of reactions on surfaces and corrosion mechanisms*. April 31, 2018
14. University of Washington, Seattle, Department seminar Chemical Engineering, *Hindered translator/rotor model to determine adsorbate entropy with DFT*. April 16, 2018

13. University of Wisconsin - Madison, Department seminar Chemical Engineering, *Determining entropy of adsorbed species for Micro Kinetic Models in heterogeneous catalysis using Density Functional Theory Calculations*. November 28, 2017
12. Los Alamos National Laboratory, NM, *Calculating the Entropy of Adsorbed Species using Density Functional Theory Calculations and a Hindered Translator/Rotor Models*. November 17, 2017
11. Keynote speaker, The 2017 ACS Midwest Regional Meeting, Catalysts and Catalytic Technologies for Fuels, Chemicals, and the Environment, *Molecular and microkinetic modeling in catalysis*. The University of Kansas October 19, 2017
10. AVS-64 international symposium, Advances in Theoretical Models and Simulations of Heterogeneously-Catalyzed Reactions *Hindered Translator/Rotor Models for Calculating the Entropy of Adsorbed Species for Improved Micro Kinetic Models Based on Density Functional Theory Calculations*. Tampa, FL, October 31, 2017
9. Invited block lecturer, The Sirindhorn International Thai-German Graduate School of Engineering and King Mongkut's University of Technology North Bangkok, *Computational Catalysis*, March 2017
8. Oregon State University, Material Science *Modeling of Molecular Interactions and Chemical Reaction on Surfaces*. January 19, 2017
7. Invited block lecturer, The Sirindhorn International Thai-German Graduate School of Engineering and King Mongkut's University of Technology North Bangkok, *Computational Catalysis*, March 2016
6. Oregon State University, Department seminar Solid State Physics, *Determining the rate limiting steps of hydrocarbon chain growth on Co catalyst, using Density Functional theory*. Spring 2015
5. Microreactor Workshop, The Sirindhorn International Thai-German Graduate School of Engineering and King Mongkut's University of Technology North Bangkok, *Molecular modeling of catalysis*. September 2014
4. Hewlett-Packard, Corvallis, OR, *What can we learn from Molecular simulations*. May 2014
3. ACS National Meeting, Division of Colloid and surface chemistry, session of New Frontiers in Biomaterials, *Combing multiple surface analysis techniques to determine protein orientation on surfaces*. Spring 2013
2. Oregon State University, Department seminar Solid State Physics, *Density Functional Theory calculations of metal-water interactions and the role of water and surface defects in chemical reactions*. Fall 2012

1. Oregon State University, Department seminar, Materials Science *ToF-SIMS study of Orientation of Fibronectin fragment on self-assembled monolayers*. Winter 2012

### Contributions to open-access software for computational catalysis

Hindered translator/hindered rotor model for estimating entropies of adsorbates, hindered translator/hindered rotor models based on DFT/NEB input for barrier heights, following publication number #15 and #16, ASE, Atomic Simulation Environment: <https://wiki.fysik.dtu.dk/ase/ase/thermochemistry/thermochemistry.html#hindered-translator-hindered-rotor-model>

This ASE implementation is also callable by CatMAP, a widely used software package to build microkinetic models in catalysis and perform computational searches for catalysts, developed in Jens Nørskov's group and maintained by Andrew J. Medford: (<https://catmap.readthedocs.io/en/latest/index.html#>)

### Publications

As of January 2025 Web of Science: H-index=21 citations: 1545 (average 24.92/paper). Google Scholar: H-index=22; i10index=34 citations: 1933. Citations listed by ISI can be found at <http://www.researcherid.com/rid/I-2323-2017> ORCID: 0000-0001-9013-4173

54. Qiu Jin, Matteo X. Garcia-Ortiz, Árnadóttir, Unveiling the role of transition-metal dopants in Ni(OH)<sub>2</sub>/NiOOH-catalyzed urea oxidation, *submitted*
53. Kingsley C. Chukwu, and Líney Árnadóttir, Effects of Co-Adsorbed Water on Different Bond Cleavages Involved in Acetic Acid Decomposition on Pt (111), *submitted*  
<http://dx.doi.org/10.2139/ssrn.5079246>
52. Sharp, Marcus; Nguyen, Hoan; Lee, Christopher; Sauter, Eric; Wang, Yuemin; Wöll, Christof; Jackson, Benjamin; Lee, Mal-Soon; Kay, Bruce; Raugei, Simone; Arnadottir, Líney; Dohnalek, Zdenek, The Role of Surface Hydroxyls in Dehydration and Dehydrogenation of Formic Acid on Fe<sub>3</sub>O<sub>4</sub>(001), *The Journal of Physical Chemistry C*, accepted
51. Christopher J. Lee, Marcus A. Sharp, Benjamin A. Jackson, Mausumi Mahapatra, Simone Raugei, Líney Árnadóttir, Mal-Soon Lee, Bruce D. Kay, Zdenek Dohnalek, Dynamic Activation of Single Atom Catalysts by Reaction Inter-mediate: Conversion of Formic Acid on Rh/Fe<sub>3</sub>O<sub>4</sub>(001), *ACS Catalysis*. 2024, 14, 20, 15396–15406  
<https://pubs.acs.org/doi/10.1021/acscatal.4c03582>
50. O. Quinn Carvalho, Hoan K.K. Nguyen, Sri Krishna M. Padavala, Líney Árnadóttir, Ethan J. Crumlin, Kelsey A. Stoerzinger, Interaction of Nitric Oxide with Late 3d Transition Metals: Dissociation and Metal Oxidation, *The Journal of Physical Chemistry C*, 2024, 128, 42, 18006–18017 <https://doi.org/10.1021/acs.jpcc.4c03048>

49. Clauser, Arielle; Oware Sarfo, Kofi; Ciston, Jim; Ophus, Colin; Giulian, Raquel; Arnadóttir, Líney; Santala, Melissa The atomic-level structure and stability of interfaces of Pt nanoparticles in alumina: an experimental and computational evaluation, *Acta Materialia*, 2024, 281, 120436 <https://doi.org/10.1016/j.actamat.2024.120436>
48. Maoyu Wang, Brian A. Muhich, Zizhou He, Zhenzhen Yang, Marcos Lucero, Hoan Kim Khai Nguyen, George E. Sterbinsky, Líney Árnadóttir, Hua Zhou, Ling Fei, Zhenxing Feng, Metal Doping Regulates Electrocatalysts Restructuring during Oxygen Evolution Reaction, *ChemSusChem*, 2024, 10:e202400332 [10.1002/cssc.202400332](https://doi.org/10.1002/cssc.202400332)
47. Maoyu Wang, Kingsley C. Chukwua, Brian Muhich, Widitha Samarakoon, Xixhou He, Chun-Wai Chang, Alvin Chang, Dongqi Yang, Alpha N'Diaye, George Sterbinsky, Yinggee Du, Ling Fei, Líney Árnadóttir, Zhenxing Feng, The Role of Nonmetallic Ion Substitution in Perovskite, LaCoO<sub>3</sub> for Improved Oxygen Evolution Reaction Activity, *Electrochimica Acta* 466C (2023) 143034 <https://doi.org/10.1016/j.electacta.2023.143034>
46. Arielle L. Clauser, Kofi Oware Sarfo, Raquel Giulian, Colin Ophs, Jim Ciston, Líney Árnadóttir, Melissa K. Santala, Characterization of the Atomic-Level Structure of  $\gamma$ -Alumina and (111) Pt/ $\gamma$ -Alumina Interfaces, *Acta Materialia* 245 (2023), 118609 <http://dx.doi.org/10.2139/ssrn.4170441>
45. Emmanuel Musa Nyela, Sumandeep Kaur, Makenzie Nord, Trenton Gallagher, Thao Mi Anthony, William Stickle, Líney Árnadóttir, Kyriakos Stylianou, Two Birds, One Stone: Coupling Hydrogen Production with Herbicide Degradation over Metal-organic Framework-derived Titanium Dioxide, *ACS Catal.* 2023, 13, 6, 3710–3722, <https://doi.org/10.1021/acscatal.3c00265>
44. Hoan K.K. Nguyen, Rafik Addou, Kingsley C. Chukwu, Gregory S. Herman, and Líney Árnadóttir, Ambient-pressure X-ray photoelectron spectroscopy study of acetic acid thermal decomposition on Pd (111), *Journal of Physical Chemistry C* 2023, 127, 24, 11472–11480, <https://doi.org/10.1021/acs.jpcc.2c05539>
43. Fatemeh Hanifpour, Camila P. Canales, Emil G. Fridriksson, Arnar Sveinbjörnsson, Tryggvi K. Tryggvason, Jian Yang, Connel Arthur, Sigríður Jónsdóttir, Anna L. Garden, Sveinn Ólafsson, Kristján Leósson, Líney Árnadóttir, Erik Lewin, Younes Abghoui, Árni S. Ingason, Fridrik Magnus, Helga D. Flosadóttir, and Egill Skúlason, Operando quantification of ammonia produced from computationally-derived transition metal nitride electro-catalysts, *Journal of Catalysis* 413 (2022) 956-967 <https://doi.org/10.1016/j.jcat.2022.07.030>
42. O. Quinn Carvalho; Rylee Marks; Hoan K.K. Nguyen; Molly Vitale-Sullivan; Selena Martinez; Líney Arnadóttir; Kelsey Stoerzinger Role of electronic structure on nitrate reduction to ammonium: a periodic journey, *Journal of the American Chemical Society*, 2022, 144, 32, 14809-14818 <https://doi.org/10.1021/jacs.2c05673>

