

# JENNIFER A. FAUST

Department of Chemistry, College of Wooster  
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## EDUCATION

**PhD:** University of Wisconsin-Madison (2010-2015) / Physical Chemistry

Appointments: NSF Graduate Research Fellow, Research Assistant, Teaching Assistant

Thesis: *Collisions and Reactions with Glycerol Films and Water Microjets: Exploring the Chemistry of Interfacial Ions*

**BA:** Illinois Wesleyan University (2006-2010)

Major: Chemistry with ACS certification / Minors: Physics, Hispanic Studies

Study Abroad: Fundación Ortega y Gasset / Toledo, Spain (Summer 2008)

## SCIENTIFIC EXPERIENCE

**Associate Professor of Chemistry** (August 2023-present)

**Assistant Professor of Chemistry** (August 2017-2023)

College of Wooster / Wooster, Ohio

- Courses taught: Analytical Chemistry, Analytical Chemistry Lab, Atmospheric Chemistry, General Chemistry I and II, Environmental Chemistry, Environmental Contaminants, Instrumental Analysis Lab, Molecular World of Air & Water, Intro to Independent Study, Senior Independent Study, First-Year Seminar: Poisoned Water
- Research with students:
  - Characterize organic molecules in local precipitation using high-resolution mass spectrometry.
  - Monitor rates, products of multiphase reactions that degrade pesticide films.
  - Test stability of model rubber films against heterogeneous oxidation.

**Postdoctoral Fellow: Environmental Chemistry** (October 2015-July 2017)

University of Toronto / Advisor: Jonathan P. D. Abbatt

- Evaluated the influence of aqueous-phase and heterogeneous chemistry during secondary organic aerosol formation in a flow tube employing aerosol mass spectrometry.
- Supervised undergraduate researcher using infrared spectroscopy to explore heterogeneous reaction of bleach with squalene films.

**Graduate Research: Physical Chemistry** (June 2010-September 2015)

University of Wisconsin-Madison / Advisor: Gilbert M. Nathanson

- Probed reactions at gas-liquid interfaces via molecular beam scattering and time-of-flight mass spectrometry.
- Implemented the liquid microjet technique to investigate acid dissociation and evaporation of dissolved gases across the surface of water.

**Nordic Travel Grant: Atmospheric Physics** (August-December 2012)

University of Helsinki, Finland / Advisor: Markku Kulmala

- Detected gas-phase arsenic cations for the first time in ambient air over a remote lake.
- Collaborated with Dr. Gunnar Öhrwall and Prof. Olle Björneholm at MAX-lab synchrotron in Lund, Sweden to analyze surfactants on water microjets by X-ray photoelectron spectroscopy.

## Undergraduate Research:

- Illinois Wesleyan / Advisor: Rebecca A. Roesner / Inorganic & Analytical Chemistry (2008-2010)
- University of Buenos Aires, Argentina / Advisor: Pedro F. Aramendía / Photochemistry (Summer 2009 REU)
- University of Arizona / Advisor: S. Scott Saavedra / Analytical Chemistry (Summer 2007 REU)

## PUBLICATIONS

ORCID iD: 0000-0002-2574-7579

*Undergraduate co-authors are underlined.*

Nino-Suastegui, S.\*; Painter, E.\*; Sprankle, J. W.\*; Morrison, J. J.; **Faust, J. A.**; Gray, R. Non-Targeted Analysis and Suspect Screening of Organic Contaminants in Temperate Snowfall Using Liquid Chromatography High-Resolution Mass Spectrometry, *Environmental Research* **2025**, 266, 120494. doi: 10.1016/j.envres.2024.120494

D'eon, J. C.; Baskaran, S.; **Faust, J. A.**; Staikova, M.; Young, C. J. Welcome to 310 Environmental Working Group! A Group Project That Places Students in the Role of Consultants Helping Businesses Choose the Most Climate Friendly Fluorinated Gas, *Journal of Chemical Education* **2024**, 101, 4203-4213. doi: 10.1021/acs.jchemed.4c00479

Turlington, Z. R.; Vaz Ferreira de Macedo, S.; Perry, K.; Belsky, S. L.\*; **Faust, J. A.**; Snider, M. J.; Hicks, K. A. Ligand Bound Structure of a 6-Hydroxynicotinic Acid 3-Monooxygenase Provides Mechanistic Insights, *Archives of Biochemistry and Biophysics* **2024**, 752, 109859. doi: 10.1016/j.abb.2023.109859

