

LISA OLSHANSKY

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Professional Appointments

Assistant Professor of Chemistry	University of Illinois, Urbana-Champaign 2018 – present
Center for Biophysics and Quantitative Biology	University of Illinois, Urbana-Champaign 2019 – present
Materials Research Laboratory	University of Illinois, Urbana-Champaign 2022 – present
Beckman Institute for Advanced Science and Technology	University of Illinois, Urbana-Champaign 2024 – present
Lincoln Excellence Assistant Professor	University of Illinois, Urbana-Champaign 2021 – 2023
Charles W. and Genevieve M. Walton Scholar	University of Illinois, Urbana-Champaign 2018 – 2021
ACS Irving S. Sigal Postdoctoral fellow Advisor: Professor Andy S. Borovik	University of California, Irvine 2016 – 2018

Education

Ph.D., Inorganic Chemistry Advisor: Professor Daniel G. Nocera	Massachusetts Institute of Technology 2009 – 2015
B.S., Chemistry, Molecular Synthesis Honors with Highest Distinction	University of California, San Diego 2009

Awards and Honors

Paul Saltman Young Investigator Award, Metals in Biology Gordon Research Conference	2024
National Academy of Sciences Kavli Fellow	2023
Department of Energy Early Career Research Award	2022 – 2027
San Diego City College Working in Industry Alumni Award	2022
Cottrell Scholars Award	2022 – 2025
Vallee Scholars Award	2021 – 2025
Lincoln Excellence for Assistant Professors Award UIUC	2021 – 2023
Searle Scholars Award	2020 – 2023
Carver Trust Young Investigator Award	2020 – 2023
National Institutes of Health Early Stage Investigator Award	2020 – 2025
American Chemical Society Irving S. Sigal Postdoctoral Fellowship	2016 – 2018

Ruth L. Kirschstein NIH Postdoctoral Fellowship	Awarded, not accepted 2016
MIT Davison Prize for Best Inorganic Chemistry Thesis	2015
National Science Foundation Graduate Research Fellowship	2010 – 2013
MIT Robert T. Haslam Presidential Fellowship	2009 – 2010
MIT Department of Chemistry Award for Outstanding Teaching	2009 – 2010
University of California, San Diego, Harold C. Urey Award	2009
American Chemical Society Student Affiliates Research Fellowship	2008
University of California, San Diego Chancellor's Research Fellowship	2008
San Diego City College Science and Engineering Scholarship	2006
Association for Women in Science Community College Scholarship	2005

Publications

- (1) Peter J. Thompson, David G. Boggs, Charles A. Wilson, Austin T. Bruchs, Uditha Velidandla, Jennifer Bridwell-Rabb, and **Lisa Olshansky** "Structure-Driven Development of a Biomimetic Rare Earth Artificial Metalloprotein" *Under Review*.
- (2) Paul J. Griffin and **Lisa Olshansky** "Emergent Properties from Dynamicity in Biomimetic Coordination Complexes" *Trends in Chemistry*, invited contribution. *Under review*.
- (3) Saman Fatima and **Lisa Olshansky** "Conformational Gating of Proton-Coupled Electron Transfer in Metalloenzymes" *Nat. Rev. Chem.* *Under review*.
- (4) Alyssa A. DeLucia, Khadanand KC, and **Lisa Olshansky** "Impact of Hydrogen-Bonding Interactions on the Properties of Biomimetic $\text{Co}_2(\mu\text{-OH})_2$ Complexes" *Inorg. Chim. Acta*, **2024**, *564*, 121931–121939.
- (5) Alyssa A. DeLucia and **Lisa Olshansky** "Carboxylate Shift Dynamics in Biomimetic $\text{Co}_2(\mu\text{-OH})_2$ Complexes" *Inorg. Chem.* **2024**, *63*, 1109–1118.
- (6) Khadanand KC, Toby Woods, and **Lisa Olshansky** "Ligand Field Modifications Produce Two-Step Magnetic Switching in a Cobalt(dioxolene) Complex" *Angew. Chem. Int. Ed.* **2023**, *62*, e202311790.
- (7) Paul J. Griffin and **Lisa Olshansky** "Rapid Electron Transfer Self-Exchange in Conformationally Dynamic Copper Complexes" *J. Am. Chem. Soc.* **2023**, *145*, 20158–20162.
- (8) Bronte J. Charette, Shelby R. King, Jiaqi Chen, Annika R. Holm, Robert D. Cook, Richard D. Schaller, Nick E. Jackson, and **Lisa Olshansky** "Excited State Dynamics in a Conformationally Fluxional Copper Coordination Complex" *J. Phys. Chem. A* **2023**, *127*, 7747–7755.
- (9) Paul J. Griffin, Matthew J. Dake, Alesandro D. Remolina, and **Lisa Olshansky** "Conformational Dynamicity in a Copper(II) Complex" *Dalton Trans.* **2023**, *52*, 8376–8383.
- (10) Saman Fatima, David G. Boggs, Noor Ali, Peter J. Thompson, Megan C. Thielges, Jennifer Bridwell-Rabb, and **Lisa Olshansky** "Engineering a Conformationally Switchable Artificial Metalloprotein" *J. Am. Chem. Soc.* **2022**, *144*, 21606–21616. *Selected as *Spotlight Article*.
- (11) Paul J. Griffin, Bronte J. Charette, John H. Burke, Josh Vura-Weis, Richard D. Schaller, David J. Gosztola, and **Lisa Olshansky** "Toward Improved Charge Separation through Conformational Control in Copper Coordination Complexes" *J. Am. Chem. Soc.* **2022**, *144*, 12116–12126.