41. Cameron Volders, Valentina Avincola Angelici, Iradwikanari Waluyo, Adrian Hunt, Líney Árnadóttir, and Petra Reinke, Unraveling the role of tungsten as a minor alloying element in the oxidation NiCr alloys, *Nature Partner Journal: Materials Degradation*, **6**, 52 (2022). <https://doi.org/10.1038/s41529-022-00265-x>
40. Griffin Ruehl, S. Eliabeth Harman, Líney Árnadóttir, and Charles T. Campbell, Acetonitrile Adsorption and Adhesion Energies onto the Pt(111) Surface by Calorimetry, *ACS Catalysis*, 2022, 12, 1, 156–163 <https://doi.org/10.1021/acscatal.1c04622>
39. Kingsley C. Chukwu and Líney Árnadóttir, Effects of co-adsorbed water on different bond cleavages of oxygenates on Pd (111), *ACS Catalysis*, 2022, 12, 1, 789–798 <https://doi.org/10.1021/acscatal.1c03764>
38. Pratik Murkute, Kofi Oware Sarfo, Isak McGieson, Melissa K. Santala, Yong Feng Zhang, Líney Árnadóttir, Julie D. Tucker, and O. Burkan Isgor, Effect of thermal aging on corrosion behavior of duplex stainless steels, *SN Applied Sciences*, 2022, 4:97 <https://doi.org/10.1007/s42452-022-04978-1>
37. Kofi Oware Sarfo, O. Burkan Isgor, Melissa K. Santala, Julie D. Tucker, and Líney Árnadóttir, Bulk Diffusion of Cl through O vacancies in  $\alpha$ -Cr<sub>2</sub>O<sub>3</sub>: a density functional theory study, *Journal of the Electrochemical Society*, 2021, 168, 7, 071503 <https://doi.org/10.1149/1945-7111/ac0ec9>
36. Kofi Oware Sarfo, Arielle L. Clauser, Melissa K. Santala, and Líney Árnadóttir, On the atomic structure of Pt(111)/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub>(111) interfaces and the changes in their interfacial energy with temperature and oxygen pressure, *Applied Surface Science*, 2021, 542, 148594, <https://doi.org/10.1016/j.apsusc.2020.148594>
35. Apichaya Theampetch, Chaiwat Prapainainar, Sabaithip Tungkamani, Phavanee Narataruksa, Thana Sornchamni, Líney Árnadóttir, and Goran N., Jovanovic, Detailed microkinetic modelling of syngas to hydrocarbons via Fischer Tropsch synthesis over cobalt catalyst, *International Journal of Hydrogen Energy*, 2021, 46 (48) p.24721-24741 <https://doi.org/10.1016/j.ijhydene.2020.03.135>
34. Kofi Oware Sarfo, Pratik Murkute, O. Burkan Isgor, Yongfeng Zhang, Julie Tucker, and Líney Árnadóttir, Density functional theory study of the initial stages of Cl-induced degradation of  $\alpha$ -Cr<sub>2</sub>O<sub>3</sub> passive film, *Journal of Electrochemical Society*, 2020, 167, 12, 121508, <https://doi.org/10.1149/1945-7111/abb381>
33. Arielle L Clauser, Raquel Giulian, Zachary D McClure, Kofi Oware Sarfo, Colin Ophus, Jim Ciston, Líney Árnadóttir, and Melissa K. Santala, Orientation and morphology of Pt nanoparticles in  $\gamma$ -alumina processed via ion implantation and thermal annealing, *Scripta Materialia*, 2020, 188, 44-49 <https://doi.org/10.1016/j.scriptamat.2020.06.058>



32. **Paper Highlighted as Science Success on XSEDE:** Qin Pang, Hossein DorMohammadi, O. Burkan Isgor, and Líney Árnadóttir, Thermodynamic feasibility of the four-stage chloride-induced depassivation mechanism of iron – a density functional theory study, *Nature Partner Journal: Materials Degradation*, 4 (26), (2020) <https://doi.org/10.1038/s41529-020-00131-8>
31. Kingsley C. Chukwu and Líney Árnadóttir, Density Functional Theory study of decarboxylation and decarbonylation of acetic acid on Pd (111), *The Journal of Physical Chemistry C*, 2020, 124, 24, 13082–13093 <https://doi.org/10.1021/acs.jpcc.0c00436>
30. Qin Pang, Hossein DorMohammadi, O. Burkan Isgor, and Líney Árnadóttir, The Effect of Surface Defects on Chloride-Induced Depassivation of Iron-A Density Functional Theory Study, *Corrosion*, 2020, 76 (7) <https://doi.org/10.5006/3501>
29. Lynza H. Sprowl, Líney Árnadóttir\*, and Maria K.Y. Chan\*, Fluoroethylene Carbonate Breakdown Mechanisms and Energetics on Two Lithium Silicide Surfaces, *The Journal of Physical Chemistry C*, 2019, 123, 44, 26743-26751 <https://doi.org/10.1021/acs.jpcc.9b04980>
28. Maoyu Wang, Líney Árnadóttir, Zhichuan Xu, and Zhenxing Feng, In Situ X-ray Absorption Spectroscopy Studies of Nanoscale Electrocatalysts, Review, *Nano-Micro Lett.* (2019) 11:47 <https://doi.org/10.1007/s40820-019-0277-x>
27. Trey Diulus, Ryan Frederick, Mengjun Li, Danielle Hutchison, Morgan Olsen, Igor Lyubnitsky, Líney Árnadóttir, Eric Garfunkel, May Nyman, Hirohito Ogasawara, and Gregory Herman, Ambient-pressure X-ray photoelectron spectroscopy characterization of radiation induced chemistries of organotin clusters, *ACS Applied Materials and Interfaces*, 11 (2), (2019) 2526-2534 <https://doi.org/10.1021/acsami.8b19302>
26. Hossein DorMohammadi, Pratik Murkute, Líney Árnadóttir, Qin Pang, and O. Burkan Isgor, Investigation of iron passivity in highly alkaline media using reactive-force field molecular dynamics, *Corrosion Science* 157, (2019) p.31-40 <https://doi.org/10.1016/j.corsci.2019.05.016>
25. Qin Pang, Hossein DorMohammadi, O. Burkan Isgor, and Líney Árnadóttir, The effect of surface vacancies on the interactions of Cl with the  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> (0001) surface and the role of Cl in depassivation, *Corrosion Science* 154, (2019) p.61-69 <https://doi.org/10.1016/j.corsci.2019.03.052>
24. Hossein DorMohammadi, Pratik Murkute, Qin Pang, Líney Árnadóttir, and O. Burkan Isgor, Investigation of chloride-induced depassivation of iron in alkaline media by reactive force field molecular dynamics, *Nature Partner Journal: Materials Degradation*, 3 (19), (2019) DOI: 10.1038/s41529-019-0081-6