Kim, Y.\*; Pike, K. A.\*; Gray, R.; Sprankle, J. W.\*; **Faust, J. A.**; Edmiston, P. L. Non-Targeted Identification and Semi-Quantitation of Emerging Per- and Polyfluoroalkyl Substances (PFAS) in US Rainwater, *Environmental Science: Processes & Impacts* **2023**, 25, 1771-1787. doi: 10.1039/D2EM00349J. [Invited manuscript for the themed issue "Tracking Complex Mixtures of Chemicals in the Human- and Eco-Exposome: The Nexus of Models, Analytics, and Toxicity". **First Runner-up** in *Environ. Sci.: Processes Impacts Best Papers of 2022.*]

Gray, R.; Painter, E.\*; Sprankle, J.\*; Crawford, A. D.; Morrison, J. J.; Frazier, M.; **Faust, J. A.** Suspect Screening for Pesticides in Precipitation Using Liquid Chromatography High-Resolution Mass Spectrometry, *Atmospheric Environment* **2022**, 291, 119389. doi: 10.1016/j.atmosenv.2022.119389

Wokosin, K. A.\*; Schell, E. L.\*; **Faust, J. A.** Emerging Investigator Series: Surfactants, Films, and Coatings on Atmospheric Aerosol Particles: A Review, *Environmental Science: Atmospheres* **2022**, 2, 775-828. doi: 10.1039/D2EA00003B. [Invited manuscript. **Best Emerging Investigator Paper** in *Env. Sci.: Atmos. Best Papers of 2022.*]

**Faust, J. A.** PFAS on Atmospheric Aerosol Particles: A Review, *Environmental Science: Processes & Impacts* **2022**, 25, 133-150. doi: 10.1039/D2EM00002D

Diamond, K. M.; Good, C. J.\*; Johnny, N.; Sakihara, T. S.; Edmiston, P. L.; **Faust, J. A.**; Schoenfuss, T. C.; Rubin, A. M.; Blob, R. W.; Schoenfuss, H. L. Assessing Occurrence and Biological Consequences of Contaminants of Emerging Concern on Oceanic Islands. *Water* **2022**, 14, 275. doi: 10.3390/w14030275

Pike, K. A.\*; Edmiston, P. L.; Morrison, J. J.; **Faust, J. A.** Correlation Analysis of Perfluoroalkyl Substances in Regional U.S. Precipitation Events, *Water Research* **2021**, 190, 116685. doi: 10.1016/j.watres.2020.116685

**Faust, J. A.**; Abbatt, J. P. D. Organic Surfactants Protect Dissolved Aerosol Components against Heterogeneous Oxidation, *Journal of Physical Chemistry A* **2019**, 123, 2114-2124. doi: 10.1021/acs.jpca.9b00167

- Schwartz-Narbonne, H.; Wang, C.; Zhou, S.; Abbatt, J. P. D.; **Faust, J.** Heterogeneous Chlorination of Squalene and Oleic Acid, *Environmental Science & Technology* **2019**, *53* (3), 1217-1224. doi: 10.1021/acs.est.8b04248. [Featured on cover. ACS Editors' Choice.]
- Faust, J. A.**; Wong, J. P. S.; Lee, A. K. Y.; Abbatt, J. P. D. Role of Aerosol Liquid Water in Secondary Organic Aerosol Formation from Volatile Organic Compounds, *Environmental Science & Technology* **2017**, *51*, 1405-1413. doi: 10.1021/acs.est.6b04700
- Faust, J. A.**; Nathanson, G. M. Microjets and Coated Wheels: Versatile Tools for Exploring Collisions and Reactions at Gas-Liquid Interfaces, *Chemical Society Reviews* **2016**, *45*, 3609-3620. doi: 10.1039/C6CS00079G
- Faust, J. A.**; Junninen, H.; Ehn, M.; Chen, X.; Ruusuvuori, K.; Kieloaho, A.-J.; Bäck, J.; Ojala, A.; Jokinen, T.; Worsnop, D. R.; Kulmala, M.; Petäjä, T. Real-Time Detection of Arsenic Cations from Ambient Air in Boreal Forest and Lake Environments, *Environmental Science & Technology Letters* **2016**, *3* (2), 42-46. doi: 10.1021/acs.estlett.5b00308. [Featured on cover.]
- Faust, J. A.**; Sobyra, T. B.; Nathanson, G. M. Gas-Microjet Reactive Scattering: Collisions of HCl and DCl with Cool Salty Water, *Journal of Physical Chemistry Letters* **2016**, *7*, 730-735. doi: 10.1021/acs.jpcclett.5b02848
- Hahn, C.; Kann, Z. R.; **Faust, J. A.**; Skinner, J. L.; Nathanson, G. M. Super-Maxwellian Helium Evaporation from Pure and Salty Water, *The Journal of Chemical Physics* **2016**, *144*, 044707. doi: 10.1063/1.4940144
- Johnson, A. M.; Lancaster, D. L.; **Faust, J. A.**; Hahn, C.; Reznickova, A.; Nathanson, G. M. Ballistic Evaporation and Solvation of Helium Atoms at the Surfaces of Protic and Hydrocarbon Liquids, *Journal of Physical Chemistry Letters* **2014**, *5*, 3914-3918. doi: 10.1021/jz501987r
- Faust, J. A.**; Dempsey, L. P.; Nathanson, G. M. Surfactant-Promoted Reactions of Cl<sub>2</sub> and Br<sub>2</sub> with Br<sup>-</sup> in Glycerol, *Journal of Physical Chemistry B* **2013**, *117*, 12602-12612. doi: 10.1021/jp4079037
- Ruusuvuori, K.; Kurtén, T.; Ortega, I. K.; **Faust, J.**; Vehkamäki, H. Proton Affinities of Candidates for Positively Charged Ambient Ions in Boreal Forests, *Atmospheric Chemistry and Physics* **2013**, *13*, 10397-10404. doi: 10.5194/acp-13-10397-2013
- Dempsey, L. P.; **Faust, J. A.**; Nathanson, G. M. Near-Interfacial Halogen Atom Exchange in Collisions of Cl<sub>2</sub> with 2.7 M NaBr-Glycerol, *Journal of Physical Chemistry B* **2012**, *116*, 12306-12318. doi: 10.1021/jp308202k

