

# Samantha I. Johnson

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## EDUCATION

### Ph.D. in Materials Science

December 2016

California Institute of Technology

Advisor: William A. Goddard III

Thesis Title: *Computational Investigation of Small Molecule Catalysis by Cobalt, Rhodium, and Iridium Molecular Catalysts*

### B.S. in Chemical Engineering

May 2011

University of Colorado, Boulder, CO

Minor in Chemistry

## SCHOLARSHIP

### Associate Professor, Colorado School of Mines

Starting July 2024

- Research in organometallic catalysis and reactivity in droplets
- Teaching CHGN503: Advanced Physical Chemistry

### Computational Scientist II, Pacific Northwest National Lab

2019-Present

- Cluster models for microsolvation in soft ionization methods
- H<sub>2</sub> storage materials including liquid organic hydrogen carriers and borohydrides
- Catalyst mechanisms for small molecule activation
- Transport mechanisms for aqueous organic flow batteries

### Postdoctoral Researcher in the Center for Molecular Electrocatalysis, Pacific Northwest National Lab

2017-2019

- Advised by Simone Raugei, Bojana Ginovska and R. Morris Bullock
- Used density functional theory to understand mechanisms for electrocatalysis
- Modeled interactions between catalysts and solvents via molecular dynamics

### Graduate Researcher, California Institute of Technology

2011-2016

- Advised by William A. Goddard III
- Used density functional theory to optimize catalysis design
- Researched mechanisms of organometallic catalysts for C-H functionalization and CO<sub>2</sub> reduction.
- Modeled surface attached organometallic catalysts

### Graduate Researcher, Lund University, Sweden

2014

- Advised by Petter Persson
- Modeled effect of linking groups on electron transfer in surface-attached CO<sub>2</sub> reduction catalysts
- Recipient of NSF-GROW grant to pursue this research.

### Graduate Researcher, California Institute of Technology

2011

- Advised by G. Jeffrey Snyder
- Synthesized and characterized zinc-doped Ca<sub>5</sub>Ga<sub>2</sub>Sb<sub>6</sub> for use in high temperature thermoelectrics

### Undergraduate Researcher, University of Colorado

Summer 2007- 2011

- Advised by Dr. Alan Weimer and Dr. David King
- Investigated the optical properties of ZnO on SiO<sub>2</sub> for use in novel sunscreens
- Researched novel oxidation-resistant thin films such as alumina and nitride films
- Optimized the design of a downward-facing microjets for improved fluidization of nanoparticles in fluidized bed reactors

**Undergraduate researcher, Technical University of Delft, Netherlands** Summer 2010

- Advised by Dr. J.R. van Ommen, Product and Process Engineering
- Investigated the effect of microjets on nanoparticle fluidization for use in thin film coating processes

**Grants and Funding**

- Laboratory Directed Research and Development grant, Efficient and Selective Chemical Transformations in Highly Charged and Confined Nanodroplets, Key Personnel, \$130,000 (2024)
- Laboratory Directed Research and Development grant, m/q initiative, \$400,000 total (2022)
  - Lead PI, follow on funding to grant received in 2020
- DOE Energy Frontier Research Center, Center for Molecular Electrocatalysis, Total Award: 1.5 million; My share as PI: \$66,500 + required computer time
  - Lead PI on CMEngage, program designed to foster career development pathways for students in STEM.
- Laboratory Directed Research and Development grant, Energy Storage Materials Initiative, \$380,000 total (2022)
  - Sole PI, developed through internal call
- Laboratory Directed Research and Development grant, m/q initiative, \$538,000 total (2020)
  - Sole PI, developed through internal call
- Internal Funding Grant, PNNL Quickstarter, Proposal: “Every Molecule Counts: Modeling Catalysts with Explicit Solvent and Counterions”, \$5,000 (2018)