23. Wang Yige, Fuqiong Lei, Lucas Freiberg, Elham Bagherisereshki, Saowaluk Intarasiri, Inbamrung Piyanut, Líney Árnadóttir, Alexandre F.T. Yokochi, Goran Jovanovic, and Nick AuYeung, Dry Reforming in a Milli-Scale Reactor Driven by Simulated Sunlight, *ChemEngineering*, 2(4), (2018) 50 <https://doi.org/10.3390/chemengineering2040050>
22. Lynza H. Sprowl, Benjamin Adam, Julie D. Tucker, and Líney Árnadóttir, First-Principles Study of the Products of CO<sub>2</sub> Dissociation on Nickel-Based Alloys: Trends in Energetics with Alloying Element, *Surface Science*, 677, (2018) 219-231. <https://doi.org/10.1016/j.susc.2018.06.011>
21. Benjamin Adam, Lucas Teeter, Jacob Mahaffey, Mark Anderson, Líney Árnadóttir, and Julie D. Tucker, Effects of Corrosion in Supercritical CO<sub>2</sub> on the Microstructural Evolution in 800H Alloy, *Oxidation of Metals*, 90, (2018) 453–468 <https://doi.org/10.1007/s11085-018-9852-7>
20. Hossein DorMohammadi, Qin Pang, Líney Árnadóttir, and O. Burkan Isgor, Atomistic simulation of initial stages of iron corrosion in pure water using reactive molecular dynamics, *Computational Materials Science*, 145, (2018) 126-133 <https://doi.org/10.1016/j.commatsci.2017.12.044>
19. Qin Pang, Hossein DorMohammadi, O. Burkan Isgor, and Líney Árnadóttir, Density functional theory study on the effect of OH and Cl adsorption on the surface structure of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>, *Computational and Theoretical Chemistry*, 1100 (2017) 91-101 <https://doi.org/10.1016/j.comptc.2016.12.009>
18. Charles T. Campbell, Lynza H. Sprowl, and Líney Árnadóttir, Reply to “Comment on ‘Equilibrium Constants and Rate Constants for Adsorbates: Two-Dimensional (2D) Ideal Gas, 2D Ideal Lattice Gas, and Ideal Hindered Translator Models’” *Journal Physical Chemistry C*, 2016, 120 (36), pp 20481–20482 <https://doi.org/10.1021/acs.jpcc.6b07756>
17. Florian Ahrend, Ulrich Glebe, Líney Árnadóttir, Joe E. Baio, Daniel A. Fischer, Cherno Jaye, Bonnie O. Leung, Adam P. Hitchcock, Tobias Weidner, Ulrich Siemeling, and Arno Ehresmann, Magnetic Field Landscapes Guiding the Chemisorption of Diamagnetic Molecules. *Langmuir*, 2016, 32 (41), pp 10491–10496 <https://pubs.acs.org/doi/abs/10.1021/acs.langmuir.6b02208>
16. Charles T. Campbell, Lynza H. Sprowl, and Líney Árnadóttir, Equilibrium Constants and Rate Constants for Adsorbates: Two-Dimensional (2D) Ideal Gas, 2D Ideal Lattice Gas, and Ideal Hindered Translator Models. *Journal Physical Chemistry C*, 2016, 120 (19), pp 10283–10297 <https://pubs.acs.org/doi/abs/10.1021/acs.jpcc.6b00975>
15. **ACS Editors' Choice.** Lynza H. Sprowl, Charles T. Campbell, and Líney Árnadóttir, Hindered Translator and Hindered Rotor Models for Adsorbates: Partition Functions and Entropies. *Journal Physical Chemistry C*, 2016, 120 (18), pp 9719–9731 <https://pubs.acs.org/doi/abs/10.1021/acs.jpcc.5b11616>

- Lynza H. Sprowl, Charles T. Campbell, and Líney Árnadóttir, Correction to Hindered Translator and Hindered Rotor Models for Adsorbates: Partition Functions and Entropies. *Journal Physical Chemistry C*, 2017, 121 (17), pp 9655–9655  
<https://pubs.acs.org/doi/abs/10.1021/acs.jpcc.7b03318>
14. Xiaosong Du, Christopher Durgan, David Matthews, Joshua Motley, Xuebin Tan, Kovit Pholsena, Líney Arnadóttir, Jessica Castle, Peter Jacobs, Robert Cargill, Kenneth Ward, John F. Conley, and Gregory Herman, Fabrication of a Flexible Amperometric Glucose Sensor Using Additive Processes *ECS Journal of Solid State Science and Technology*, 4 (4), 2015, P3069-P3074 <http://jss.ecsdl.org/content/4/4/P3069>
  13. **Paper Highlighted in C&EN** Kenta Motobayashi, Líney Árnadóttir, Chikako Matsumoto, Eric M. Stuve, Hannes Jónsson, Yousoo Kim, and Maki Kawai, Adsorption of Water Dimer on Platinum(111): Identification of the –OH  $\cdots$  Pt Hydrogen Bond, *ACS Nano*, 8 (11), 11583-11590 (2014) <https://pubs.acs.org/doi/abs/10.1021/nn504824z>
  12. Gilad Zorn, Li-Hong Liu, Líney Árnadóttir, Hui Wang, Lara Gamble, and David Castner, Mingdi, X-ray Photoelectron Spectroscopy Investigation of the Nitrogen Species in Photoactive Perfluorophenylazide-Modified Surfaces, *J. Phys. Chem. C* 118 (1), 376–383 (2014). <https://pubs.acs.org/doi/abs/10.1021/jp409338y>
  11. Brendan Flynn, DaeHo Kim, Ben Clark, Alan Telecky, Líney Arnadóttir, Janos Szanyi, Douglas A. Keszler, and Gregory S. Herman, In-situ characterization of aqueous-based hafnium oxide hydroxide sulfate thin films, *Surface and Interface Analysis*, 46 (4), 210-215 (2014) <https://doi.org/10.1002/sia.5205>
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## Funding

A total of \$15.8M in external competitive awards, the estimated value of user facilities access and donations \$600k. Awards are listed in reverse chronological order of award date.

### Federal and state funding

ACS Petroleum Research Fund, High Entropy Alloy CO<sub>2</sub> Hydrogenation Catalyst, \$125,000 (unfunded collaborator, Dr. Greg Herman) (2024-2026).

National Science Foundation – Collaborative Research: Understanding the effects of solvents on the adsorption energy of prototypical reactants on catalyst surfaces. \$573,918 (\$362,442 my share) Collaboration with Zdenek Dohnalek at WSU/PNNL (2024-2027).

National Science Foundation – Electronic metal-support interactions in Fischer-Tropsch catalysis, \$539,478 (\$194,124 my share) Collaboration with K. Goulas at Oregon State University (2023-2026).

DOE Pacific Northwest National Lab (sub-contract on BES-catalysis program): Influence of coadsorbates and solvents on reaction intermediates, rate, and thermodynamics. \$300k, (2023-2026).

National Science Foundation –Engines Development Award: Advancing semi-conductor technologies in the Northwest, \$1M. Lead by G. Herman (2023-2024).

National Science Foundation – Collaborative Proposal: NSF-DFG Echem: Understanding the Mechanism of Urea Oxidation on Nickel-Based Electrocatalysts, \$1M (\$362,348 my share) Collaboration with E.M. Stuve at University of Washington and R.K. Campen Universität Duisburg-Essen (2021-2024).

Department of Energy, Energy Efficiency & Renewable energy Advanced Manufacturing Office (EERE-AMO), Process Intensification with Selectivity-Enhanced Atomic Layer Deposition Catalysts, \$5M (my share \$709k). Lead by A. Dameron, Forge Nano CO. (2021-2024).

DoD Air Force STTR, Use of Artificial Intelligence (Joint Optimization) to Accelerate Development of the New Energetic Materials. \$50k, lead by B. Steingrímsson, Imagars, OR. (2021).

National Science Foundation – National Nanotechnology Coordinated Infrastructure (NNCI), Pacific Northwest Nanotechnology Infrastructure, \$950,000. Lead by G. Herman, (2020-2025).

Department of Energy, Innovative Nuclear Research, Combined Modeling and Experiments to Predict Corrosion and Embrittlement in Dual-Phase Stainless Steels within the Marmot Framework, \$800k (shared with J. Tucker MIME-OSU, B. Isgor CCE-OSU and Yongfeng Zhang INL, my share ~\$200k) (2017-2020).

National Science Foundation, CHE-CAT, Combined experimental and theoretical study of solvent effects in heterogeneous catalysis, \$418,394 (single PI) (2017-2021).

National Science Foundation, CER, Atomic-level structural characterization of metal/ $\gamma$ -alumina interfaces combining theory and experiments \$150,000 (shared with M. Santala lead-PI MIME-OSU) (2016-2017).

Department of Energy, Innovative Nuclear Research, Advancement of Supercritical Carbon Dioxide Technology through Round Robin Testing and Fundamental Modeling, RC-2: Advanced Technologies, Development and Demonstration, \$777,249k (shared with J. Tucker MIME-OSU, NETL and U. Wisc., my share ~\$150k) (2015-2018).

ONAMI-Oregon Nanoscience and Microtechnologies Institute, Pacific Northwest Nanotechnology Infrastructure, \$22,551. Lead by J.F. Conley (2015-2018).

National Science Foundation – National Nanotechnology Coordinated Infrastructure (NNCI), Pacific Northwest Nanotechnology Infrastructure, \$850,000. Lead by G. Herman, (2015-2020).

National Science Foundation, CMMI, Nano-scale investigation and theoretical calculations of iron oxides to develop fundamental understanding toward improved corrosion resistance of steels in concrete, \$349,379 (shared evenly with B. Isgor CCE-OSU) (2014-2017).

NSF- MRI: Acquisition of a Near Ambient Pressure X-ray Photoelectron Spectroscopy System to Enable Active Near-Surface and Interface Analysis, \$647,109 (collaboration (CBEE, MIME, EECS, PHYS, CHEM) lead by G. Herman, 8 co-PIs) (2014-2016).

ONAMI-Oregon Nanoscience and Microtechnologies Institute, Towards New Fischer-Tropsch Technology Process, \$31,200 (shared with G. Jovanovic and A. Yokochi (CBEE)) (2014-2016).