\*Wooster undergraduate

## **BOOKS**

Co-edited and wrote foreword for *Physical Chemistry of Gas-Liquid Interfaces*; **Faust, J. A.**; House, J. E., Eds.; Elsevier: Amsterdam, Netherlands, 2018.

## **ORAL PRESENTATIONS**

*American Chemical Society (ACS) Meeting*, March 2024, New Orleans LA. Gray, R.; Belay, G.\*; Nino-Suastegui, S.\*; Alaimo, C. P.; Young, T. M.; **Faust, J. A.** Detecting Deposition of Organic Contaminants with High-Resolution Mass Spectrometry: Complementary Approaches from Liquid Chromatography and Gas Chromatography.

*American Geophysical Union (AGU) Meeting*, Dec 2023, San Francisco CA. **Faust, J.**; Kim, Y.\*; Pike, K. A.\*; Hayes, G.\*; Sprankle, J.\*; May, A.; Gray, R.; Edmiston, P. L. Atmospheric Transport and Deposition of Emerging Per- and Polyfluoroalkyl Substances.

*Eastern Analytical Symposium (EAS)*, Nov 2023, Princeton NJ. Kim, Y.\*; Pike, K. A.\*; Sprankle, J. W.\*; Conley, D.\*; Gray, R.; **Faust, J. A.**; Edmiston, P. L. Transport and Deposition of Emerging PFAS Through Rainfall. **Invited Talk.**

*Midwestern States Environmental Consultants Association (MSECA) Environmental Conference*, Dec 2021, Virtual. Pike, K. A.\*; Edmiston, P. L.; Morrison, J. J.; **Faust, J. A.** PFAS Contamination in Rainfall from the Central U.S. **Invited Talk.**

*American Association for Aerosol Research (AAAR) Meeting*, Oct 2021, Virtual. Pike, K.\*; Gray, R.; Painter, E.\*; Edmiston, P.; Morrison, J.; **Faust, J. A.** Atmospheric Transport of PFAS and Pesticides Through Dry and Wet Deposition.

*American Chemical Society (ACS) Meeting*, April 2021, Virtual. Pike, K. A.\*; Edmiston, P. L.; Morrison, J. J.; **Faust, J. A.** Occurrence of Perfluoroalkyl Substances in Rainfall from the Central U.S.

*Society of Environmental Toxicology and Chemistry (SETAC) North America Meeting*, Nov 2020, Virtual. Pike, K. A.\*; Edmiston, P. L.; Morrison, J. J.; **Faust, J. A.** Occurrence of Per- and Polyfluoroalkyl Substances (PFAS) in Precipitation in the Central United States.

*Society of Environmental Toxicology and Chemistry (SETAC) North America Meeting*, Nov 2018, Sacramento CA. **Faust, J.**; Welch, A.\*; Miller, K.\*; Wokosin, K.\*; Booker, J.\*; Bowman, B.\*; Gireesh, A.\*; Breneman, W. Translating Environmental Chemistry Research from the Undergraduate Lab to the High School Classroom: Operation Precipitation Collaboration.