- (12) Bronte J. Charette, Paul J. Griffin, Claire M. Zimmerman, and **Lisa Olshansky** "Conformationally Dynamic Copper Coordination Complexes" *Dalton Trans.* **2022**, *51*, 6212–6219. *Selected as *Dalton Transactions Outstanding Paper*, 2022.
- (13) Alyssa A. DeLucia, Kimberly A. Kelly, Kevin A. Herrera, Danielle Gray, and **Lisa Olshansky** "Intramolecular Hydrogen-Bond Interactions Tune Reactivity in Biomimetic Bis(μ -hydroxo)dicobalt Complexes" *Inorg. Chem.* **2021**, *60*, 15599–15609.
- (14) Feature in in virtual issue of *Inorganic Chemistry*, **2021**, *60*, 6957–6963. "Periodic Table Talks: The Elements Never Go Out of Style"
- (15) Kanchana Ravichandran, **Lisa Olshansky**, Daniel G. Nocera, and JoAnne Stubbe "Subunit Interaction Dynamics in Class Ia Ribonucleotide Reductase: In Search of a Robust Assay" *Biochemistry* **2020**, *59*, 1442–1453.
- (16) **Lisa Olshansky**, Raúl Huerta-Lavorie, Andy I. Nguyen, Jaicy Vallapurackal, T. Don Tilley, and Andy S. Borovik "Artificial Metalloproteins Containing Co₄O₄ Cubane Active Sites" *J. Am. Chem. Soc.* **2018**, *140*, 2739–2742.
- (17) **Lisa Olshansky**, Brandon L. Greene, Chelsea Finkbeiner, JoAnne Stubbe, and Daniel G. Nocera "Photochemical Generation of a Tryptophan Radical within the Subunit Interface of Ribonucleotide Reductase" *Biochemistry* **2016**, *55*, 3234–3240.
- (18) **Lisa Olshansky**, JoAnne Stubbe, and Daniel G. Nocera "Charge Transfer Dynamics at the α/β Subunit Interface of a Photochemical Ribonucleotide Reductase" *J. Am. Chem. Soc.* **2016**, *138*, 1196–1205.
- (19) **Lisa Olshansky**, Arturo A. Pizano, Yifeng Wei, JoAnne Stubbe, and Daniel G. Nocera "Kinetics of Hydrogen Atom Abstraction from Substrate by an Active Site Thiyl Radical in Ribonucleotide Reductase" *J. Am. Chem. Soc.* **2014**, *136*, 16210–16216.
- (20) Arturo A. Pizano, **Lisa Olshansky**, Patrick G. Holder, JoAnne Stubbe, and Daniel G. Nocera "Modulation of Y₃₅₆ Photooxidation in *E. coli* class Ia Ribonucleotide Reductase by Y₇₃₁ Across the $\alpha_2:\beta_2$ Interface" *J. Am. Chem. Soc.* **2013**, *135*, 13250–13253.
- (21) Ellen C. Minnihan, Nozomi Ando,* Edward J. Brignole,* **Lisa Olshansky**,* Johnathan Chittuluru, Fancisco J. Asturias, Daniel G. Nocera, Catherine L. Drennan, and JoAnne Stubbe "Generation of a Stable, Aminotyrosyl Radical-induced $\alpha_2\beta_2$ Complex of *E. coli* class Ia Ribonucleotide Reductase" *Proc. Nat. Acad. Sci. U.S.A.* **2013**, *110*, 3835–3840. (*denotes equal author contribution)
- (22) Matthew J. Buller, Cynthia B. Gilley, Brian Nguyen, **Lisa Olshansky**, Breena Fraga, and Yoshihisa Kobayashi "Synthesis of Functionalized Pyroglutamic Acids, Part 1: The Synthetic Utility of *N*-Acyindole and the Ugi Reaction with a Chiral Levulinic Acid" *SYNLETT* **2008**, *15*, 2244–2248.