**Honors and Awards**

- ACS Division of Inorganic Chemistry Award for Undergraduate Research for mentorship (2024)
- Outstanding Performance Award, PNNL (2018, 2019, 2020, 2021, 2022, 2023)
- Student and Postdoc Team Science Award with Daniel J. Martin, DOE EFRC PI meeting, Washington D.C. (2019)
- Clean Energy Education and Empowerment Initiative Poster Award, Stanford University (December 2018)
- Northwest Theoretical Chemistry Conference Best Poster (2017)
- Resnick Institute Graduate Fellowship Award (2014)
- Women’s Chemistry Committee/Eli Lilly Travel Award (2015)
- National Science Foundation Graduate Research Opportunities Worldwide Grant (2014)
- National Science Foundation Graduate Research Fellowship (2011-2014)
- Outstanding Graduate of the College of Engineering, University of Colorado, Boulder (2011)
  - Top award granted by College of Engineering
- Boettcher Foundation Scholarship, Full four-year scholarship to any school in Colorado (2007)

**Software Skills**

- Proficient in GAMESS, Gaussian, Orca, NWChem, and Schrodinger computational chemistry packages
- Proficient in CP2K, GROMACS and Plumed molecular dynamics packages
- Proficient in Python, including standard libraries (numpy, scipy, pandas, matplotlib) and computational chemistry libraries (MDAnalysis, MolMod)
- Familiar with CRYSTAL and JDFT computational chemistry package for periodic systems
- Proficient in Labview Programming, Completed Labview Basics I and II courses

**TEACHING AND MENTORING**

**Course Instruction**

- CHGN503: Advanced Physical Chemistry, SP2025
- CHGN351: Physical Chemistry I, Lab Professor, SP2025
- CHGN351: Physical Chemistry I, Lab Professor, FA2024
- Teaching Assistant, Ch120a: Nature of the Chemical Bond (Winter 2014)

## Students Mentored

- Graduate Students
  - Makenzie Denman (2024-present)
- Postdoctoral Scholars
  - Dr. Swarup Banerjee (2024-present)
  - Dr. Melissa Barona (with Simone Raugei) (2020-2022)
- Post-Bachelors Researchers (PNNL)
  - Wilma Rishko (2022-2024)
  - Rahul Somni (2021-2022)
- Graduate Student Intern (PNNL)
  - Nitesh Kumar, Washington State University graduate student (2022)
- DOE Computational Science Graduate Fellowship (Krell Fellowship) practicum mentor (PNNL)
  - Steven Wilson, Arizona State University graduate student. (2022)
- DOE Science Undergraduate Laboratory Internships (SULI) mentor (PNNL)
  - Wilma Rishko (2021)
- DOE Minority Serving Institution Partnership Program (MSIPP) mentor (PNNL)
  - Dominic Davis (2020)
- Undergraduate students
  - Bethany Rasco (2024-present), Camille Anderson (2024-present), Jeffrey Kim (2016), Sean Najmi (2016), Allison Moore (2016), Sydney Corona (2015), Walther Villatoro (2015)
- High School students
  - Emily Ellis (2015)

## SERVICE AND LEADERSHIP

### Reviewer Activities

- National Science Foundation Panel Reviewer (2023)
- National Science Foundation Career Comp Cat review panel (2022)
- Department of Energy Proposal Reviewer (2022, 2023)
- Peer review for journals: *ACS Catalysis*, *Nature Chemistry*, *Physical Chemistry Chemical Physics*, *Journal of the American Chemical Society*, *Inorganic Chemistry*

### Extracurricular and Service Activities

- Symposium Organizer, ACS ENFL Symposium, “Energy Storage in Chemical Bonds: Challenges and Opportunities from Theory to Applications for Hydrogen Technology”, Fall 2023
- Organizing Committee, 13<sup>th</sup> International Conference on Hydrogenases, Summer 2023 (postponed from 2022 due to COVID-19)
- MRS Fall 2022 symposium organizer, “EN07: Materials, Modeling and Technoeconomic Impacts for Emergent Applications of Large-Scale Hydrogen”
- Symposium Organizer, ACS CATL Symposium, “Theoretical and Experimental Collaborations in Homogeneous and Heterogeneous Catalysis”, Spring 2023
- ACS Division of Inorganic Chemistry Strategic Planning Retreat Committee, August 2022
- Symposium Organizer, ACS CATL Special Session Symposium, “Theoretical and Experimental Collaborations in Homogeneous and Heterogeneous Catalysis”, Spring 2022
- Board Member, Director of Outreach, Three Rivers Ultimate, a 501(c)(3) organization for promoting ultimate frisbee in the Tri-Cities, WA community (2019-present)
- Chemistry Women Mentorship Network (ChemWMN) mentor (2019-present)
- STEM Ambassador at PNNL (2019-present)
- Representative, DOE Early Career Network, (2017-2019)
- Facilitator, English Corner working with PNNL staff to improve English skills (2017-2018)