Oregon BEST, Acquisition and Installation of Donated X-ray Photoelectron Spectroscopy System, \$66,000 (collaboration (CBEE, MIME, EECS, PHYS, CHEM) lead by G. Herman, 9 co-inv.) (2015-2016).

ONAMI-Oregon Nanoscience and Microtechnologies Institute, Match NSF-MRI and Murdock for Near Ambient Pressure - X-ray Photoelectron Spectroscopy System, \$70,400 (collaboration (CBEE, MIME, EECS, PHYS, CHEM) match for MRI lead by G. Herman) (2014-2016).

Oregon BEST, Match NSF-MRI and Murdock for Near Ambient Pressure - X-ray Photoelectron Spectroscopy System, \$200,000 (collaboration (CBEE, MIME, EECS, PHYS, CHEM) match for MRI lead by G. Herman) (2014-2016).

ONAMI-Oregon Nanoscience and Microtechnologies Institute, Setup and shipping of donated X-ray Photoelectron Spectroscopy Instrument, \$8,000 (2012-2018).

### **Industrial funding and foundation funding**

Oregon Metal Initiative, Implementation of AI and semiconductor modules in chemical engineering curriculum extension of Intel funds to develop self-driving labs, \$180k (lead PI, co-PI's Chih-hung Chang, Zhenxing Feng, Cory Simon) (2024).

Oregon Metal Initiative, co-Solvent Impact on Tantalum Oxide Formation with Molecular Simulations matching funds for HP Inc., \$13k (2024).

Oregon State University/HP Inc. Seed Grant, Investigating co-Solvent Impact on Tantalum Oxide Formation with Molecular Simulations, \$30k (2024).

Intel, Implementation of AI and semiconductor modules in chemical engineering curriculum, \$200k (lead PI, co-PI's Chih-hung Chang, Zhenxing Feng, Cory Simon) (2024).

PTT Public Company Limited, Gas to liquid Technology, \$213,973 (shared with G. Jovanovic lead-PI and A. Yokochi (CBEE), my share \$23k) (2016).

PTT Public Company Limited, CO2 Ph1, \$223,000 (shared with G. Jovanovic lead-PI, A. Yokochi and N. AuYeung (CBEE), my share \$19k) (2016-2017).

PTT Public Company Limited, Towards New Fischer-Tropsch Technology Process, \$312,000 (shared with G. Jovanovic and A. Yokochi (CBEE), my share \$106k) (2014-2015).

M. J. Murdock Charitable Trust, Acquisition and Installation of Donated X-ray Photoelectron Spectroscopy System, \$450,000 (collaboration (CBEE, PHYS, CHEM) lead by D. Kezler and G. Herman) (2014-2016).

ACS Petroleum Research Fund, Computing Entropies of Adsorbed Molecules, \$83,784 (collaboration C.T. Campbell, my share) (2013-2015).

Studies of organic - inorganic coating interfaces: nanoscale corrosion events and corrosion inhibitor effects, \$21,480, Boeing. (award at UW with C.T. Campbell) (2011).

### **Instrument time and user facilities**

ACCESS research allocation, Skylake System (Stampede3): 538,308 Node Hours (lead PI, co-PI Sumandeep Kaur) (2023-2024) estimated value \$107,686.60.

ACCESS research allocation, Skylake System (Stampede2): 100k Node Hours Purdue Anvil CPU: 2,577k SUs (lead PI, co-PI Sumandeep Kaur) (2022-2023).

Instrument time at EMSL, PNNL, “Molecular understanding of nutrient sorption on model mineral surfaces.” Computational time and analytical equipment time, estimated value \$55,035 (co-PI with Kelsey Stoerzinger) (2020-2022).

XSEDE research allocation, 362k Node Hours SDSC on Stampede 2, 839k SUs SDSC on Comet and 1k storage SU. Computational time estimated value \$106,652 (lead PI, co-PI's B. Isgor, M. Santala, J. Tucker) (2020-2021).

XSEDE research allocation, 704k service units (SU) and 1k storage SU. Computational time estimated value \$10,745 (lead PI, co-PI's B. Isgor, M. Santala, J. Tucker) (2019-2020).

NCEM Facility, Lawrence Berkeley National Laboratory “Atomic-resolution characterization of gamma-alumina/Pt interfaces using aberration corrected HAADF and bright field STEM” (co-PI with M. Santala) (2018-2019).

NCEM Facility, Lawrence Berkeley National Laboratory “Image simulation supporting atomic-level characterization of metal/transition-alumina interfaces (renewal)” (co-PI with M. Santala) (2018-2019).

Instrument time at EMSL, PNNL, “Molecular understanding of nutrient sorption on model mineral surfaces.” Computational time and analytical equipment time, estimated value \$56,355 (co-PI with Kelsey Stoerzinger) (2018-2020).

NCEM Facility, Lawrence Berkeley National Laboratory “Image simulation supporting atomic-level characterization of metal/transition-alumina interfaces” (co-PI with M. Santala) (2017-2018).

XSEDE research allocation, 1,431k service units (SU) and 1k storage SU. Computational time estimated value \$31,959 (lead PI, co-PI’s B. Isgor, M. Santala, J. Tucker) (2018-2019).

XSEDE research allocation, 1,056k service units (SU) and 1k storage SU. Computational time estimated value \$35,693 (lead PI, co-PI’s B. Isgor, M. Santala, J. Tucker) (2017-2018).

XSEDE research allocation, 100k service units (SU) and 1k storage SU. Computational time (lead PI, co-PI’s B. Isgor, M. Santala, J. Tucker) (2016).

SLAC beamtime on ambient pressure XPS end station, 14 8hr shifts, (shared with G. Herman lead-PI).

Instrument time at EMSL, PNNL, various analytical equipment and computational time, estimated value \$36,935 (lead PI) (2014).

Donated XPS system estimated value, \$100,000 (single PI) (2014).

### **Symposia Organization and Professional Society Service**

(Frequently moderate sessions at conferences, these are omitted for brevity)

Co-organizer of an NSF workshop on rigor and reproducibility in electrocatalysis, Seattle WA, June 2025.

ACS National Meeting and Exposition, Symposia organizer catalysis division, Marks-Ipatieff Award Symposium in honor of Kelsey Stoerzinger, San Diego, CA, March, 2025

ACS National Meeting and Exposition, Symposia organizer catalysis division, Elucidation of Mechanisms and Kinetics on Surfaces, San Diego, CA, March 2025.

Councilor alternative for the ACS Division of Catalysis Science and Technology 2024-2027.

AVS 70<sup>th</sup> International Symposium and Exposition, co-Program chair and organizer of Undergraduate Poster Session at AVS, Tampa, FL, November 3-8, 2024.

ACS National Meeting and Exposition, Symposia organizer catalysis division, Gabor A. Somorjai Award for Creative Research symposium in honor of Charles T. Campbell, New Orleans, LA, March 2024.



ACS National Meeting and Exposition, Symposia organizer catalysis division, Elucidation of Mechanisms and Kinetics on Surfaces, New Orleans, LA, March 2024.

AVS 69<sup>th</sup> International Symposium and Exposition, co-Program chair and organizer of Undergraduate Poster Session at AVS, Portland, OR, November 5-10, 2023.

AVS 69<sup>th</sup> International Symposium and Exposition, co-Program chair for Heterogeneous Catalysis Focus Topic Symposia, Portland, OR, November 5-10, 2023.

Discussion leader, GRC conference on Reactions on Surfaces, Power hour, Barga-Lucca, Italy, 2023.

AVS 68<sup>th</sup> International Symposium and Exposition, co-Program chair and organizer of Undergraduate Poster Session at AVS, Pittsburgh, PA, November 6-11, 2022.

AVS 68<sup>th</sup> International Symposium and Exposition, co-Program chair for Heterogeneous Catalysis Focus Topic Symposia, Pittsburgh, PA, November 6-11, 2022.

ACS National Meeting and Exposition, Symposia organizer catalysis division, Elucidation of Mechanisms and Kinetics on Surfaces, San Diego, CA, March 2022.

Councilor for the ACS Division of Catalysis Science and Technology 2021-2024.

ACS National Meeting and Exposition, Symposia organizer catalysis division, Elucidation of Mechanisms and Kinetics on Surfaces, San Antonio, TX, March 2021.

AVS 67<sup>th</sup> International Symposium and Exposition, co-Program chair and organizer of the first Undergraduate Poster Session at AVS, Charlotte, NC, October 25-30, 2021. (Meeting held virtually due to COVID-19).

AVS 67<sup>th</sup> International Symposium and Exposition, co-Program chair for Heterogeneous Catalysis Focus Topic Symposia, Charlotte, NC, October 24-29, 2021. (Meeting held virtually due to COVID-19).

AVS 67<sup>th</sup> International Symposium and Exposition, co-Program chair for Heterogeneous Catalysis Focus Topic Symposia, Denver, CO, October 25-30, 2020. (Meeting cancelled due to COVID-19)

ACS National Meeting and Exposition, Symposia organizer catalysis division, Elucidation of Mechanisms and Kinetics on Surfaces, Philadelphia, PA, March 2020. (Meeting cancelled due to COVID-19)..