*American Association for Aerosol Research (AAAR) Meeting*, Oct 2017, Raleigh NC. **Faust, J.**; Abbatt, J. Influence of Soluble Surfactants on Heterogeneous Photooxidation of Aqueous Aerosol.

*ACCESS XIV*, July 2017, Upton NY. **Faust, J.**; Wong, J.; Lee, A.; Abbatt, J. Influence of Aerosol Liquid Water on the Formation and Composition of Secondary Organic Aerosol.

*Canadian Chemistry Conference and Exhibition*, May 2017, Toronto ON, Canada. **Faust, J.**; Wong, J.; Lee, A.; Abbatt, J. Role of Aqueous and Multiphase Chemistry in Secondary Organic Aerosol Formation.

*Canadian Chemistry Conference and Exhibition*, May 2017, Toronto ON, Canada. **Faust, J. A.**; D'eon, J. C. Environmental Chemistry in the Real World: Casting Students as Industrial Consultants.

*American Association for Aerosol Research (AAAR) Meeting*, Oct 2016, Portland OR. **Faust, J. A.**; Wong, J. P. S.; Lee, A. K. Y.; Abbatt, J. P. D. The Role of Aerosol Water in Secondary Organic Aerosol Formation from Volatile Organic Compounds.

*American Chemical Society (ACS) Meeting*, Aug 2014, San Francisco CA. **Faust, J. A.**; Hahn, C.; Nathanson, G. M. Collisions and Reactions at the Surfaces of Salty Water and Salty Glycerol: Exploring the Chemistry of Interfacial Ions.

*Gordon Research Seminar: Dynamics at Surfaces*, Aug 2013, Newport RI. **Faust, J. A.**; Dempsey, L. P.; Nathanson, G. M. Surfactant-Induced Enhancement of Chlorine Reactivity with Salty Glycerol.

\*Wooster undergraduate

## **POSTER PRESENTATIONS**

*Gordon Research Conference: Atmospheric Chemistry*, July-Aug 2023, Newry ME. Gray, R.; Painter, E.\*; Belay, G.\*; Sprankle, J. W.\*; Crawford, A. D.; Morrison, J. J.; Frazier, M.; Alaimo, C. P.; Young, T. M.; **Faust, J. A.** Atmospheric Transport and Deposition of Pesticides: Suspect Screening Analysis with High-Resolution Mass Spectrometry.

*American Society for Mass Spectrometry (ASMS) Conference*, June 2023, Houston TX. Kim, Y.\*; Pike, K. A.\*; Conley, D.\*; Sprankle, J.\*; Gray, R.; Alaimo, C.; Young, T.; **Faust, J. A.**; Edmiston, P. L. Non-Targeted Analysis of Emerging Per- and Polyfluoroalkyl Substances (PFAS) in Rainwater.

*American Chemical Society (ACS) Meeting*, Mar 2022, San Diego CA. Gray, R. E.; Painter, E.\*; Sprankle, J.\*; Crawford, A.; Young, T. M.; **Faust, J. A.** Characterizing Pesticides in Precipitation Samples Using High-Resolution Mass Spectrometry. Featured at Sci-Mix.

*American Chemical Society (ACS) Central Regional Meeting*, May 2020, Columbus OH. **Faust, J. A.**; Wokosin, K.\*; Vicker, S.\*; Womack, E.\*; Pham, L.\* Formation of Brown Carbon in Atmospheric Aerosols: Multiphase Reactions of Amines and Carbonyls. *Canceled due to COVID-19.*

*Gordon Research Conference: Atmospheric Chemistry*, July 2019, Newry ME. **Faust, J. A.**; Wokosin, K.\*; Vicker, S.\*; Womack, E.\*; Tran, A.\* Real-Time Brown Carbon Formation from Multiphase Reactions of Amines and Carbonyls.

*Pittcon*, Mar 2019, Philadelphia PA. Park, C. J.\*; Vicker, S. L.\*; Nguyen, V. K.\*; **Faust, J. A.** A Simple Setup to Monitor Multiphase Reactions in Real Time: Applications of Attenuated Total Reflection Infrared Spectroscopy.

*American Geophysical Union (AGU) Meeting*, Dec 2018, Washington DC. Wokosin, K. A.\*; Vicker, S.\*; Womack, E.\*; **Faust, J. A.** Monitoring Brown Carbon Formation in Real Time From Multiphase Reactions of Amines and Carbonyls.

*American Chemical Society (ACS) Meeting*, Mar 2018, New Orleans LA. **Faust, J. A.**; Wong, J. P. S.; Lee, A. K. Y.; Abbatt, J. P. D. Influence of Liquid Water Content and Surfactant Coverage on the Oxidation of Atmospheric Organic Aerosol.