Patents

- (1) Conformationally Gated Optoelectronic Molecular Rectifiers (UIUC2021-172-02-PCT) (500.134WO1)

Invited Talks

- (1) *University of California, San Diego, Department of Chemistry*, San Diego CA, April 5, 2024.
- (2) *Texas A & M University, Department of Chemistry*, College Station TX, April 3, 2024.
- (3) *Northwestern University, Department of Chemistry*, Evanston IL, March 27, 2024.

- (4) *Pennsylvania State University, Department of Chemistry, State College PA, March 9, 2024.*
- (5) *California Institute of Technology, Department of Chemistry, Pasadena CA, Feb. 26, 2024.*
- (6) *Michigan State University, Department of Chemistry, East Lansing MI, Feb. 15, 2024.*
- (7) *University of Michigan, Department of Chemistry, Ann Arbor MI, Feb. 13, 2024.*
- (8) *The Ohio State University, Department of Chemistry, Columbus OH, Jan. 31, 2024.*
- (9) "Emergent Properties from Dynamicity in Bioinorganic Model Systems" *Metals in Biology GRC, Paul Saltman Award presentation, Ventura, CA, January 25, 2024.*
- (10) "Emergent Properties from Dynamicity in Biomimetic Coordination Complexes" *6th Symposium on Advanced Biological Inorganic Chemistry, Kolkata India, Jan. 8, 2024.*
- (11) "City College and Beyond: a Nontraditional Path through Academia" *ACS East Central Illinois Undergraduate Research Conference, student invited speaker, Oct. 28, 2023.*
- (12) "Molecular Gymnastics for Biomimetic Energy Transduction" *ACS Northwest Regional Meeting, Symposium to Honor Joan Broderick, Bozeman MT, June 29, 2023.*
- (13) "Engineering a Conformationally Switchable Artificial Metalloprotein" *Vallee Scholars Symposium, Edinburgh Scotland UK, June 10, 2023.*
- (14) "Toward Charge Separation through Conformational Control" *Department of Energy, Solar Photochemistry Early Career Award presentation, Rockville MD, May 23, 2023.*
- (15) *University of Oregon Department of Chemistry and Biochemistry, Eugene OR, May 19, 2023.*
- (16) *University of Washington Department of Chemistry, Seattle WA, May 16, 2023.*
- (17) "Engineering a Conformationally Switchable Artificial Metalloprotein" *Searle Scholars Symposium, Chicago, IL, Apr. 3, 2023.*
- (18) *Boston University Department of Chemistry Colloquium, Boston MA, Mar. 12, 2023.*
- (19) *Student Invited Inorganic Chemistry Speaker, University of Texas, Austin, Feb. 8, 2023.*
- (20) *Bowling Green State University Center for Photochemical Sciences, Bowling Green Ohio, Oct. 12, 2022.*
- (21) "Toward Improved Charge Separation through Conformational Control in Copper Coordination Complexes" *Photochemistry Spotlight: Answering the Big Questions in Photochemistry. ACS National Meeting, Aug. 23, 2022.*
- (22) "Conformationally Switchable Artificial Metalloproteins" *American Chemical Society, Jonathan L. Sessler Award Symposium for Emerging Leaders in Bioinorganic and Medicinal Inorganic Chemistry. ACS National Meeting, Aug. 22, 2022.*
- (23) "Modelling Conformationally Gated Methylcobalamin Activation in a Switchable Artificial Metalloprotein" *Metallocofactors GRC, Jun. 7, 2022.*
- (24) *University of California, Los Angeles, Departmental Seminar, Nov. 17, 2021.*
- (25) "Conformational Control over Metal ion Reactivity" *American Chemical Society, Inorganic Chemistry Lectureship in honor of Dr. Jenny Yang, Aug. 23, 2021.*
- (26) "Conformational Control over Metal ion Reactivity" *American Chemical Society Division of Inorganic Chemistry - Bioinorganic Periodic Table Talk (virtual), January 27, 2021.*
- (27) "Molecular Gymnastics for Biomimetic Energy Transduction" *Pacificchem 2020, New Frontiers in Bioinorganic Chemistry symposium, Honolulu HI, Dec. 16, 2021.*
- (28) *DePauw University Department of Chemistry & Biochemistry, DePauw IL, Apr. 2, 2020. Postponed*