- PNNL GradEXPO “Graduate Student Success Stories” Mentorship Panel for students considering post graduate studies (2018)
- Center for Chemical Innovation (CCI) SEAL Outreach Volunteer,
  - Crescenta Valley High School (2015-2016)
  - Duarte High School (2014-2015)
- American Institute of Chemical Engineers (2009-2011)
- Student Advisory Board member for Special Undergraduate Enrichment Programs (2009-2011)
- Colorado Engineer Magazine (2007-2011); Editor-in-Chief (2009-2011)

## PUBLICATIONS AND PRESENTATIONS

### Summary

- Total of 33 published articles, 4 as corresponding author
- More than 1000 total citations
- h-index of 20
- 30+ research presentations and posters, 7 invited

### **Publications** – (corresponding author denoted by \*)

- W. Rishko, R. Somni, D. Davis, M. D. Baer, S. Rauegi and **S. I. Johnson\***, Protonation of Aliphatic Amino Acids in Microsolvated States *Accepted, Journal of Physical Chemistry A*, 2025
- L. Liu, **S. I. Johnson**, A. M. Appel, R. M. Bullock, Oxidation of Ammonia Catalyzed by a Molecular Iron Complex: Translating Chemical Catalysis to Mediated Electrocatalysis. *Angewandte Chemie International Edition*. 2024, e202402635.
- N. Kumar, W. Rishko, K. R. Fiedler, A. Hollas, J. Chun, **S.I. Johnson\***; Correlations between molecular structure, solvation topology, and transport properties of aqueous organic flow battery electrolyte solutions. *ACS Materials Letters*. 2023, 5, 3050-3057.
- R.G. Ewing, G.L. Hart, M.K Nims, S.E. Murphy, **S.I. Johnson**, J. Chun, E.H. Denis, Reducing ion diffusion at atmospheric pressure through intermingled positive and negative ions. *International Journal of Mass Spectrometry*, 2023, 492, 117115.
- S.H.R. Shin, H.-S. Lim, K.S. Han, A.J. Robinson, A. Hollas, B.M. Sivakumar, **S.I Johnson**, J. Chun, W. Wang, V. Murugesan, P.K. Thallapally; Porous Liquids as Electrolyte: A Case Study of Li<sup>+</sup> and Mg<sup>2+</sup> Ion Transport in Crown Ether-Based Type-II Porous Liquids. *ACS Materials Letters*, 2023, 5 (2), 330-335.
- P. L. Dunn, M. Barona, **S. I. Johnson**, S. Rauegi and R. M. Bullock, Hydrogen Atom Abstraction from an Os<sup>II</sup>(NH<sub>3</sub>)<sub>2</sub> Complex Generates an Os<sup>IV</sup>(NH<sub>2</sub>)<sub>2</sub> Complex: Experimental and Computational Analysis of the N–H Bond Dissociation Free Energies and Reactivity, *Inorganic Chemistry*, 2022, **39**, 15325–15334.
- B. J. Cook, M. Barona, **S. I. Johnson**, S. Rauegi and R. M. Bullock, Weakening the N–H Bonds of NH<sub>3</sub> Ligands: Triple Hydrogen-Atom Abstraction to Form a Chromium(V) Nitride, *Inorganic Chemistry*, 2022, 61, 11165-11172.
- S. I. Johnson**, J.M. DeMaria, B. Ginovska, G.M. Edverson, H. Hagemann, S.T. Autrey, Exploring Detailed Reaction Pathways for Hydrogen Storage with Borohydrides Using DFT Calculations. *Energy & Fuels* 2022, 36 (10), 5513-5527.
- M. Barona, **S. I. Johnson\***, M. Mbea, R. M. Bullock and S. Rauegi, Computational Investigations of the Reactivity of Metalloporphyrins for Ammonia Oxidation, *Topics in Catalysis*. 2022, **65**, 341-353.
- S.I. Johnson\***, M.D. Baer, S. Rauegi, Protonation of Serine in Gas and Condensed and Microsolvated States in Aqueous Solution. *Journal of Physical Chemistry A*. 2022, 126 (1), 44-52.
- Z. Wang, **S. I. Johnson**, G. Wu, and G. Menard. Multiple N-H and C-H Hydrogen Atom Abstractions Through Coordination-Induced Bond Weakening at Fe-Amine Complexes. *Inorganic Chemistry* 60, no. 11:8242-8251. 2021.