Member of the organizing committee for the ICC satellite meeting, The 3rd International Symposium on Single-Atom Catalysis (ISSAC-3): Investigations of Atomically Dispersed Supported Metals, Asilomar, Pacific Grove CA, June 2020. (Meeting cancelled due to COVID-19).

AVS 66<sup>th</sup> International Symposium and Exposition, Organizing committee for Heterogenous Catalysis Focus Topic Symposia, Columbus, OH, October 20-25, 2019.

Member of the Advanced Light Source Proposal Study Panel (PSP), 2018-2024.

Member of the AVS Surface Science Division's executive board, 2016-2018.

Chair of the Pacific Coast Catalysis Society, 2018-2019 (vice chair 2017-18).

Conference chair and organizer for the Pacific Coast Catalysis Society meeting, Corvallis OR, September 2018.

Program committee for AVS ASSD/PNWAVS 2018.

ACS 256<sup>th</sup> National Meeting and Exposition, Symposia organizer catalysis division, Role of Water & Solvent in Heterogeneous Catalysis Boston, MA, August 2018.

Co-organizer, Energy Storage Symposium, LaSells Corvallis OR, November 2017.

Conference chair and organizer for the PNW-AVS meeting, LaSells Corvallis OR, September 2017.

Conference Vice chair and session chair for PNW-AVS, fall 2016.

Section Representative Alternate of the Willamette valley section of society for women engineers (SWE) 2016-2020.

Professional advisor for graduate student chapter of the Willamette valley section of SWE (2017-current).

Leads the post doc and graduate student professional development chapter of the Willamette valley section of SWE 2015-2016.

Member of the Program Committee for the Surface Analysis '12 and PNWAVS Annual Symposium.

Invited speaker in the Job Information forum at the AVS-60 International Symposium, New Orleans, LA, October 2012.

Regular conference session chair including: CENTC summer school Seattle WA (2013), PNWAVS Annual Symposium, NAM (North American Catalysis Society) Semi-Annual Meeting, ACS, and AVS.

### **Notable Awards and honors by students**

Hoan K.K. Nguyen (Ph.D. student), Graduate Research Award from the School of Chemical, Biological, and Environmental Engineering, Oregon State University, June 2024.

Matteo Xavier Garcia-Ortiz (Undergraduate researcher), receives LSAMP Bridge to the Doctorate Program at UC Santa Barbara where he will attend graduate school starting fall 2024.

Matteo Xavier Garcia-Ortiz (Undergraduate researcher), 2023 AIChE, CRE undergraduate poster award 3<sup>rd</sup> place.

Qiu Jin (Post doctoral researcher), 2023 AIChE Women in Chemical Engineering (WIC) Travel Award.

Hoan K.K. Nguyen (Ph.D. student), Richard J. Kokes Travel Award for the 28th North American Catalysis Society meeting in Providence, RI, June, 2023.

Stuart Helikson (honor student), 2<sup>nd</sup> place, Undergraduate Student poster competition Pacific Northwest AVS meeting, hosted by PNNL, September 2022.

Hoan K.K. Nguyen (Ph.D. student), Oregon Lottery Graduate Scholarship 2022.

Hoan K.K. Nguyen (Ph.D. student), RISE professional internship in Helmholtz-Zentrum Berlin Germany Summer 2022.

Hoan K.K. Nguyen (Ph.D. student), Richard J. Kokes Travel Award, for the 27th North American Catalysis Society meeting in New York, NY, May 22-27, 2022. (Nguyen was not able to accept this award.)

Hoan K.K. Nguyen (Ph.D. student), 2<sup>nd</sup> place graduate student presentation awards Pacific northwest AVS meeting, hosted by OSU in hybrid mode, September 2021.

Kofi Oware Sarfo (Ph.D. student), 1<sup>st</sup> place graduate student presentation awards Pacific northwest AVS meeting, hosted by PNNL online, September 2020.

Hoan K.K. Nguyen (Ph.D. student), honorable mention graduate student presentation awards Pacific northwest AVS meeting, hosted by PNNL online, September 2020.

Kofi Oware Sarfo (Ph.D. student), Best Technical Presentation 1<sup>st</sup> Runner Up, Idaho National Laboratory Intern EXPO, August 2019.

Qin Pang (Ph.D. student), Oregon State University, College of Engineering, Graduate Research Award for contributions beyond the level normally expected of a graduate research assistant, June 2019.

Qin Pang (Ph.D. student), Graduate Research Award from the School of Chemical, Biological, and Environmental Engineering, Oregon State University, June 2019.

Kingsley Chukwuma Chukwu (Ph.D. student) received a Sustainable Research Pathways program award from the Lawrence Berkeley National Laboratory (LBNL) to spend the summer working at LBNL, June 2019.

Kofi Oware Sarfo (Ph.D. student), Best Technical Presentation 1<sup>st</sup> Runner Up, Idaho National Laboratory Intern EXPO, August 2018.

Michael A. Rebarchik (honors thesis advisee), Academic Achievement Awards from CBEE, for his research productivity and outstanding academic standing. June 2018.

Lynza H. Sprowl (Ph.D. student), Schulein Outstanding Graduate Student award from CBEE, for her Ph.D. thesis work, June 2018.

Sean Seekins (Ph.D. student), award from UW-Madison to attend Open Science Grid User School, July 2018.

Qin Pang (Ph.D. student), travel award to attend Heck week associated with ECS national meeting in Seattle, WA, May 2018.

Qin Pang (Ph.D. student), OSU travel awards to attend ECS national meeting in Seattle, WA, May 2018.

Qin Pang, (Ph.D. student), Oregon Lottery graduate Scholarship, spring 2018.

Lynza H. Sprowl (Ph.D. student), 1<sup>st</sup> place poster awards College Engineering Research showcase, Corvallis, OR, January 2018.

Lynza H. Sprowl (Ph.D. student), travel award to attend Heck week associated with ECS national meeting in National Harbor, MD October 2017.

Kofi Oware Sarfo (Ph.D. student), 3<sup>rd</sup> place student poster award, Energy Storage Symposium, Corvallis OR November 2017.

Kofi Oware Sarfo (Ph.D. student), OSU travel awards to attend AVS national meeting in Tampa, FL, October 2017.

Kofi Oware Sarfo (Ph.D. student), ACS CATL Division Registration Waiver Award, ACS fall meeting Washington, DC, August 2017.

Lynza H. Sprowl (Ph.D. student), ACS CATL Division Registration Waiver Award, ACS spring meeting San Francisco, CA, March 2017.

Kofi Oware Sarfo (Ph.D. student) 3<sup>rd</sup> place poster awards, College Engineering Research showcase, Corvallis, OR, Feb. 2017.

Lynza H. Sprowl (Ph.D. student), U.S. Department of Energy (DOE) Office of Science Graduate Student Research (SCGSR) award for 2017.

Lynza H. Sprowl (Ph.D. student), Morton M. Traum Surface Science Student Award finalist, American Vacuum Society, Nashville Music City Center, Nashville TN, November 2016.

Yousif Almulla (B.S. Phys. & Math Sophomore) 1st place PNW-AVS poster awards, Pacific Northwest Laboratory, Richland, WA, September 2016.

Alvin Chang (B.S. ChemE Sophomore) honorable mention poster awards, PNW-AVS, Pacific Northwest Laboratory, Richland, WA, September 2016.

Ashean Patel (B.S. ChemE. Senior) 3rd place AiChE national meeting poster awards, Salt Lake City, November 2015.

Dennis Petersen (M.S. student) 2nd place, PNW-AVS poster awards, Timberline Lodge, Mtn. Hood, October 2015.

Ashean Patel (B.S. ChemE. Senior) 1st place PNW-AVS poster awards, Timberline Lodge, Mtn. Hood, October 2015.

Yousif Almulla (B.S. ChemE. Sophomore) and Merissa Schneider- Coppelino (B.S. ChemE. Honors, Senior) 2nd place PNW-AVS poster awards, Timberline Lodge, Mtn. Hood, October 2015.

Dennis Petersen (M.S. student) 1st place poster awards, College of engineering expo, Portland OR, February 2015.

Dennis Petersen (M.S. student) Travel awards to attend ACS national meeting in Denver Colorado, May 2015.

Lynza Halberstadt, (Ph.D. student) Oregon Lottery graduate Scholarship, Fall 2014.

Ashean Patel (B.S. ChemE. Junior) 2nd place poster awards, AiChE national meeting, Atlanta, November 2014.

