Shane Devlin

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EDUCATION

University of California, Berkeley | Berkeley, CA — May 2023
College of Chemistry
PhD in Chemistry

Boston University | Boston, MA — May 2018
College of Arts and Sciences
Bachelor of Arts in Chemistry with Honors, Cum Laude

RESEARCH / WORK EXPERIENCE

Experimental Physical Chemistry | Advanced Light Source Postdoctoral Fellow — May 2023 - Present
Lawrence Berkeley National Laboratory, Advisors: Moni Blum & Walter Drisdell
Department of Physics at University of Nevada Las Vegas, Advisor: Craig Schwartz

- Ambient Pressure X-ray Photoelectron Spectroscopy of atmospheric systems using novel planar jet sample delivery methods.
- Soft X-ray Second Harmonic Generation studies of planar liquid sheets, focusing on water structure and ion adsorption at the air-water and liquid-liquid interface
- Soft X-ray Second Harmonic Generation studies of photoelectrochemical devices, focusing on electronic structure, transport, and charge carrier dynamics at the solid-solid interface

Experimental Physical Chemistry | Department of Chemistry at UC Berkeley — Oct 2018 – May 2023
Advisor: Richard J. Saykally

- Nonlinear spectroscopy studies of ion adsorption to aqueous interfaces (broadband deep UV sum frequency generation and UV second harmonic generation)
- Implemented planar liquid sheet technology into nonlinear optics experiment, in collaboration with SLAC National Accelerator Laboratory
- Conducted research at synchrotron sources and X-ray Free Electron Laser facilities, including X-ray Reflectivity studies of laser melted carbon (FERMI, Trieste), Mega-Electron Volt Ultrafast Electron Diffraction (MeV-UED, LCLS) of laser melted diamond, and Soft X-ray Second Harmonic Generation on thin water sheets (ChemRIX, LCLS)
- Performed frequent data analysis with programs such as Python, Jupyter Notebook, and Igor

Experimental Physical Chemistry | Dept. of Chemistry at Boston University — Nov 2015 – May 2018
Advisors: Shamsunder Erramilli and Lawrence Ziegler

- Trained in nonlinear optics experiments, including vibrational sum-frequency generation spectroscopy and two-dimensional IR spectroscopy

PUBLICATIONS

- Devlin, S. W.; Bernal, F.; Riffe, E. J.; Wilson, K. W.; Saykally, R. J.; "Spiers Memorial Lecture: Water at Interfaces" *Faraday Discussions,* **2023**. DOI: 10.1039/d3fd00147d
- Devlin, S.W.; Jamnuch, S.; Qiang, X.; Qian, J.; Pascal, T.; Saykally, R.J. "Agglomeration Drives The Reversed Fractionation of Aqueous Carbonate and Bicarbonate at the Air-water Interface" *J. Am. Chem. Soc.* **2023,** 145, 41, 22384-22393. DOI: 10.1021/jacs.3c05093
- Devlin, S. W.; Benjamin, I.; Saykally, R. J. "On The Mechanism of Ion Adsorption To Aqueous Interfaces: Air-water vs. Oil-Water" *Proc. Natl. Acad. Sci.* **2022***,* 119 (42)**,** e2210857119. DOI:10.1073/pnas.2210857119
- Devlin, S. W.; McCaffrey, D.; Saykally, R. J. "Characterizing Anion Adsorption to Aqueous Interfaces: Air-water vs Toluene-water" *J. Phys. Chem. Lett.* ***2022,*** *13,* 222-228. DOI: 10.1021/acs.jpclett.1c03816
- Du, C.; Andino, R. S.; Rotondaro, M. C.; Devlin, S. W.; Erramilli, S.; Ziegler, L. D.; Thuo, M. M. "Substrate Roughness and Tilt Angle Dependence of Sum-Frequency Generation Odd--Even Effects in

Self-Assembled Monolayers." *J. Phys. Chem. C* **2022**, *126* (16), 7294–7306. DOI: 10.1021/acs.jpcc.2c01109

- Raj, S. L.; Devlin, S. W.; et al. "Free Electron Laser Measurements of Liquid Carbon Reflectivity in the Extreme Ultraviolet" *Photonics,* **2020,** 7(2), 35. DOI: 10.3390/photonics7020035
- Andino RS, Liu J, Miller CM, Chen X, Devlin S.W, Hong MK, Rajagopal R, Erramilli S, Ziegler LD. "Anomalous pH-Dependent Enhancement of *p*-Methyl Benzoic Acid Sum-Frequency Intensities: Cooperative Surface Adsorption Effects." *J. Phys. Chem. A*. **2020,** 124(16), 3064-3076. DOI:10.1021/acs.jpca.9b10809

CONFERENCES AND PRESENTATIONS

Faraday Discussion – Royal Society of Chemistry, London England — September 2023
- Presented a poster at this conference focused on "Water at Interfaces"

Ultrafast Xray Summer School, LCLS, Stanford, CA — June 2022
- Workshop on Xray Free Electron Laser technology + LCLS endstations

American Chemical Society Conference, San Diego CA — March 2022
- Poster presentation

Graduate Research Conference, Berkeley CA — October 2019
- Presentation to the Department of Chemistry faculty and graduate students

AWARDS

Advanced Light Source Postdoctoral Fellowship, Lawrence Berkeley National Lab — September 2023
- Fellowship for postdoctoral scholars to conduct research at the advanced light source for one year

Pimentel Graduate Research Fellowship, UC Berkeley — May 2023
- Awarded to a graduating PhD student who excels in the field of physical chemistry

Department of Chemistry Instructional Achievement Award, UC Berkeley — April 2022
- Awarded to graduate student instructors who have had significant impact on student learning, over the course of their entire teaching career

Outstanding Graduate Student Instructor Award, UC Berkeley — April 2022
- Awarded to graduate student instructors who excel in teaching

Undergraduate ACS Physical Chemistry Award, Boston University — May 2018
- Awarded to a senior who excelled in physical chemistry research and coursework

TEACHING EXPERIENCE

Head Graduate Student Instructor, Intensive Gen. Chem. (majors) at UC Berkeley — Spring 2020, 2021
- Worked closely with Professors John Arnold and Rich Saykally to develop assignments, exams, and lead review sessions. Gave multiple lectures to class of over 200 students

Graduate Student Instructor, General chemistry (non majors) at UC Berkeley — Fall 2018
- Led weekly laboratory sessions and discussion sections
- Developed worksheets and laboratory reports for students

Teaching Assistant, General Chemistry (non-majors) at Boston University — Spring 2017

- Led a weekly laboratory session and graded reports + exams