- B. L. Tran, **S. I. Johnson**, K. P. Brooks, S. T. Autrey, Ethanol as a Liquid Organic Hydrogen Carrier for Seasonal Microgrid Application: Catalysis, Theory, and Engineering Feasibility. *ACS Sustainable Chemistry & Engineering*, 9, 7130-7138. doi:10.1021/acssuschemeng.1c01513. 2021
- S. I. Johnson**, J. D. Blakemore, B. S. Brunschwrig, N. S. Lewis, H. B. Gray, W. A. Goddard and P. Persson., Design of robust 2,2'-bipyridine ligand linkers for the stable immobilization of molecular catalysts on silicon(111) surfaces, *Physical Chemistry Chemical Physics.*, 2021.
- P.L. Dunn, B.J. Cook, **S.I. Johnson**, A.M. Appel, and R.M. Bullock. 2020. "Oxidation of Ammonia with Molecular Complexes." *Journal of the American Chemical Society* 142, no. 42:17845-17858.
- Invited Perspective
- D.J. Martin, **S.I. Johnson**, B.Q. Mercado, S. Raugei, and J.M. Mayer. Intramolecular Electrostatic Effects on O<sub>2</sub>, CO<sub>2</sub>, and Acetate Binding to a Cationic Iron Porphyrin. *Inorganic Chemistry* 59, no. 23:17402–17414. 2020.
- A. C. Brezny, **S. I. Johnson**, S. Raugei and J. M. Mayer., Selectivity-Determining Steps in O<sub>2</sub> Reduction Catalyzed by Iron(tetramesitylporphyrin), *Journal of the American Chemical Society.*, 2020, 142, 4108-4113.
- P. Dunn, **S.I. Johnson**, W. Kaminsky, R.M. Bullock. Diversion of Catalytic CN Bond Formation to Catalytic Oxidation of NH<sub>3</sub> Through Modification of the Hydrogen Atom Abstractor. *Journal of the American Chemical Society*, 2020. 142, (7):3361-3365.
- B.J. Cook, **S.I. Johnson**, G.M. Chambers, W. Kaminsky, R.M. Bullock. Triple hydrogen atom abstraction from Mn–NH<sub>3</sub> complexes results in cyclophosphazanium cations. *Chemical Communications* 55 (93), 14058-14061, 2019
- S.I. Johnson**, S.P. Heins, C.M. Klug, E.S. Wiedner, R.M. Bullock, S. Raugei. Design and reactivity of pentapyridyl metal complexes for ammonia oxidation. *Chemical Communications* 55 (35), 5083-5086, 2019
- Q. Liao, T. Liu, **S.I. Johnson**, C.M. Klug, E.S. Wiedner, R.M. Bullock, D.L. DuBois. Evaluation of attractive interactions in the second coordination sphere of iron complexes containing pendant amines. *Dalton Transactions*. 48 (15), 4867-4878, 2019
- M. Pegis, C. Wise, D. Martin, **S.I. Johnson**, L.E. Johnson, N. Kumar, S. Raugei, and J.M. Mayer, Catalytic O<sub>2</sub> Reduction by Iron Tetraphenyl Porphyrin Proceeds via an Anomalously High Proton Transfer Barrier. *Journal of the American Chemical Society*. 141 (20), 8315-8326, 2019
- G.M. Chambers, **S.I. Johnson**, S. Raugei and R.M. Bullock. Anion Control of Tautomeric Equilibria: FeH vs. NH, *Chemical Science*. 10 (5), 1410-1418, 2019
- P. Bhattacharya, Z. M. Heiden, G. M. Chambers, **S. I. Johnson**, R. M. Bullock, and M. T. Mock, Catalytic Ammonia Oxidation to Dinitrogen by Hydrogen Atom Abstraction. *Angewandte Chemie International Edition* 2019, 58 (34), 11618-11624.
- A. J. Kendall, **S. I. Johnson**, R. M. Bullock, M. T. Mock, Catalytic Silylation of N<sub>2</sub> and Synthesis of NH<sub>3</sub> and N<sub>2</sub>H<sub>4</sub> by Net Hydrogen Atom Transfer Reactions Using a Chromium P4 Macrocyclic. *Journal of the American Chemical Society*. 2018, 140, 2528-2536
- S. I. Johnson**, H. B. Gray, J. D. Blakemore, W. A. Goddard III; Role of Ligand Protonation in Dihydrogen Evolution from a Pentamethylcyclopentadienyl Rhodium Catalyst. *Inorganic Chemistry*. 2017, 56, 11375-11386.
- S. I. Johnson**, R.J. Nielsen, W.A. Goddard III; Selectivity for HCO<sub>2</sub><sup>-</sup> over H<sub>2</sub> in the electrochemical catalytic reduction of CO<sub>2</sub> by (PoCoP)IrH<sub>2</sub>. *ACS Catalysis*. 2016, 6, 6362-6371.
- M.E. O'Reilly, **S.I. Johnson**, R.J. Nielsen, W.A. Goddard III, T.B. Gunnoe. Aromatic C–F Bond Activation in Acidic Media: C–F/C–OH Bond Metathesis. *Organometallics*. 2016, 35, 2053-2056.
- L. Aguirre Quintana; **S.I. Johnson**; S.L. Corona; W. Villatoro; W.A. Goddard III; M. K. Takase; D. G. VanderVelde; J. R. Winkler; H. B. Gray; and J.D. Blakemore; Proton-Hydride Tautomerism in Hydrogen Evolution Catalysis. *Proceedings of the National Academy of Sciences* 2016, 113 (23), 6409-6414.
- Featured in C&EN News, Volume 94, Issue 24

