

Pyeonggeun Kim

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Positions

Wellesley College

Assistant Professor

2026 - Present

- Teaching introductory chemistry and physical chemistry
- Studying interface-specific chemical kinetics and dynamics of microdroplets by developing droplet levitation platforms coupled with non-linear spectroscopic probes

Lawrence Berkeley National Laboratory

Postdoctoral Fellow

2022 - 2026

Research Advisors: Drs. Kevin R. Wilson and Musahid Ahmed

- Investigating unique interfacial chemistry of microdroplets by using synchrotron-based X-ray spectroscopy and mass spectrometry

Education

University of California San Diego

Ph.D. Physical Chemistry

2017 - 2022

Research Advisor: Professor Robert E. Continetti

- Thesis Title: Spectroscopy of single levitated particles: unraveling physical and chemical transformations of atmospheric aerosols

Yonsei University, Seoul, South Korea

B.S. Chemistry

2010 - 2017

Research Advisors: Professors Doo-Wan Boo and Ranko Richert (Arizona State U)

- Measuring non-linear susceptibility of glass-forming liquids via dielectric spectroscopy

Publications

[†]equal contribution

- 14 R. S. McMullen, **P. Kim**, K. A. Hanold, T. K. Roy, V. H. Grassian, R. E. Continetti. Chemistry of Alpha-hydroxy Carboxylic Acids: Lactic, Mandelic and Glycolic Acids in Positively and Negatively Charged Aqueous Microdroplets. (submitted)
- 13 Z. A. Livingston, R. P. Bambha, E. R. Rogers, J. Zádor, J. H. Shahanand, **P. Kim**, K. R. Wilson, H. A. Michelsen. Siloxane-Radical Species: Chemical Characteristics and Use for Mass Calibration in Aerosol Mass Spectrometry. (submitted)

- 12 C. J. Chen[†], **P. Kim**[†], E. R. Williams, K. R. Wilson. Asymmetry in Droplet Charge and H₂O₂ Production: Exclusive Production of Hydrogen Peroxide in Negatively Charged Microdroplets via Electron Emission. *JACS Au* **2026**, 6, (8), 4503. [Link](#)
- 11 **P. Kim**[†], R. Kang[†], K. Carter–Fenk, K. R. Wilson, M. Head–Gordon, M. Ahmed. Structural Evidence of Inter-Anionic Hydrogen Bonding in Phosphoric Acid Solutions. *Journal of the American Chemical Society* **2025**, 147 (49), 44916. [Link](#)
- 10 A. M. Deal, A. M. Prophet, S. Warkander, M. M. Foreman, **P. Kim**, D. M. Neumark, M. Ahmed, K. R. Wilson. X-Ray Photoelectron Spectroscopy of Surfactants on Sub-Micron Aqueous Aerosols. *Physical Chemistry Chemical Physics* **2025**, 27 (33), 17521. [Link](#)
- 9 B. J. Wallace, M. Makhnun, R. Bachnak, **P. Kim**, M. Ahmed, C. S. Dutcher, K. R. Wilson, A. Ajoy. Enhanced Reactivity of the Oil–Water Interface Accelerates the Synthesis of Zymonic Acid in Microemulsions. *Chemical Sciences* **2025**, 16 (33), 15155. [Link](#)
- 8 E. H. Greenspoon, S. Warkander, **P. Kim**, A. Jana, J. Qian, K. R. Wilson, M. Ahmed, J. B. Bergner. Soft X-ray Spectroscopy of Ammonium Sulfate Aerosols at Varied pH Conditions. *The Journal of Chemical Physics* **2025**, 162 (23), 234307. [Link](#)
- 7 **P. Kim**, R. S. Reynolds, A. M. Deal, V. Vaida, M. Ahmed, K. R. Wilson. Accelerated Zymonic Acid Formation from Pyruvic Acid at the Interface of Aqueous Nanodroplets. *The Journal of Physical Chemistry Letters* **2024**, 15 (44), 11131. [Link](#)
- 6 **P. Kim**, C. Weeraratna, S. Nemšák, N. Dias, A. K. Lemmens, K. R. Wilson, M. Ahmed. Interfacial Nanostructure and Hydrogen Bond Networks of Choline Chloride and Glycerol Mixtures Probed with X-ray and Vibrational Spectroscopies. *The Journal of Physical Chemistry Letters* **2024**, 15 (11), 3002. [Link](#)
- 5 **P. Kim**, C. Boothby, V. H. Grassian, R. E. Continetti. Photoinduced Reactions of Nitrate in Aqueous Microdroplets by Triplet Energy Transfer. *The Journal of Physical Chemistry Letters* **2023**, 14 (47), 10677. [Link](#)
- 4 **P. Kim**, R. E. Continetti. Accelerated Keto–Enol Tautomerization Kinetics of Malonic Acid in Aqueous Droplets. *ACS Earth and Space Chemistry* **2021**, 5 (9), 2212. [Link](#)
- 3 **P. Kim**, W. Xiong, R. E. Continetti. Evolution of Hydrogen-Bond Interactions within Single Levitated Metastable Aerosols Studied by In Situ Raman Spectroscopy. *The Journal of Physical Chemistry B* **2020**, 124 (42), 9385. [Link](#)