*Gordon Research Conference: Atmospheric Chemistry*, Aug 2017, Newry ME. **Faust, J. A.**; Wong, J. P. S.; Lee, A. K. Y.; Abbatt, J. P. D. Influence of Aerosol Liquid Water and Surfactant Coverage on the Oxidation of Organic Aerosol.

*College Chemistry Canada Conference*, May 2017, Toronto ON, Canada. **Faust, J. A.**; D'eon, J. C. Environmental Chemistry Beyond the Classroom: A Semester-Long Industrial Consulting Project.

*American Chemical Society (ACS) Meeting*, Mar 2016, San Diego CA. **Faust, J. A.**; Wong, J. P. S.; Lee, A. K. Y.; Abbatt, J. P. D. The Role of Aerosol Water in Secondary Organic Aerosol Formation from Volatile Organic Compounds. Featured at Sci-Mix.

*Gordon Research Conference: Dynamics at Surfaces*, Aug 2013, Newport RI. **Faust, J. A.**; Dempsey, L. P.; Nathanson, G. M. Surfactant-Promoted Reactions at Gas-Liquid Interfaces: Startling Implications for Tropospheric Aerosol Chemistry. *Young Investigator Award.*

*Lorentz Center Workshop: Dynamical Phenomena at Surfaces*, Nov 2012, Leiden, the Netherlands. **Faust, J. A.**; Dempsey, L. P.; Nathanson, G. M. Interfacial Halogen Atom Exchange following Collisions of Cl<sub>2</sub> with Surfactant-Coated Glycerol. *Young Investigator Award.*

*Annual Meeting of the Finnish Centre of Excellence*, Sept 2012, Hyytiälä, Finland. **Faust, J. A.**; Dempsey, L. P.; Nathanson, G. M. Interfacial Halogen Atom Exchange following Collisions of Cl<sub>2</sub> with Surfactant-Coated Glycerol.

*Workshop on Atmospheric Aerosol Formation and Early Growth*, Aug 2012, Hyytiälä, Finland. **Faust, J. A.**; Dempsey, L. P.; Nathanson, G. M. Interfacial Halogen Atom Exchange following Collisions of Cl<sub>2</sub> with Surfactant-Coated Glycerol.

*International Workshop on Nanomaterials and Functional Materials*, Aug 2009, Campinas, Brazil. **Faust, J.**; Araújo, B.; Aramendía, P. F. Red Edge Excitation Effects in Poly(n-alkylmethacrylate) Films near the Glass Transition Temperature.

*John Wesley Powell Undergraduate Research Conference*, April 2009, Bloomington IL. **Faust, J.**; Roesner, R. A Simple Apparatus for Potentiometric Titrations.

*John Wesley Powell Undergraduate Research Conference*, April 2008, Bloomington IL. **Faust, J.**; Orosz, K.; Ozkan, Z.; Saavedra, S. S. Novel Poly(aniline) films as Electroactive Supports for Artificial Photosynthesis in a Planar Membrane.

\*Wooster undergraduate

### **INVITED SEMINARS**

Illinois Wesleyan University, Alumni of the Year Award Talk, Bloomington IL, 22 April 2024. *From Wesleyan to the World: A Journey in Chemistry.*

Cleveland State University, Chemistry Seminar Series, Cleveland OH, 13 Oct 2023. *Characterizing Contaminants in Rain and Snow with High-Resolution Mass Spectrometry.*

Frontiers in Atmospheric Chemistry Seminar Series (FACSS), Virtual, 29 Sept 2023. *Transport and Deposition of Organic Contaminants.*

Environmental Protection Agency (EPA) National Enforcement Investigations Center (NEIC), Technical Presentation Series, Lakewood CO (virtual), 19 July 2023. *Atmospheric Transport of Environmental Contaminants: Characterizing PFAS and Pesticides in Rainfall.*

National Oceanic and Atmospheric Administration (NOAA), Chemical Sciences Laboratory Seminar Series, Boulder CO (virtual), 11 May 2022. *Case Studies for the Atmospheric Transport of Environmental Contaminants: PFAS and Pesticides in Precipitation.*

College of Wooster, Chemistry Mini Seminar Series, Wooster OH, 15 Feb 2022. *Chemistry in the Sky: Reactions on Atmospheric Aerosol Particles.*

McMaster University, Chemistry Seminar Series, Hamilton ON (virtual), 3 Feb 2022. *From Particulate Matter to Precipitation: Reaction and Transport of Chemicals in the Atmosphere.*

