

Ryan S. Reynolds, PhD.
 Postdoctoral Scholar, Department of Chemistry, UC Irvine
 ryan.s.reynolds@uci.edu

Academic Appointment

University of California, Irvine Postdoctoral Scholar	Nov. 2024 – Present
Finlayson-Pitts Research Group, <i>AirUCI Institute</i>	

Education

University of California, Berkeley Ph.D., Physical Chemistry	Dec. 2024
<i>Thesis:</i> The Chemical Kinetics of Reactive Intermediates in Organic Aerosol Particles	
Biola University , La Mirada, CA B.S., Chemistry	May 2019
Minor in Mathematics	
<i>Honors:</i> Epsilon Kappa Epsilon Society, Torrey Honors Program, Summa Cum Laude	

Research Experience

University of California, Irvine Postdoctoral Scholar	Nov. 2024 – Present
Advisor: Dr. Barbara J. Finlayson-Pitts	
• Conducted temperature-controlled gas uptake and desorption experiments, made instrument upgrades and repairs, developed Python-based data analysis methods • Synthesized organic self-assembled monolayers on nanoporous surfaces and analyzed their composition with FTIR spectroscopy • Mentored two undergraduate researchers in conducting this project	
Lawrence Berkeley National Laboratory Graduate Student Researcher	2019 – 2024
Advisor: Dr. Kevin R. Wilson	
• Measured rates and analyzed products of aerosol-phase oxidation reactions at the Advance Light Source synchrotron facility, using an aerosol mass spectrometer (AMS) and other mass spectrometry techniques • Constructed multiphase chemical mechanisms and kinetic models to interpret experimental results	
Biola University Stewart Honors Undergraduate Research Fellow	Summer 2018
Advisor: Dr. Jessica W. Lu	
• Studied the surface photooxidation of pesticides using ATR-FTIR spectroscopy	
NASA Jet Propulsion Laboratory Summer Research Intern	Summer 2016, 2017
Advisors: Dr. Michael R. Gunson & Dr. Jonathan Hobbs	
• Evaluated retrieval algorithm performance for an atmospheric monitoring satellite (OCO-2) using statistical simulations, performed data analysis and visualization	

Publications

Reynolds, R. S.; Johnson, K. N.; Pacaud, K.; Ezell, M.; Lakey, P. S. J.; Shiraiwa, M.; Finlayson-Pitts, B. J. Surfaces, Silica and Semivolatile Organics—Limonene Uptake and Desorption Indoors and Outdoors. *Environ. Sci.: Processes Impacts* **2025**, 27 (7), 1902–1913.

Reynolds, R. S.; Wilson, K. R. Unraveling the Meaning of Effective Uptake Coefficients in Multiphase and Aerosol Chemistry. *Acc. Chem. Res.* **2025**, 58 (3), 366–374.

Reynolds, R. S.; Wilson, K. R. Balance of Unimolecular and Bimolecular Pathways Control the Temperature-Dependent Kinetics of Ozonolysis in Aerosols. *J. Phys. Chem. A* **2025**, 129 (1), 232–243.

Publications, continued

- Kim, P.; **Reynolds, R. S.**; Deal, A. M.; Vaida, V.; Ahmed, M.; Wilson, K. R. Accelerated Zymonic Acid Formation from Pyruvic Acid at the Interface of Aqueous Nanodroplets. *J. Phys. Chem. Lett.* **2024**, 15 (44), 11131–11138.
- Kaur Kohli, R.; **Reynolds, R. S.**; Wilson, K. R.; Davies, J. F. Exploring the Influence of Particle Phase in the Ozonolysis of Oleic and Elaidic Acid. *Aerosol Science and Technology*. **2023**, 1–18.
- Reynolds, R.**; Ahmed, M.; Wilson, K. R. Constraining the Reaction Rate of Criegee Intermediates with Carboxylic Acids during the Multiphase Ozonolysis of Aerosolized Alkenes. *ACS Earth Space Chem.* **2023**, 7 (4), 901–911.