- 2 K. A. Nadler, **P. Kim**, D.-L. Huang, W. Xiong, R. E. Continetti. Water Diffusion Measurements of Single Charged Aerosols Using H₂O/D₂O Isotope Exchange and Raman Spectroscopy in an Electrodynamical Balance. *Physical Chemistry Chemical Physics* **2019**, *21* (27), 15062. [Link](#)
- 1 **P. Kim**, A. R. Young-Gonzales, R. Richert. Dynamics of Glass-Forming Liquids. XX. Third Harmonic Experiments of Non-Linear Dielectric Effects versus a Phenomenological Model. *The Journal of Chemical Physics* **2016**, *145* (6), 064510. [Link](#)

Selected Talks

- Invited Seminar - Wellesley College** Nov 2025
Wellesley, MA
“Chemistry at the Edge: How Liquid Interfaces Reshape Reactions”
- Gordon Research Seminar - Physics and Chemistry of Liquids** Aug 2025
Holderness, NH
“Inter-anionic Hydrogen Bond in Concentrated Phosphoric Acid Solutions”
- 78th International Symposium on Molecular Spectroscopy** Jun 2025
Urbana, IL
“Interionic Hydrogen Bond Structures of Phosphoric Acid Probed by X-ray Absorption Spectroscopy”
- DOE Triennial Review for Basic Energy Science Programs** Sep 2024
Berkeley, CA
“Probing Interfacial Chemistry of Microdroplets and Liquids”
- ACS National Meeting** Apr 2024
New Orleans, LA
“Accelerated Oligomerization of Pyruvic Acid in Aqueous Aerosols”
- AAAR Annual Conference** Oct 2023
Portland, OR
“Reactions of Nitrate in Aqueous Droplets Initiated by Triplet Energy Transfer”
- ACS National Meeting** Mar 2022
San Diego, CA
“Investigating Unusual Chemical Reactions in Single Levitated Aerosols”
- NSF Site Visit for CAICE** May 2021
Virtual
“Innovations in the Physicochemical Properties of Single Particles”

Teaching Experience

Physical Chemistry Laboratory

Spring & Winter 2018

University of California, San Diego
Graduate Teaching Assistant

General Chemistry

Fall 2018

University of California, San Diego
Graduate Teaching Assistant

Organic Chemistry Laboratory

Fall 2017

University of California, San Diego
Graduate Teaching Assistant

Physical Chemistry

Fall 2016

Yonsei University, Seoul, South Korea
Undergraduate Tutor

Community Service

Discussion Leader, Gordon Research Seminar

July 2026

- Water and Aqueous Solutions. Session: Properties of Water at Interfaces

Peer-Review Activity

2026 - Current

- Nature Communications, PNAS

Volunteer for Science Outreach

2018 - Current

- Engaged with diverse audiences from local community to explain scientific concepts with simple and accessible experiments.
- Volunteered events include Oakland Black Joy Parade (2026), Berkeley Juneteenth Festival (2025 and 2024), Berkeley Solano Stroll (2025), Oakland Dia de los Muertos Festival (2024), San Diego Festival of Science & Engineering (2020), and San Diego Comienza con un Sueño STEM Resource Fair (2018).

Professional Experience

Operation Specialist (E-4 Sergeant)

2012 - 2014

2d Infantry Division, Camp Hovey, Dongducheon, South Korea

- Served as a Korean Augmentation to the United States Army (KATUSA).
- Squad leader responsible for supply, personnel, and combat training.