Oberlin College, Chemistry Seminar Series, Oberlin OH, 15 Dec 2021. *Rain Drops, Cloud Drops, and Aerosol Seeds: How Chemicals Move through the Atmosphere.*

College of Wooster, Faculty Research Gathering, Wooster OH, 3 Dec 2021. *What Goes Up Must Come Down: Environmental Contaminants in Our Rainwater.*

Denison University, Chemistry Seminar Series, Granville OH, 12 Oct 2021. *Rain Drops, Cloud Drops, and Aerosol Particles: How Chemicals Move through the Atmosphere.*

Wooster Science Café, Wooster OH (virtual), 24 Feb 2021. *Chemicals, Clouds, and Climate.*

University of Akron, Chemistry Seminar Series, Akron OH, 22 Feb 2020. *Multiphase Reactions on Organic Aerosols in the Atmosphere.*

University of Toronto, Environmental Chemistry Seminar Series, Toronto ON, 21 Mar 2017. *The Role of Water in Secondary Organic Aerosol Formation.*

### **PRESS COVERAGE**

“Chance of Rain – Profile of Jennifer Faust”, by Jon Evans in *Wiley Analytical Science Magazine*, 26 September 2024 <<https://analyticalscience.wiley.com/content/article-do/chance-rain-profile-jennifer-faust>>

“C&EN’s Year in Chemistry 2022: Surprising pollution findings in 2022”, by Katherine Bourzac in *Chemical & Engineering News*, 15 December 2022 <<https://cen.acs.org/education/science-communication/CENs-Year-Chemistry-2022/100/i44#Surprising-pollution-findings-in-2022>>

“It’s literally raining PFAS around the Great Lakes, say researchers”, by Garret Ellison for *cleveland.com*, 8 June 2021 <<https://www.cleveland.com/news/2021/06/its-literally-raining-pfas-around-the-great-lakes-say-researchers.html>>

“US rainwater contains new and phased out PFAS”, by Katherine Bourzac in *Chemical & Engineering News*, 6 April 2021 <<https://cen.acs.org/acs-news/acs-meeting-news/US-rainwater-contains-new-and-phased-out-PFAS/99/web/2021/04>>

## **EXTERNAL GRANT FUNDING**

National Science Foundation (2022-2025), Collaborative Research: Towards a Better Understanding of the Atmospheric Fate of PFAS; A. May (PI, The Ohio State University), **J. Faust** (co-PI, College of Wooster), S. Vyas (co-PI, Colorado School of Mines); \$771,694 (\$24,448 to Wooster).

National Science Foundation CAREER Award (2021-2026), CAREER: Multiphase Oxidation and Fate of Pesticides in Dry and Wet Deposition; **J. Faust** (PI); \$641,239.

National Science Foundation Major Research Instrumentation (2020-2023), MRI: Acquisition of a LC/Q-ToF Mass Spectrometer to Enhance Undergraduate Research and Education in the Chemical and Biochemical Sciences; P. Edmiston (PI), **J. Faust** (co-PI); \$232,158.

American Chemical Society Petroleum Research Fund (2018-2022), Exploring Heterogeneous Reactions of Model Lubricant Films with Indoor Oxidants: Products, Kinetics, and Energetics; **J. Faust** (PI); \$55,000.

Spectroscopy Society of Pittsburgh: College Equipment Grants Program (2017), Enhancing Research and Teaching with Attenuated Total Reflectance Spectroscopy; P. Edmiston and **J. Faust**; \$3,475.

## **INTERNAL GRANT FUNDING**

Henry Luce III Fund for Distinguished Scholarship (2025-2026), Advances in Characterization of Environmental Contaminants in Rain and Snow: \$10,938

Henry Luce III Fund for Distinguished Scholarship (2020-2022), High-Resolution Analysis of Organic Contaminants and Aerosol Components in Local Precipitation: \$11,275

Sherman Fairchild Program (Summer 2018, Summer 2020) – competitive funding for 6 undergraduate students to conduct mentored summer research with J. Faust and P. Edmiston

Sophomore & Summer Research Program (2018-present) – competitive funding for undergraduate research students

## **HONORS**

*NSF CAREER Award* (2021-2026)

*ACCESS XIV*: Selected for Atmospheric Chemistry Colloquium for Emerging Senior Scientists (2017)

*National Science Foundation Graduate Research Fellowship*: NSF GRFP (2010-2015)

*KV Reddy Award in Physical Chemistry*: Presented to one student selected by UW faculty (2015)

*63<sup>rd</sup> Lindau Nobel Laureate Meeting in Chemistry*: Selected as one of 73 American delegates and 550 international young researchers to attend conference with 34 Nobel Laureates (2013)