**Teaching experience and teaching evaluations**

## Oregon State University

Course	Course Title	Role	Credit	Quarter	enrolled	Item 1	Item 2
ENGR 103*	Eng. Computation	Instructor	3	S24	97	4.8	5.3
ENGR 103*	Eng. Computation	Instructor	3	S23	106	5.6	5.9
CHE 333*	Mass transfer	Instructor	3	S23	68	5.7	5.9
CHE 333*	Mass transfer	Instructor	3	W23	29	5.7	5.8
CHE 542*	Molec. catalysis	Instructor	3	W23	7	5.5	6.0
CHE 333*	Mass transfer	Instructor	3	S22	75	5.8	5.8
ENGR 103*	Eng. Computation	Instructor	3	S22	105	5.2	5.8
CHE 333*	Mass transfer	Instructor	3	W22	35	5.8	5.8
CHE 333	Mass transfer	Instructor	3	W21	30	5.8	5.8
CBEE 507	Seminar	Instructor	1	W21	56	5.8	5.8
CHE 451/551*	Solar Technol.	Instructor	3	F20	14	5.8	5.8
CHE 542	Molec. catalysis	Instructor	3	F20	10	6.0	6.0
CHE 333	Mass transfer	Instructor	3	S19	79	5.3	5.6
CHE 541	Catalysis	Instructor	3	W19	10	-	-
CHE 333	Mass transfer	Instructor	3	W19	29	5.3	5.1
CHE 333	Mass transfer	Instructor	3	S18	91	5.5	5.8
CHE 599	Molec. catalysis	Instructor	3	W18	7	5.5	5.5
CHE 333	Mass transfer	Instructor	3	W18	27	5.8	5.8
CHE 333	Mass transfer	Instructor	3	S17	79	5.3	5.4
CHE 599	Molec. catalysis	Instructor	3	W17	6	5.8	5.8
CHE 333	Mass transfer	Instructor	3	W17	24	5.7	5.8
CHE 333	Mass transfer	Instructor	3	S16	111	5.2	5.5
CHE 599	Molec. catalysis	Instructor	3	W16	11	5.9	5.9
CHE 399	Mass transfer	Instructor	3	W16	24	5.8	5.9
CBEE 507	Seminar	Instructor	1	S15	43	4.9	5.1
CHE 333	Mass transfer	Instructor	3	S15	125	5.1	5.2
CHE 399	Mass transfer	Instructor	3	W15	17	5.9	5.9
CBEE 414	Process eng. Lab	Co-Instructor	3	F14	40	4.3	4.5
CHE 399	Mass transfer	Instructor	3	W14	19	5.5	5.8
CBEE 414	Process eng. Lab	Co-Instructor	3	F13	45	4.6	4.8
CHE 399	Mass transfer	Instructor	3	W13	18	5.1	5.3
CBEE 211	Material Balance	Co-Instructor	3	F12	220/128	4.6	4.8
CHE 399	Mass transfer	Instructor	3	W12	17	5.4	5.4

Excellent = 6 (highest score), Very good = 5, Good = 4.

Item 1= The course as a whole was; Item 2= The instructor's contribution to the course

\*Might not be representative due to low response ration (<30%)

University of Washington:

Course	Course Title	Role	Quarter	No. of Resp.	Item 1	Item 3	Item 4	Item 1-4
CHEME445	Fuel Cell Eng.	Instructor	W08	11/25	3.7	3.7	3.5	3.7
CHEM162	General Chemistry	TA	Sp02	18/26	4.2	4.4	4.5	4.3

Excellent = 5 (highest score), Very good = 4, Good = 3.

Item 1= The section/course as a whole was. Item 3= The instructor's contribution to the course was. Item 4= The instructor's effectiveness in teaching the subj matter was

Item 1-4=combines items 1-4

**Students and Post doctoral scientists advised**

**Current**

**Graduate students (year joined)**

Zachary Evens (Ph.D. student, 2018)

Christian Andrade Herrera (Ph.D. student, 2023)

Jorin Dawidowicz (Ph.D. student mat sci, 2023)

Chiezugolum Ijeoma Odilinye (Ph.D. student, 2023)

Matin Alsadat Mostaan (Ph.D. student mat sci, 2023) co-advised with O. Burkan Isgor

Chukwuma Ndivi (Ph.D. student, 2024)

**Undergraduate students**

Christopher Mannino (summer 2024, Johnson Intern)

**Post Doctoral Scientist (year joined):**

Valeria Chesnyak (Spring 2024)

Qiu Jin (Summer 2022)

Sumandeep Kaur (Fall 2021-spring 2024)

**Previous graduate students (graduation year):**

Hoan Nguyen (Ph.D. spring, 2024)

Kingsley Chukwuma Chukwu (Ph.D summer 2021)

Kofi Oware Sarfo (Ph.D. Summer 2020)

Qin Pang (Ph.D., Spring 2019)

Jude Ighere (Ph.D. student Mat. Sci. co-advised, Spring 2019)

Lynza H. Sprowl (Ph.D., Spring 2018)

Weinan Zhao (M.S. Fall 2017)

Dennis Petersen (M.S. Winter 2016)

Saowaluk Intarasiri, visiting scholar 2016-2017

**Current and Previous MEng students advised**

Anya Mae Panose (spring 2024)

Elaine Sim (Fall 2023)

Chia-Yu Chang (Fall 2022)

Muhammad Akif (Spring 2021)

Jie Zhou (Fall 2019)

Sean Seekins (Fall 2018)

**Previous Honors thesis advised**

Anika J. Roth (honors thesis student, Winter 2024)  
Stuart Helikson (honors student, Spring 2023)  
Alexander R. Jones (honors student, Spring 2020)  
Alvin Chang (Johnson Intern, honors student, Spring 2019)  
Amanda N. Boechler (honors student, Spring 2019)  
Michael A. Rebarchik (honors student, Spring 2018)  
Merissa Schneider-Coppolino (honors student, Summer 2016)  
Nicholas A Silva (honors student, Summer 2015)

**Previous Undergraduate and high school students**

Matteo X Garcia-Ortiz (Undergr. ChemE, 2023-2024)  
Animesh I.N. Patel (Undergr. ChemE, 2023)  
Jack Gordon (Undergr. Chemistry 2023)  
Alex Maharjan (Chemistry, spring 2022-2023)  
Juan Jose Perez Franco (2022)  
Kela Kaida (winter 2021-summer 2021)  
AJ Rise (Johnson Intern, honors student, summer 2018-fall 2019)  
Alexander Herman (undergraduate research) (summer 2018)  
Lorena C. Colcer (fall 2017, winter 2018)  
Apoorva Ayyagari (fall 2017, winter 2018)  
Alana A.E. Moore (freshmen, winter 2017)  
Connor J. Haynes (summer 2017)  
Leif Vong (summer 2017)  
Yousef Almulla (1<sup>st</sup> yr. Johnson intern summer 2015-spring 2017)  
Xiaoqian Chen (sophomore summer 2016)  
Nasra Abdirizak Aden (STEM leadership, winter 2015)  
Ashaen R. Patel (2<sup>nd</sup> yr. Johnson intern summer 2014-16)  
Jimmy D. Beaty (undergraduate research, fall 2014-16)  
Kovit Pholsena (ChemE junior) (summer 2014)  
Alexander Herman (high school student) (summer 2014)  
Colin F. Dickens (ChemE senior) (winter-spring 2014)  
Matthew J. Bates (Johnson intern) (summer 2013)  
M. Tyler Colesar (honors student) (summer 2012)

**University and Departmental Service**

Serves on the College of Engineering Faculty Status Committee (fall 2024-2027)  
Leads the CBEE award committee (2023-24)  
Served on a search committee for tenure track faculty in Chemistry (2023-24)  
Served on a search committee for tenure track faculty in Chemical Eng. (2023-24)  
Served on a search committee for a DSI Academic Director for the honors colleges (2023)  
Served on a search committee for CBEE School head (2022-23)  
Serves on the CBEE Graduate Curriculum and Assessment Committee (2022-24)  
Served on the CBEE Awards Committee (2022-23)  
Serves on the CBEE Peer Teaching Evaluation Committee (2022-24)



Serves on the Material Science, Graduate Program Committee (2019-24)  
Served on the Faculty Senate (2021)  
Served on a search committee for a new senior researcher CBEE (2021)  
Led a search committee for new tenure track faculty CBEE (2020-21)  
Served on the College of Engineering Faculty Status Committee (fall 2020-2022)  
Served on the CBEE building and facilities committee (fall 2020-2021)  
Served on the CBEE remote graduate teaching committee (fall 2020-2021)  
Serves on the materials science curriculum committee (fall 2019-current)  
Served on the teaching task forces for CBEE (spring 2019)  
Served on the research task forces for OSU-COE (2019)  
Served on a search committee for Associate Dean of Research COE (2019)  
Served on a search committee for graduate coordinator CBEE (2018)  
Served on a search committee for a new senior researcher CBEE (2018)  
Served on a search committee for a new senior researcher CBEE (2017)  
Served on a search committee for new tenure track faculty CBEE (2017)  
Served on a search committee for public information representative MIME (2017)  
Served on a search committee tenure track faculty EECS (search canceled) (2016)  
Served on a search committee Developing Engineer CBEE (2016)  
Member of the CBEE Inclusivity Taskforce (2016-2020)  
Advisor for a student club, graduate student SWE (2016-current)  
Faculty Senate, the faculty panel for the hearing committee (2014-2018)  
Served on a search committee for new tenure track faculty CBEE (2015-2016)  
Review of RERF proposals (fall 2014, Spring 2015)  
Served on a search committee for inter and permanent School head of CBEE (2014)  
Served on the promotion and tenure committee for CBEE (2014 - 2016)  
Served on the Gleeson re-allocation committee for CBEE (2014)  
Member of the graduate committee in CBEE (2011-2016)  
Lead the award section of the graduate committee(2013-2016)  
Organized and ran the recruiting weekend for incoming graduate students, 2012, 2013, 2015  
Lead a Laurels Block grant application (2011-2014, 2017, 2018) for the recruitment of underrepresented graduate students, successfully in 2011 and 2012.  
Reviewer of Ph.D. qualifying exams in CBEE, 2012 -2018

