

## EDUCATION

- Yale University, New Haven, CT** May 2022  
Molecular Biophysics and Biochemistry Ph.D Program  
Integrated Program in Physical Engineering Biology
- University of Wisconsin-Eau Claire, Eau Claire, WI** May 2017  
Bachelor of Science, Biochemistry/Molecular Biology

## RESEARCH

- Postdoctoral Research, Massachusetts Institute Of Technology** 2022-Present  
Advisor: Dr. Heather Kulik, Department of Chemical Engineering  
Impact of the Local Enzyme Environment on Computed Properties of Metallocofactors
- Graduate Research, Yale University** 2018-2022  
Advisor: Dr. Sharon Hammes-Schiffer, Department of Chemistry  
Proton-Coupled Electron Transfer Reactions in Biological Systems
- Undergraduate Research, University of Wisconsin-Eau Claire** 2014-2017  
Advisor: Dr. Sudeep Bhattacharyay, Department of Chemistry  
Redox Chemistry and Protein Dynamics in Flavoenzymes

## PUBLICATIONS

13. Shipp, C.; Thrush, K.L., **Reinhardt, C.R.**; Siwiecki, S.A.; Claydon, J.L.; Noble, D.B.; O'Hern, C.S. Student-led workshop strengthens perceived discussion skills and community in an interdisciplinary graduate program. *FASEB BioAdvances* **2022**, *Accepted*.
12. **Reinhardt, C.R.\***; Konstantinovskiy, D\*.; Soudackov, A.V.; and Hammes-Schiffer, S. Kinetic Model for Reversible Radical Transfer in Ribonucleotide Reductase. *Proc. Natl. Acad. Sci. USA* **2022**, *119*, e2202022119.
11. Zhong, J.; **Reinhardt, C. R.**; Hammes-Schiffer, S., Role of Water in Proton-Coupled Electron Transfer between Tyrosine and Cysteine in Ribonucleotide Reductase. *J. Am. Chem. Soc.* **2022**, *144*, 7208-7214.
10. **Reinhardt, C. R.**; Sayfutyarova, E.R.; Zhong, J.; Hammes-Schiffer, S., Glutamate Mediates Proton-Coupled Electron Transfer Between Tyrosines 730 and 731 in *Escherichia coli* Ribonucleotide Reductase. *J. Am. Chem. Soc.* **2021**, *143*, 6054-6059.

9. **Reinhardt, C. R.;** Sequeira, R.; Tommos, C.; Hammes-Schiffer, S., Computing Proton-Coupled Redox Potentials of Fluorotyrosines in a Protein Environment. *J. Phys. Chem. B* **2021**, *125*, 128-136.
8. Hu, H.; Weinzetl, M.; Shulgina, I.; Weeks, K.; Fossum, C.; Adams, L.; **Reinhardt, C.R.;** Musier-Forsyth, K.; Bhattacharyya, S.; Hati, S., Editing Domain Motions Preorganize the Synthetic Active Sites of Prolyl-tRNA Synthetases. *ACS Catal.* **2020**, *10*, 10229-10242.
7. Freeze, J.G.; Martin, J.M.; Fitzgerald, P.; Jakiela, D.; **Reinhardt, C.R.;** and Newton, A. S.; Orchestrating a Highly Interactive Virtual Student Research Symposium. *J. Chem. Educ.* **2020**, *97*, 2773–2778.
6. **Reinhardt, C.R.;** Li, P.; Kang, K.; Stubbe, J.; Drennan, C.L.; Hammes-Schiffer, S. Conformational Motions and Water Structure at the  $\alpha/\beta$  Interface in *E. Coli* Ribonucleotide Reductase. *J. Am. Chem. Soc.* **2020**, *142*, 13768–13778.
5. Nilsen-Moe, A.; **Reinhardt, C.R.;** Glover, S.D.; Liang, L.; Hammes-Schiffer, S.; Hammarström, L.; Tommos, C. Proton-Coupled Electron Transfer from Tyrosine in the Interior of a de novo Protein: Mechanisms and Primary Proton Acceptor. *J. Am. Chem. Soc.* **2020**, *142*, 11550–11559.
4. **Reinhardt, C.R.;** Huakun, H.; Bresnahan, C.G.; Hati, S.; Bhattacharyya, S. Cyclic Changes in Active Site Polarization and Dynamics Drive the ‘Ping-pong’ Kinetics in NRH:Quinone Oxidoreductase 2: An Insight from QM/MM Simulations. *ACS Catal.* **2018**, *8*, 12015–12029.
3. Goings, J.; **Reinhardt, C.R.;** Hammes-Schiffer, S. Propensity for Proton Relay and Electrostatic Impact of Protein Reorganization in Slr1694 BLUF Photoreceptor. *J. Am. Chem. Soc.* **2018**, *140*, 45, 15241–15251.
2. **Reinhardt, C.R.;** Jaglinski, T.C.; Kastenschmidt, A.M. et al. Insight into the Kinetics and Thermodynamics of the Hydride Transfer Reactions between Quinones and Lumiflavin: A Density Functional Theory Study. *J Mol. Model.* **2016**, *22*, 199.
1. Bresnahan, C. G.\*; **Reinhardt, C. R. \***; Bartholow, T.; Rumpel, J. P.; North, M. A.; and Bhattacharyya, S. Effect of Stacking Interactions on the Thermodynamics and Kinetics of Lumiflavin: A Study with Improved Density Functionals and Density Functional Tight-Binding Protocol. *J. Phys. Chem. A* **2015**, *119*, 172–182.