*Nordic Research Opportunity*: Travel award for research proposal from NSF and Academy of Finland, included research grant and stipend for four months at University of Helsinki (2012)  
*Phi Kappa Phi Graduate Fellowship*: \$5000 national award to 60 students across all disciplines (2010)  
*National Undergraduate Honors*: Phi Beta Kappa (inducted 2009), Goldwater Scholar Honorable Mention (2008, 2009)  
*Institutional Undergraduate Honors*: Heartland American Chemical Society Collegiate Scholar (2010), Outstanding TA Award (2008-2009), ACS Analytical Chemistry Award (2009), POLYED Undergraduate Award for Achievement in Organic Chemistry (2008), CRC Press Achievement Award in General Chemistry (2007)

## **PROFESSIONAL TRAINING**

### **Teaching Experience & Training**

*Inclusive Research Mentoring*: Professional Learning Community at the College of Wooster (2023-2024)  
*Experiential Learning Bootcamp*: Workshop series at College of Wooster (Dec 2022 – Jan 2023)  
*Active Learning in Analytical Chemistry*: Attended NSF-funded workshops (2018, 2019)  
*ACS New Faculty Workshop*: Attended American Chemical Society workshop (2018)  
*STEM Faculty Learning Community*: Meets biweekly at the College of Wooster (2017-present)  
*Building Inclusive Classrooms*: Workshops at the College of Wooster (annually, 2017-present)  
*Curriculum Development*: Chemistry Teaching Fellows Program at University of Toronto (2016-2017), Grant to design comprehensive Industrial Consultants project for 300-level environmental chemistry course  
*THE500*: Teaching in Higher Education course at University of Toronto (2016)  
*TA at UW-Madison*: Physical Chemistry Laboratory (2010-2011), General Chemistry (2013)  
*TA at Illinois Wesleyan*: General Chemistry and Quantitative Analysis Laboratories (2008-2010)  
*Tutor* (2008-2017): General Chemistry, Advanced Gen. Chem., Physical Chem., AP & Gr. 12 Chem.

### **Research Training**

Liquid Chromatography-Mass Spectrometry Data Processing and Statistics Course, West Coast Metabolomics Center, UC Davis, Jan 25-29, 2021  
Physics and Chemistry of Air Pollution and Their Effects, Hyytiälä Autumn School, U. Helsinki, Finland, Oct 22 - Nov 2, 2012

## **SERVICE**

### **Professional Activities**

Member of American Chemical Society (ACS)  
Reviewer for *Accounts of Chemical Research*, *ACS Earth and Space Chemistry*, *Atmospheric Environment*, *Atmospheric Chemistry and Physics*, *Chemical Reviews*, *Chemosphere*, *Environmental Science & Technology*, *Environmental Science & Technology Letters*, *Environmental Science: Processes & Impacts*, *Journal of Chemical Education*, *Journal of Physical Chemistry*, *Science*, *Science Advances*

Ad hoc reviewer for grants from the National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF), American Chemical Society Petroleum Research Fund (ACS PRF)

Panel reviewer for NSF Environmental Chemical Sciences (ECS)

Co-chair for sessions at national meetings of the American Geophysical Union (AGU 2023), Society of Environmental Toxicology and Chemistry (SETAC 2018), Canadian Society of Chemistry (CSC 2017), American Association for Aerosol Research (AAAR 2017)

Participant in Great Lakes Colleges Association (GLCA) Leadership & Innovation Institute (2023)

### **Institutional Service at College of Wooster**

Chair, Department of Chemistry (2023-2025)

Global Engagement Office Advisory Committee (2021-2023)

Co-leader of STEM Faculty Learning Community (2019-2020) and Building Inclusive Classrooms Workshops (Aug 2019, Aug 2020)

Classroom Stewards Committee (Member 2018-2019; Chair 2019-2020, 2022-2023)

STEM Success Initiative Advisory Board (2018-2020)

ARCH advisor for incoming first-year students (2019-2022)

Goldwater Scholarship Campus Representative (2019-2020)

Chemistry Club Advisor (2018-2020, 2022-2023)

Chemistry Seminar Series Coordinator (2018-2019, 2023)

Copeland Fund Committee for Independent Study (2019, 2024-2025)

### **Community Service**

Lead precipitation collection outreach and lab visit program with Smithville and Buchtel High Schools in Ohio.

Host chemistry-themed workshops for middle school girls at Expanding Your Horizons, Exploring STEM Day, and B-WISER (Buckeye Women in Science, Engineering, and Research).