### **Committee member for graduate students, other than advisor or co-advisor**

Master students (23): Jessica Jenkins (M.Eng ChemE 2022), Fei Long (M.Eng ChemE 2018), Ehsan Taghizadeh (M.S. ChemE 2018), Madeline Rose Bahmer (M.S. Mat. Sci. 2018), Saroj Karki (M.S. Ind.Eng 2018), Yige Wang (M.S. ChemE 2018), Cheng Zeng (M.S. ChemE. 2018), Shidong He (M.S. ChemE 2017), Samantha Hemlebe (M.S. robotics 2017), Lucia Darrow (M.S. IE 2017), Paola Grijalva (M.S. IE 2017), Josh Hille (M.S. IE 2016), Qun Jing (M.S. Qun Jing 2016), Joshua R. Motley (M.S. ChemE 2016), Yagenetfere A. Alemu (M.S. ChemE 2016), Andrew Pfau (M.S. ChemE 2016), Michele David (M.S. ChemE 2016), Michael Jing (M.S. 2016), Chenyu Wang (MEng.S. 2015), Peter W. Ray (M.S. ChemE 2015), Connor J Smith (M.S. ChemE 2013), Yu Miao (M.S. ChemE 2013), Travis Campbell (M.S. ChemE 2013), Surya Cheemalapati (M.S. ChemE 2012)

Ph.D. students (38): Sri Krishna Murthy Padavala (Ph.D. ChemE 2024), Tanmayi Bathena (Ph.D. ChemE 2024), Mina Azhar (Ph.D. Ind.Eng 2024), Widitha Samarakoon (Ph.D.

ChemE. 2023), Lauren Palys (Ph.D. Chem. 2023), Saichon Sumantakul (Ph.D. Chem. 2023), Khatera Afghan (Ph.D. Women/Gen sci 2022), Kyle Grove (Ph.D. Mat.Sci 2022), Lucas J. Freiberg (Ph.D. ChemE. 2022), Omar M. Mohamed (Ph.D. ChemE 2021), Ryan Faase (Ph.D. ChemE 2021), Arielle Lillyn Clauser (Ph.D. Mat. Sci. 2021), Shefaa Baik (Ph.D. Ind.Eng 2021), Ehsan Taghizadeh (Ph.D. ChemE. 2021), Fuqiong Lei (Ph.D. ChemE. 2021), Andrew Traverso (Ph.D. ChemE 2020), Yousef Mohammed O Alanzi (Ph.D. ChemE 2020), Ian T. Reddick (Ph.D. ChemE 2020), Arni Sturluson (Ph.D. ChemE. 2020), Rawan Alshaiji (Ph.D. Ind.Eng. 2020), John T. Diulus (Ph.D. ChemE 2019), Xin Li (Ph.D. Chem 2019), Dan Huang (Ph.D. ChemE 2019), Swagata Dey (Ph.D. Chem), Hossein Dormohammadi (Ph.D. Civil Eng. 2018), Waleed Khalid Mirdad (Ph.D. Ind.Eng 2018), June Marie Worley (Ph.D. Ind.Eng. 2018), Taqi Sleel (Ph.D. Ind.Eng 2018), Lauren Crandon (Ph.D. ChemE 2018), Benjamin Adam (Ph.D. Mat. Sci. 2018), Ryan T. Frederick (Ph.D. ChemE 2018), Elham Maqsood (Ph.D. Design and Human Environ. 2017), Sassan Ostvar (Ph.D. ChemE 2017), Lauren Fullmer (Ph.D. Chem 2016), Yu Miao (Ph.D. ChemE 2016), Peter Kreider (Ph.D. ChemE 2015), Fredrick Atadana (Ph.D. ChemE 2014), Brendan Flynn (Ph.D. ChemE 2014).

Current member on (28) graduate student committees: Emily Hiatt (Ph.D. Chemistry), Truc Phung (Ph.D. ChemE), Omar Farah (Ph.D. Chemistry), Samule D. Miller (Ph.D. ChemE), Brett Clark (Ph.D. Physics), Feyza Nur Sahan (Ph.D. Civil), Mason Lyons (Ph.D. ChemE), Lei Chen (Ph.D. Mat.Sci), Priti Singh (M.S. Robotics), Dimitri Gatzios (Ph.D. ChemE), Bhuvanamalin Karaikudi Ramesh (M.S. Ind.Eng), Christian Brown (Ph.D. ChemE), Thomas M. Rowe (Ph.D. Chem), Sogol Balali (M.S. Robotics), Abdullah Khajah (M.S. Ind.Eng.), Kieran Brunson (Ph.D. Chem), Jake Quincey (Ph.D. NE), Alexandra Bacula (Ph.D. Robotics), Adrian Henle (Ph.D. ChemE), Logan S. Lancaster (Ph.D. Chem), Xavier Alejandro Quintana (Ph.D. NE), Emmanuel Musa (Ph.D. Chem), Seth Lucas Walton (M.S. NE), Brooklyne Thomson (Ph.D. ChemE), Paul Morris (Ph.D. ChemE), Selena Cylet Martinez (M.S. ChemE), Jonah Siekmann (MS. Robotics), Akshaya Agrawal (Ph.D. Robotics).

#### **Ph.D. committees outside Oregon State University and external Ph.D. examiner**

Athulya Surendran Christ University, Bangalore, India

Charlie Ruffman (Ph.D. summer 2021, Chemistry) University of Otago, Dunedin, New Zealand.

William Blades (Ph.D. December 2020, Mat. Sci.) University of Virginia, Charlottesville, USA.

#### **Honors thesis committee member**

James Ho (June 2023), Eric R. Rebarchik (August 2022), Hill S. Johnson (June 2019), Yousef Almulla (spring 2017), Brenden Fraser-Hevlin (winter 2017); Jonathon Lopez (spring 2017); Lane D. Porth (May 2015); Makayla Gessford (Honors 2014)

### Conference Talks (contributed) incomplete list

*“DFT study of non-oxidative propane dehydrogenation on Pt surfaces: Identifying active facets for Pt nanoparticles”*, ACS National Meeting, Chicago, August 2022 (presented by Sumandeep Kaur post-doc)

*“The effect of water on thermal decomposition of acetic acid on Pd(111), a combined DFT and AP-XPS study”* NAM-27, New York, NY, April 2022

*“Combined DFT and AP-XPS study of the effect of water on thermal decomposition of acetic acid on Pd (111)”*, ACS National Meeting, San Diego, March 2022

*“Effect of different polar molecules on C-OH and O-H bond cleavages using a combination of implicit and explicit solvation”*, ACS National Meeting, Online April 2021 (presented by Kingsley C. Chukwu graduate student)

*“The role of co-adsorbed water in decomposition of oxygenates.”* 5<sup>th</sup> International Conference on Catalysis and Chemical Engineering, Online February 2021

*“Reaction Mechanism of Chloride-induced Degradation of Metal Oxide: a Density Functional Theory Study.”* ACS National Meeting, Online August 2020

*“The Effects of Co-Adsorbed Water on Acetic Acid Decomposition; DFT and Microkinetic Modeling Study.”* 17th International Congress On Catalysis, San Diego, June 2020 (meeting canceled)

*“Computational approach to determine entropy of adsorbates in catalytic reactions.”* Adsorption & Reaction at Surfaces: Symposium in Honor of Charles T. Campbell, ACS San Diego CA August 2019.

*“Theoretical study of decarboxylation and decarbonylation mechanism of acetic acid on Pd(111) and the effect of co-adsorbed water.”* NAM-26, Chicago IL June 2019.

*“Hindered Translator and Hindered Rotor Model for Calculating the Entropy of Adsorbed Species”* NAM-25, Denver CO June 2017.

*“Beyond the 2D Lattice Gas and 2D Ideal Gas Models for Adsorbates: The Hindered Translator / Hindered Rotor Model”* AVS-63 International Symposium, Nashville, TN, November 2016.