\*Equal Contributions

## SELECTED ORAL PRESENTATIONS AND PANELS

Wesleyan University Biophysical Chemistry Seminar Series, October 2021, “Conformational Influences on Proton-Coupled Electron Transfer Reactions in Ribonucleotide Reductase.”

## Clorice R. Reinhardt

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**Telluride Workshop on Proton Transfer in Biology**, June 2021, “Glutamate Mediated Proton-Coupled Electron Transfer in *E. coli* Ribonucleotide Reductase.”

**American Chemical Society Meeting**, April 2021, COMP Division, “Conformational Motions and Water Networks at the  $\alpha/\beta$  Interface in *E. coli* Ribonucleotide Reductase.”

**Wisconsin Ronald E. McNair Post-baccalaureate Achievement Program and Student Support Services Retreat (Virtual)**, September 2020, Invited STEM Alumni Panelist.

**Student Research Symposium**, American Chemical Society-New Haven Local Section, April 2020. “Conformational Motions and Water Networks at the  $\alpha/\beta$  Interface in *E. coli* Ribonucleotide Reductase.”

**Yale Chemistry Symposium**, Yale University, August 2019. “Conformational Heterogeneity of the Ordered PCET Pathway in *E. Coli* Ribonucleotide Reductase.”

**University Honors Thesis Defense**, University of Wisconsin-Eau Claire, May 2017. “Studies of Hydride Transfer Reactions in Quinone Reductases”

**Provost’s Honors Symposium**, University of Wisconsin-Eau Claire, May 2016. “Towards Developing an Automated QM/MM Docking Method for Quinone Reductases”

**249<sup>th</sup> National American Chemical Society Meeting** Denver: PHYS Division, Computational Chemical Dynamics Symposium in Honor of Donald Truhlar. March 2015, “Quantum Mechanical/Molecular Mechanical Simulations of the Hydride Transfer Reactions in Quinone Reductase II”

## INSTRUCTIONAL EXPERIENCE

### **Graduate:**

Principles of Biochemistry Head Teaching Assistant	Fall 2019
Yale Young Global Scholars Lead Instructor	July 2019
Methods & Logic in Interdisciplinary Research Course Development	Spring 2019
Principles of Biochemistry Teaching Assistant*	Fall 2018
Yale Young Global Scholars Lead Instructor	June 2018
*Liaison to Resource Office on Disabilities	

### **Undergraduate:**

Biophysical Chemistry Laboratory Instructional Assistant	2016
General Chemistry II Laboratory Assistant	2015-2016
University Honors Program Freshman Seminar Instructor	2015

## SELECTED AWARDS

### ***Graduate (External):***

National Science Foundation Graduate Research Fellow (*Research, Outreach*) 2019  
Ford Foundation Predoctoral Fellowship Honorable Mention (*Research, Outreach*) 2019

### ***Graduate (Internal):***

Mary Ellen Jones Dissertation Prize (*Molecular Biophysics & Biochemistry*) 2022  
Robert E. MacNab Memorial Prize (*Molecular Biophysics & Biochemistry, Best Poster Presentation at Departmental Retreat*) 2018

### ***Undergraduate (External):***

Outstanding College Chemistry Student (*Central Wisconsin Section of ACS*) 2016  
Excellence in Undergrad. Research Poster Presentation (*251<sup>st</sup> National ACS Meeting*) 2016

### ***Undergraduate (Internal):***

Chair's Award-Chemistry Department Scholarship (*Service to Department*) 2017  
Anna Thurston Memorial Scholarship (*Teaching, Chemistry*) 2016-2017  
Ronald E. McNair Postbaccalaureate Achievement Program (*Academics, Diversity*) 2015-2017  
Dr. Jack Pladziewicz Research Scholarship (*Excellence in Research*) 2015-2016  
Chemistry Mentoring Scholarship (*Mentoring*) 2015-2016

## SELECTED LEADERSHIP & SERVICE

***American Chemical Society New Haven Section (ACS-NH)*** 2018-2022

Local chapter of the professional scientific organization

- Secretary (2019-2022)
- Chemists Celebrate Earth Week Coordinator (2020,2021,2022)
- 2019 Undergraduate Chapter Liaison

***Cientifico Latino-Graduate Student Mentorship Initiative*** 2019-Current

Program that pairs students from underrepresented groups in STEM with graduate student mentors to guide them through the graduate school application process and conduct mock interviews.

- Mentor (3 cycles)

***Open Labs*** 2017-2020

Graduate student outreach group working with K-8<sup>th</sup> graders in the New Haven School District. Volunteered 20+ hours performing science demonstrations in community events.

- Finance Chair (2018, 2019). Recontracted \$10,000 grant with American Physical Society in 2017, funds were never received by past finance officer. The grant was used to fund science demonstrations and create an educational video series about soft-robotics and bacterial infection for teachers and outreach.