- D.W. Shaffer, **S.I. Johnson**, J.W. Ziller, R.J. Nielsen, W.A. Goddard III, A.L. Rheingold, J.Y. Yang; Reactivity of a Series of Isostructural Cobalt Pincer Complexes with CO<sub>2</sub>, CO, and H<sup>+</sup>. *Inorganic Chemistry*. 2014. 53 (24) 13031
- M. Zhou, M., **S.I. Johnson**, Y. Gao, T.J. Emge, R.J. Nielsen, W.A. Goddard III, A.S. Goldman, Activation and Oxidation of Mesitylene C–H Bonds by (Phebox)Iridium(III) Complexes. *Organometallics*. 2015. 34, 2879–2888
- S.I. Johnson**; A. Zevalkink; G.J. Snyder; Improved thermoelectric properties in Zn-doped Ca<sub>5</sub>Ga<sub>2</sub>Sb<sub>6</sub>. *Journal of Materials Chemistry A*. 2013, 1 (13), 4244-4249
- A. Zevalkink, G. S. Pomrehn, **S.I. Johnson**, J. Swallow, Z.M. Gibbs, G.J. Snyder. (2012). Influence of the Trier Elements (M = Al, Ga, In) on the Transport Properties of Ca<sub>5</sub>M<sub>2</sub>Sb<sub>6</sub> Zintl Compounds. *Chemistry of Materials*. 24 (11): 2091-2098
- D.M. King, J. Li, X.H. Liang, **S.I. Johnson**, M.M. Channel, A.W. Weimer, Crystal phase evolution in quantum confined ZnO domains on particles via atomic layer deposition, *Cryst. Growth & Des.* 9 (2009) 2828-2834.
- D.M. King, **S.I. Johnson**, J. Li, X. Du, A.W. Weimer, Atomic layer deposition of quantum-confined ZnO nanostructures, *Nanotechnology*. 20 (2009) 195401.
- Was chosen as the featured cover article