*“Density functional theory study of CO Assisted Water Dissociation”* AVS-62 International Symposium, San Jose CA October 2015

*“Characterization of an amperometric glucose sensor on a flexible polyimide substrate for continuous glucose monitoring and insulin delivery through single device.”* AVS-61 International Symposium, Baltimore MD, November 2014.

*“Calculations of rate constant for surface reactions using density functional theory”*, 248<sup>th</sup> ACS National Meeting & Exposition, San Francisco, CA, August 2014.

*“Density functional theory study of Stability and Reactivity of H-C=O and C-OH surface reaction intermediates on Pt(111) and effects of water on the intermediates.”*, 247<sup>th</sup> ACS National Meeting & Exposition, Dallas, TX, March 2014.

*“Density functional theory study of Stability and Reactivity of H-C=O and C-OH surface reaction intermediates on Pt(111) and effects of water on the intermediates.”*, AVS-60 International Symposium Long Beach, CA, October 2013.

*“Density functional theory study of HCO (formyl) and COH surface reaction intermediates on Pt(111) and effects of water on the intermediates.”*, NAM-23, Louisville, KY, June 2013.

*“DFT study of water dissociation and diffusion on metal surfaces, kinks and step.”* AVS-59 International Symposium, Tampa, FL, October 2012.

*“Water diffusion and dissociation on Platinum defects: Density Functional Theory study.”*, Surface Analysis '12, Pacific Northwest National Laboratory, Richland, WA, June 2012.

*“Water Diffusion and Dissociation on Metal Defect Sites, Density Functional Theory Study.”* 221st ECS Meeting, Seattle, WA, May 2012.

*“Water adsorption and diffusion on Pt(111), including kinks and steps.”* 243<sup>rd</sup> ACS National Meeting & Exposition, San Diego, CA, March 2012.

*“ToF-SIMS Study of Orientation of FnIII<sub>9-10</sub> Fibronectin Fragment on Self-Assembled Monolayers.”* AVS-58 International Symposium, Nashville, TN, November 2011.

*“Water adsorption and diffusion on Pt(111), kinks and steps.”* 22<sup>nd</sup> North American Catalysis Society Meeting, Detroit, MI, June 2011.

*“Study of adsorption and orientation of FnIII<sub>7-10</sub> Fibronectin fragment on self-assembled monolayers using Time of Flight secondary ion mass spectrometry.”* AVS-57 International Symposium, Albuquerque, NM, October 2010.

*“Surface characterization of mixed DNA/mercaptoundecanol assembly on gold.”* AVS-57 International Symposium, Albuquerque, NM, October 2010.

*“ToF-SIMS Imaging to Characterize DNA Microarray Surfaces.”* AVS-57 International Symposium, Albuquerque, NM, October 2010.

*“Comparing Fluorescence and ToF-SIMS Imaging of DNA Microarray Spots.”*, 2010 Microscopy and Microanalysis Meeting, Portland, OR, August 2010.

*“ToF-SIMS Study of Fibronectin Orientation/Conformation on Self-Assembled Monolayers.”* Society For Biomaterials, 2010 Annual Meeting & Exposition, Seattle, WA, April 2010.

*“ToF-SIMS Imaging to Characterize DNA Microarray Spots.”*, Society For Biomaterials, 2010 Annual Meeting & Exposition, Seattle, WA, April 2010.

*“Investigation of Surface-Bound Protein Conformation/Orientation Using Time-of-Flight Secondary Ion Mass Spectrometry.”*AVS-56 International Symposium, San Jose, WA, November 2009.

*“Diffusion of water on Pt(111), step and kink and the effect of water on a C:H:O intermediate.”*, Hot topic Poster Talks, Gordon Research Conference on Chemical Reactions At Surfaces, Ventura, CA, February 2009.

*“Water Interaction and Diffusion on Platinum Surfaces”*, 2008 AIChE Annual Meeting & Centennial Celebration, Philadelphia, PA, November 2008.

*“Formyl (HCO) Verses Hydroxymethylidyne (COH) Surface Intermediates on Pt(111)”*, 2008 AIChE Annual Meeting & Centennial Celebration, Philadelphia, PA, November 2008.

*“The effect of coadsorbed water on the stability and configuration of formyl (HCO) and hydroxymethylidyne (COH) intermediates on Pt(111): a density functional theory study”*, 214th ECS Meeting, Honolulu, HI, October 2008.

*“Water diffusion on Pt(111) terrace, kink and steps: density functional theory study of water interaction and diffusion”*, 214th ECS Meeting, Honolulu, HI, October 2008.

*“Density Functional Theory Study of the Interconversion between HCO (formyl) and COH surface reaction intermediate on Pt(111)”*, AVS-54 International Symposium, Seattle, WA, October 2007.

*“The Interaction of Water Molecules with a Flat and Stepped Pt(111) Surface”*, AVS-52 International Symposium, Boston, MA, November 2005.

*“Electrochemistry at elevated temperature with microreactor”*, AVS-50 International Symposium, Baltimore, MD, November 2003.

### Conference Posters incomplete list

*“DFT and AP-XPS study of the effect of water on thermal Decomposition of acetic acid on Pd (111)”* Gordon Research Conference on Chemical Reactions At Surfaces, Tuscany Italy February 2023

*“DFT and AP-XPS study of the effect of water on thermal decomposition of acetic acid on Pd(111)”* Gordon Research Conference on Catalysis, Colby-Sawyer College, New London, NH 2022

*“Trends in Adsorbate Interactions with Bimetal Surfaces”* Gordon Research Conference on Reactions on Surfaces, Ventura, CA 2019

*“Trends in Adsorbate Interactions with Bimetal Surfaces”* Gordon Research Conference on Catalysis, Colby-Sawyer College, New London, NH 2018

*“Beyond the 2D lattice gas and 2D ideal gas models for adsorbates, hindered translator/rotor model”* Gordon Research Conference on Chemical Reactions At Surfaces, Tuscany Italy February 2017

*“Hindered Translator and Hindered Rotor Models for Adsorbates: Partition Functions and Entropies”* Gordon Research Conference on Catalysis, Colby-Sawyer College, New London, NH 2016

*“The effects of water on reaction mechanism”* Gordon Research Conference on Chemical Reactions At Surfaces, Ventura, CA, February 2015.

*“Water Diffusion and dissociation on metal defect sites.”* Gordon Research Conference on Chemical Reactions At Surfaces, Les Diablerets, Switzerland, April 2013.

*“ToF-SIMS imaging of DNA microarrays: Correlation between fluorescence inhomogeneities and chemical composition.”* Eigenvector University User Poster Session, Seattle, WA, May 2010.

*“ToF-SIMS study of Fibronectin orientation on self-assembled monolayers.”* AVS-56 International Symposium, San Jose, WA, November 2009.

*“Diffusion of water on Pt(111), step and kink and the effect of water on a C:H:O intermediate.”*, Gordon Research Conference on Chemical Reactions At Surfaces, Ventura, CA, February 2009.

*“Interconversion of HCO (formyl) and COH on Pt(111)”*, 2006 Annual meeting of the Pacific Coast Catalysis Society, Seattle, WA, September 2006.

*“The Interaction of Water Molecules with Pt(111) Surface”*, American Conference on Theoretical Chemistry 2005, Los Angeles, CA, July 2005.

*“Direct Methanol Oxidation Pathways”*, 8th Annual Undergraduate Research symposium 2005, Seattle, WA, May 2005.

*“Elevated Temperature studies of Methanol Electro-oxidation on Pt surfaces in an Electrochemical Microreactor System”* Surface Canada 2004, UBC, Vancouver, Canada, May 2004.

*“Development of a High-Temperature Electrochemical Microreactor with Mass Spectrometry for Kinetic Rate Analysis of Methanol Oxidation”* Surface Canada 2004, UBC, Vancouver, Canada, May 2004.

## Reviews

Journals: The Journal of Physical Chemistry, ACS Catalysis, Surface Science, Computational and Theoretical Chemistry, Applied Catalysis A and B, ChemCatChem, Journal of Chemical Physics, Angewandte Chemie, Fuel Processing Technology, Nano Journals, The International Journal of Quantum Chemistry, Science Advances, Science, Electrochimica Acta, ACS Applied Materials & Interfaces, npj Materials Degradation, NAM meeting abstract reviewer.

## Proposal panels

NSF, DOE, DOD, BSF (US-Israel binational science foundation), ACS-PRF, QNRF (Qatar National Research Foundation), Icelandic Center for Research, The Dutch Research Council.

## Languages

English (speaking, reading, writing; full proficiency)  
Icelandic (speaking, reading, writing, native)  
German (some reading, some writing; incomplete proficiency)  
Danish (some reading, some writing; incomplete proficiency)

## Professional Society

American Chemical Society (ACS)  
American Institute of Chemical Engineers (AIChE)  
American Vacuum Society (AVS)  
American Association for the Advancement of Science (AAAS)  
The Electrochemical Society (ECS)  
Society of Women Engineers (SWE)  
Sigma Xi, The Scientific Research Honor Society (elected 2020)