Led hands-on science experiments with surfactants and water at science festivals in Madison, WI. Judged projects at science fairs (Milwaukee, WI; Toronto, ON); National Science Olympiad (USA).

### **Prior Institutional Service**

Co-chaired McElvain Lecture in Physical Chemistry, 2011-2012 at UW-Madison.

Mentored physical chemistry and general chemistry students for the Center for Educational Opportunity, serving first generation and low-income college students at UW-Madison.

### **UNDERGRADUATE THESIS STUDENTS**

**George Belay** '25

**Elizabeth Longbrake** '25

**Yoshi Otani** '25

**Cameron Ray** '25

**Wenkai Fan** '24, Suspect Screening and Semi-Quantification of Organic Contaminants in Snow and Water Samples on the Qinghai-Tibet Plateau and High Mountain Regions

**Sarah Epstein** '24, Pesticides in the Atmosphere: The Heterogeneous Ozonolysis of Triconazole

**Laurel Lasch** '24, Ozonolysis of Squalene, Squalane, and Diphenylamine: Reaction Rates and Environmental Implications

**Ciara O'Connor** '24, Quantifying the Acidity of Perfluoroalkyl Acids: A Study of  $pK_a$  Values and Their Relationship to Chemical Structure and Physicochemical Properties

**Young Cho** '23, co-advised with Dr. Rebekah Gray, Detection and Quantification of Glyphosate in Precipitation using LC-MS and ELISA

**Lily Anderson** '23, Measurement & Analysis of Pesticide Biotransformation Products in Ohio Precipitation Samples

**Emma Schell** '23, Heterogeneous Ozonolysis of a Novel Fungicide

**Riya Joshi** '22, Multiphase Oxidation of Squalene and Diphenylamine in the Presence of Ozone Gas by Using ATR-FTIR Spectroscopy

**David DiGena-Segal** '22, co-advised with Dr. Rebekah Gray, What's in the Air: Characterization of Particulate Matter in Wooster Ohio

**Aaron Weese** '22, co-advised with Dr. Rebekah Gray, Methods of Characterization and Quantification of Pesticides in Precipitation in Wooster, Ohio

**Jenelle Booker** '21, co-advised with Dr. Karl Feierabend, Self-Assembled Monolayers as a Model for Photooxidation of Plastic Waste Using ATR-FTIR and Kinetic Modeling

**Madison Heller** '21, co-advised with Dr. Paul Edmiston, Analysis of Vitamin C Products for Potency and Associated Contaminants by HPLC-UV and GC-MS

**Ethan Kahrl** '20, The Radical World of Aerosols: Heterogeneous Oxidation of Hydrocarbons by Hydroxyl Radicals Using Infrared Spectroscopy

**Linh Pham** '20, Multiphase Reactions of Methylglyoxal and Gas-Phase Methylamine

**Kyndalanne Pike** '20, double major in Mathematics, co-advised with Dr. Jillian Morrison, What's in the Water? Examining Contamination by Poly- and Perfluoroalkyl Substances in Rainwater

**Wesley Wagner** '20, Kinetics and Products of Hydroxyl Radical Initiated Reactions with Long-Chain Alkanes in the Atmosphere

**Brittany Bowman** '19, Analysis of Brominated Flame Retardants (BFRs) by Chromatography in Precipitation Samples Collected in Northeast Ohio

**Zach Lyon** '19, The Method Development and Qualitative Characterization of Organosulfates in Rainwater by LC-MS

**Cody Park** '19, Degrading Diesel Fuel and WD-40: Method Development for Characterizing Oxidation of Thin Layer Alkanes

**Erika Womack** '19, Production and Quantification of Brown Carbon from Multiphase Reactions of Methylglyoxal with Gas-Phase Methylamine

**Chris Good** '19, co-advised with Dr. Paul Edmiston, Elucidating the Impact of Contaminants of Emerging Concern in Hawaii: An Interdisciplinary Study Involving Chemical Detection and Aquatic Toxicology

**Arielle Welch** '18, Raindrops, Benchtops: Method Development for the Detection of Metolachlor in Precipitation

**Kevin Wokosin** '18, Methods Development for the Characterization of Carbonyl Compounds in Rainwater and the Evaluation of Their Multiphase Reactions to Form Brown Carbon

**Heather Schwartz-Narbonne** '17, co-advised with Dr. Jonathan P. D. Abbatt at the University of Toronto

**POSTDOCTORAL SCHOLARS MENTORED**

Dr. Rebekah Gray, 2021-2023 (now Asst. Prof. at Goucher College)

A complete list of research mentees is available at <<https://discover.wooster.edu/jfaust/people>>.