### Presentations Given

- S.I. Johnson**, “Computational Catalyst Design for Homogeneous NH<sub>3</sub> Oxidation.” Telluride Science Research Center Meeting, July 2024
- S.I. Johnson**, “Multiscale Computational Modeling of Evaporation and Reactivity in Acetonitrile-Water-Amino Acid Droplets For Electrospray Ionization”, Spring ACS 2024, (*Invited*)
- S.I. Johnson**, “Computational Methods for Modeling Electrospray Microdroplet Chemistry for Improved Quantitative Mass Spectrometry”, Gordon Research Conference on Reactive Clusters, February 2024
- S. I. Johnson**, “A Virtual Laboratory: Using Computation to “See” What Cannot Be Seen in Hydrogen Storage”, Oregon Center for Electrochemistry, September 2022, University of Oregon, (*Invited*)
- S. I. Johnson**, W. Rishko, R. Somni, D. Davis, M. Baer, S. Raugei, “Computational Modeling of Amino Acid-Water Microsolvated Clusters Occurring in Soft Ionization Processes”. Gordon Molecular and Ionic Clusters Meeting, August 2022
- S. I. Johnson**, “Computational Modeling of Amino Acid-Water Microsolvated Clusters Occurring in Soft Ionization Processes” American Society of Mass Spectrometry Annual Meeting 2022, Oral Presentation (~10% of submitted talks)
- S. I. Johnson**, “Computational Modeling of Amino Acid-Water Microsolvated Clusters Occurring in Soft Ionization Processes”, ACS Fall 2022, (*Invited*)
- S. I. Johnson**, T. Marshall–Roth, P. Rice, D. J. Martin, A. Brezny, J. M. Mayer, Y. Surendranath, S. Raugei “Interplay of Ligand and Surroundings in Fe-based Macrocycles for the Oxygen Reduction Reaction”, Spring ACS 2022.
- S. I. Johnson**, J. DeMaria, B. Ginovska, H. Hagemann, M. Prager, C. Jensen, T. Autrey, “Exploring detailed reaction pathways for hydrogen storage with borohydrides using DFT calculations” Spring ACS 2022, (*Invited*)
- S. I. Johnson**. “A Virtual Laboratory: Using Computational Chemistry to “See” What Cannot Be Seen”, Rutgers University, April 15, 2022. (*Invited*.)
- S. I. Johnson**, Tran, B., Brooks, K., Autrey, S.T. “Acceptorless dehydrogenative coupling of ethanol and 1,4-butanediol by Ru(MACHO) for use in microgrid applications” Fall ACS 2021, August 2021
- S. I. Johnson**, Baer, M., Raugei, S., “Using computation to probe microsolvated phases during soft ionization processes in mass spectrometry”, Fall ACS 2021, August 2021
- S. I. Johnson**, “A Virtual Laboratory: Using Computation to “See” What Cannot Be Seen” Augustana University, March 2021, (*Invited*)