Presentations

- Atmospheric Chemistry Gordon Research Seminar & Conference, Newry, ME **Aug. 2025**
- Let's Get Functional: A Gas-Surface Interactions Perspective on SOA Growth Mechanisms. (*Talk*)
 - Understanding Organic Particle Growth *via* Temperature Programmed Desorption and Uptake Measurements. (*Poster*)
- American Chemical Society (ACS) Spring Meeting, San Diego, CA **Mar. 2025**
- Understanding the Growth of Organic Particles in Air *via* Temperature Programmed Desorption & Gas Uptake Measurements. (*Talk*)
- Molecular Understanding of Atmospheric Aerosols (MUOAA), Cargèse, France **Apr. 2024**
- Temperature-Dependence of Criegee Intermediate-Driven Chemistry in Organic Aerosol. (*Poster*)
- American Association for Aerosol Research (AAAR) Meeting, Portland, OR **Oct. 2023**
- The Role of Particle-Phase Criegee Intermediates in the Ozonolysis of Organic Aerosol. (*Poster*)
- ACS Fall Meeting, San Francisco, CA **Aug. 2023**
- Criegee Intermediates and organic acids in the condensed phase: Reaction kinetics of the heterogeneous ozonolysis of submicron aerosol. (*Talk*)
- American Geophysical Union (AGU) Fall Meeting, Chicago, IL **Dec. 2022**
- Kinetics of Criegee Intermediate Reactions With Carboxylic Acids During Heterogeneous Ozonolysis. (*Talk*)

Teaching Experience

University of California, Irvine

- Instructional Assistant** | Multiphase Atmospheric Chemistry (CHEM 245B) **Winter 2026**
Professor: Dr. James Smith
- Guest Instructor** | General Chemistry (CHEM 1X) **Fall 2025**
Professor: Dr. Sergey Nizkorodov

University of California, Berkeley

- Head Graduate Student Instructor** | General Chemistry (CHEM 1A) **Fall 2021**
Professors: Dr. Kristie Boering, Dr. Eric Neuscamman
- Oversaw a team of 14 graduate student instructors, administered course communication and policy for nearly 1500 enrolled students, taught weekly interactive review lectures, facilitated a hybrid classroom & return to in-person instruction, assisted with exam development.

Teaching Experience, continued

Graduate Student Instructor | Physical Chemistry Laboratory (CHEM 125) Spring 2021

Professor: Dr. Michael Zuerch

- Instructed upper-division students in remote laboratory course, prepared recorded lecture demonstrations, helped with curriculum development, evaluated oral lab report presentations.

Graduate Student Instructor | General Chemistry (CHEM 1A) Fall 2019

Professors: Dr. Philip Geissler, Dr. Eran Rabani

- Instructed first-year chemistry students in laboratory and lecture discussion courses.

Biola University

Undergraduate Teaching Assistant | General Chemistry 2016 – 2018

Undergraduate Teaching Assistant | Organic Chemistry 2017 – 2018

Peer Tutor | General Chemistry, Organic Chemistry, & Calculus 2016 – 2019

Additional Teaching Experience

Guest Tutor | Hildegard College, Costa Mesa, CA Spring 2025

- Led a Socratic seminar class session on a historical scientific text for a class of undergraduate humanities students, where we explored the historical and philosophical development of the scientific method.

Private Tutor | High School Chemistry Fall 2024 – Present

Outreach & Service

AirUCI Outreach Events | *Volunteer* Fall 2024 – Present

Helped run outreach events for the AirUCI institute at UC Irvine, including laboratory tours for students from under-resourced communities and a science education and fundraiser event featuring a NASA astronaut.

CHEMentor, UC Berkeley College of Chemistry | *Volunteer Mentor* 2023 – 2024

Mentored a first-year chemistry graduate student with a liberal arts background through beginning graduate school and selecting a research advisor and project.

Bay Area Scientists in Schools (BASIS) | *Volunteer* Spring 2021

Put on interactive science education presentations about climate science and renewable energy for East Bay Area elementary and middle school students.

The People Concern | *Volunteer* 2017 – 2019

Volunteered weekly at the Studio 526 LAMP Arts Program, which provides free art supplies, studio space, and community events for residents of the Skid Row Neighborhood of Los Angeles.