- (29) “Molecular Gymnastics for Biomimetic Energy Transduction” Workshop on Biological and Bioinspired Redox Catalysts, Telluride, CO, July 18, 2019.
- (30) “Molecular Gymnastics for Biomimetic Energy Transduction” Beak-Pines Organic Area Allerton Conference, Monticello, IL, November 10, 2018.
- (31) Academic interviews: “Proton-Coupled Electron Transfer in Natural and Artificial Metalloproteins” Cornell University, Ithaca, NY, Feb. 12, 2018; University of Illinois, Urbana-Champaign, Urbana, IL, Jan. 31, 2018; Massachusetts Institute of Technology, Cambridge, MA, Jan. 23, 2018; Montana State University, Bozeman, MT, Jan. 18, 2018; Columbia University, New York, NY, Jan. 12, 2018; Princeton University, Princeton, NJ, Jan. 11, 2018; Yale University, New Haven, CT, Jan. 4, 2018; University of Minnesota, Minneapolis, MN, Dec. 19, 2018; Duke University, Durham, NC, Dec. 12, 2018; Tufts University, Somerville, MA, Dec. 15, 2018.
- (32) “Proton-Coupled Electron Transfer in Natural and Artificial Metalloproteins” *University of Oregon, Department of Chemistry and Biochemistry*, Eugene, OR, November 17, 2017.
- (33) “Mechanism and Kinetics of Proton-coupled Electron Transfer in Ribonucleotide Reductase” *MIT Departmental Seminar*, Cambridge, MA, May 6, 2015.
- (34) “PCET Kinetics in a Photochemical Ribonucleotide Reductase” Metallobiochemistry Symposium, *Pennsylvania State University*, State College, PA, Jun. 6, 2014.
- (35) “Design and Application of New Catalysts for Asymmetric Synthesis” *American Chemical Society UCSD Student Affiliates Seminar*, San Diego, CA, Nov. 20, 2008.

Discussion Leader

- (1) Electron Donor and Acceptor Interactions Gordon Research Conference, session title: “Photoredox Driven Chemical Transformations”, Salve Regina, Newport RI, Aug. 1, 2022.
- (2) Metallocofactors Gordon Research Conference, session title: “Protein Engineering”, Salve Regina, Newport, RI, Jun. 7, 2022.
- (3) Metals in Biology Gordon Research Conference, session title: “Protons, Electrons, Wires, Resistance”, Ventura, CA, Jan. 22, 2020.
- (4) Bioinorganic Chemistry Gordon Research Seminar, session title: “Lessons from Nature: Artificial Metal Proteins and Biomimetic Inorganic Complexes”, Ventura, CA, Jan. 25, 2020.
- (5) Enzymes, Coenzymes, and Metabolic Pathways Gordon Research Conference, session title: “Origins and Evolution in Enzyme Catalysis and Metabolic Networks”, Waterville Valley, NH, Jul. 25, 2019.

Teaching Experience

Undergraduate Inorganic Chemistry Instructor	<i>University of Illinois, Urbana-Champaign</i> Spring 2020–2023 , Fall 2023
Advanced Inorganic Chemistry Instructor	<i>University of Illinois, Urbana-Champaign</i> Fall 2018–2021
Center for Biophysics and Quantitative Biology, Experimental Bootcamp	<i>University of Illinois, Urbana-Champaign</i> August 2019, 2021
Kaufman Teaching Certificate Program	<i>Massachusetts Institute of Technology</i> Spring 2015
Organic Chemistry I Teaching Assistant	<i>Massachusetts Institute of Technology</i> Spring 2010
Organic Chemistry II	<i>Massachusetts Institute of Technology</i>

Mentorship & Engagement

- (1) C² Chemistry through Community
Founder and Director *University of Illinois, Urbana-Champaign*
2021 – present
- (2) Parkland Community College Bridge Program
Faculty Mentor *University of Illinois, Urbana-Champaign*
2021 – present
- (3) Out in Chem
Faculty Mentor *University of Illinois, Urbana-Champaign*
2019 – present
- (4) ChemWMN Professional Network
Faculty Mentor *Multi-Institutional*
2018 – present
- (5) Women Chemists Committee (WCC)
Faculty Mentor *University of Illinois, Urbana-Champaign*
2018 – 2023
- (6) Discussion leader of GRC “Power Hour”: Metals in Biology (January **2023**); Metallocofactors (June **2022**)
- (7) Panelist: Women’s History Month, UIUC (March **2021**), Undergraduate ACS affiliates (March **2022**, October **2019**, September **2019**), WCC Professional Development Panelist (April **2019**), Professional Development Course for Chemists (February **2019**), Parkland Community College Luncheon at UIUC (November **2018**), Women in Chemistry Annual Retreat (August **2018**)
- (8) Outreach: Phenotypic Plasticity Research Experience for Community College Students (July **2022** and **2023**), Illinois Chemistry Experience for Minority Students (October **2021**), Pathways to Illinois Video (March **2021**), NOBCChE faculty representative (November **2019**)
- (9) NIH FIRST Program Development Committee *University of Illinois, Urbana-Champaign*
2021
- (10) Creating Sustainable HBCU-PWI Partnerships *University of Illinois, Urbana-Champaign*
2019