- S.I. Johnson** et. al., “Computation-Based Understanding and Design of Catalysts for NH<sub>3</sub> Oxidation”, ACS Virtual Fall Meeting, August 2020
- S.I. Johnson** et al. “Computational Design and Bond Dissociation Free Energies to Understand and Predict Catalysts for NH<sub>3</sub> Oxidation” EFRC PI Meeting, July 2019, Washington D.C.
- D. J. Martin, **S.I. Johnson**, S. Raugei, J.M. Mayer, “The Effects of Electrostatics on Small Molecule Binding and Catalysis using a Polycationic Iron Porphyrin” EFRC PI Meeting, July 2019, Washington D.C. (*Invited*)
- S.I. Johnson**, D. J. Martin, S. Raugei, J.M. Mayer, “The Effect of Charged Groups on Fe Porphyrin Catalysts for the Oxygen Reduction Reaction”, Gordon Research Conference, July 2019, Newport, RI
- S. I. Johnson**, G. M. Chambers, R. M. Bullock, S. Raugei “The Role of Counterions and Solvation in Determining Intermediates for H<sub>2</sub> Evolution” Northwest Theory and Computational Chemistry Conference, June 2019, Pullman, WA
- S.I. Johnson** et. al., “Computation-Based Understanding and Design of Catalysts for NH<sub>3</sub> Oxidation”, ACS Virtual Fall Meeting, August 2020
- S.I. Johnson** et. al., “Mechanistic Analysis of Molecular Oxygen Reduction Catalysts”, EFRC Midterm Review, 02/25/2020, Gaithersburg, MD
- S.I. Johnson**, “Simulating the Chemistry of Tomorrow: The Role of Computers in 21st Century Chemistry” Richland Public Library, January 14, 2020, Public lecture
- S.I. Johnson**, “Computational Understanding and Design of Catalysts for Energy Storage and Use”, Resnick Young Investigators Symposium, November 2019, Caltech, Pasadena, CA (*Invited*)
- S.I. Johnson**, M.T. Mock, E. Wiedner, R.M. Bullock, S. Raugei. “Using Computational Methods to Design Ammonia (NH<sub>3</sub>) Oxidation Catalysts for Use in Fuel Systems” Clean Energy Education & Empowerment (C3E) conference, *invited poster*, December 2018
- S.I. Johnson**, M.T. Mock, E. Wiedner, R.M. Bullock, S. Raugei. “Using Bond Dissociation Free Energies to Understand and Predict NH<sub>3</sub> Oxidation Catalysts.” Renewable Energy: Solar Fuels, Gordon Research Conference, Poster, January 2018 *Chosen for Oral Presentation from poster presenters*,
- S.I. Johnson**, M.T. Mock, E. Wiedner, R.M. Bullock, S. Raugei. “Using Bond Dissociation Free Energies to Understand and Predict NH<sub>3</sub> Oxidation Catalysts.” Renewable Energy: Solar Fuels, Gordon Research Seminar. January 2018
- S.I. Johnson**, M.T. Mock, R.M. Bullock, S. Raugei. “Using Bond Dissociation Free Energies to Understand and Predict NH<sub>3</sub> Oxidation Catalysts.” Northwest Theoretical Chemistry Conference, Poster, October 26, 2017.
- S.I. Johnson**. “The Plight of the Hydride in Solar Fuels Catalysis” Gray-Hill Seminar Series, Occidental College, July 1<sup>st</sup>, 2016
- S.I. Johnson**, S.L. Corona, J.D. Blakemore, W.A. Goddard III, J. R. Winkler, H. B. Gray; “DFT Study of an Unusual Proton-Relay Role for Cp\* in Hydrogen Evolution Catalysis” ACS 2016 Fall Meeting
- S.I. Johnson**, R.J. Nielsen, M. Zhou, A.S. Goldman, W.A. Goddard. “Mechanistic Insights into C-H Activation using (PheBox)Ir Compounds” ACS 2015 Fall Meeting.
- S.I. Johnson**, R.J. Nielsen, D.W. Shaffer, J.Y. Yang, W.A. Goddard. “CO<sub>2</sub> Reduction Mechanisms by (PoCoP)Ir and (PeXeP)Co Pincer Catalysts for Production of Formate and CO” ACS 2015 Fall Meeting.
- S.I. Johnson**, R.J. Nielsen, D.S. Shaffer, J.Y. Yang, Petter Persson, W.A. Goddard III. “CO<sub>2</sub> Reduction Mechanisms by (PoXoP)Ir and (PoXoP)Co Pincer Catalysts” International Solar Fuels Meeting (ISF-1), Uppsala, Sweden, 2015 \**Chosen for flash presentation*
- S.I. Johnson**, D.M. King, J.R. van Ommen, A.W. Weimer “Scaling up Atomic Layer Deposition: Microjets as Potential Solution.” Presented at AIChE National Paper Competition (November 2010)
- S.I. Johnson**, D.M. King, J. Li, X. H. Liang, A.W. Weimer. “Atomic Layer Deposition of ZnO in a Fluidized Bed Reactor for Novel Sunscreens and Cosmetics.” AIChE 2009 Fall Meeting, Undergraduate Poster Competition