Marissa L. Weichman

Frick Chemistry Laboratory Room 229 · Princeton University
weichman@princeton.edu · (609) 258-0926 · https://weichman.princeton.edu

Appointments

Princeton University Assistant Professor of Chemistry 2020–
Associated Faculty: *Princeton Quantum Initiative, Princeton Materials Institute, High Meadows Environmental Institute, Andlinger Center for Energy & the Environment, and the Princeton Plasma Physics Laboratory (Inaugural Cohort)*

JILA, University of Colorado Boulder NIST/NRC Fellow, Postdoctoral Researcher 2017–2020
Research Advisor: Dr. Jun Ye

Education

University of California, Berkeley Ph.D. Physical Chemistry 2012–2017
Dissertation: *Slow Photoelectron Velocity-Map Imaging and Infrared Photodissociation Spectroscopy of Cryo-Cooled Molecular and Cluster Anions*
Research Advisor: Prof. Daniel M. Neumark

California Institute of Technology B.S. Chemistry with Honors 2008–2012
Research Advisor: Prof. Mitchio Okumura

Awards and Honors

Camille and Henry Dreyfus Foundation *Camille Dreyfus Teacher-Scholar Award* 2026
Department of Defense *Presidential Early Career Award for Scientists and Engineers* 2025
Research Corporation for Science Advancement *Cottrell Scholar Award* 2025
International Symposium on Free Radicals *Broida Prize* 2024
Journal of Chemical Physics *Best Paper by an Emerging Investigator Award* 2023
Packard Foundation *Packard Fellowship for Science and Engineering* 2023
National Science Foundation *CAREER Award* 2023
Department of Energy *Early Career Award* 2022
American Chemical Society *PRF Doctoral New Investigator* 2021
Telluride Science Research Center *Peter Salamon Award* 2020
APS *Justin Jankunas Doctoral Dissertation Award in Chemical Physics* 2018
NIST/NRC *Postdoctoral Research Fellowship* 2017
National Science Foundation *Graduate Research Fellowship* 2012
Department of Energy, Office of Science *Fellowship for Graduate Study (declined)* 2012
UC Berkeley *Berkeley Fellowship for Graduate Study* 2012

Preprints

53. A. M. McKillop and **M. L. Weichman**, "Nonlinear signal enhancement of strongly-coupled molecules in pump-probe experiments", *arXiv*, 2604.05261 (2026).

52. J. C. Nelson, T. H. Wright, N. Lin, M. Rohde, and **M. L. Weichman**, "Electronic strong coupling of gas-phase molecular iodine", *arXiv*, 2602.09243 (2026).

Publications (since Princeton)

51. A. M. McKillop, L. Chen, A. P. Fidler, and **M. L. Weichman**, "Direct readout of excited state lifetimes in chlorin chromophores under electronic strong coupling", *J. Am. Chem. Soc.* **148**, 9737 (2026).

50. N. Baradaran, D. Charczun, T. Nambiar, M. Zou, K. F. Lee, M. E. Fermann, and **M. L. Weichman**, "Long-wave mid-infrared cavity-enhanced frequency comb spectroscopy of cold, complex molecules", *Opt. Express* **34**, 6751 (2026), *Editor's Pick.*

49. L. Chen, A. M. McKillop, A. P. Fidler, and **M. L. Weichman**, "Ultrafast optical modulation of vibrational strong coupling in $ReCl(CO)_3$(2,2-bipyridine)", *Nanophotonics* **14**, 5437 (2025).

48. A. M. McKillop and **M. L. Weichman**, "A cavity-enhanced spectroscopist's lens on polaritons", *Chem. Phys. Rev.* **6**, 031308 (2025).

47. K. Schwennicke, A. Koner, J. B. Pérez-Sánchez, W. Xiong, N. C. Giebink, **M. L. Weichman**, and J. Yuen-Zhou, "When do molecular polaritons behave like optical filters?", *Chem. Soc. Rev.* **54**, 6482 (2025).

46. M. A. Erinin, C. R. Sagan, I. Ahmed, G. F. Pokrifka, N. Jeevanjee, **M. L. Weichman**, and L. Deike, "Droplet heterogeneous nucleation in a rapid expansion aerosol chamber", *Rev. Sci. Instrum.* **96**, 055104 (2025).

45. J. C. Nelson and **M. L. Weichman**, "More than just smoke and mirrors: Gas-phase polaritons for optical control of chemistry", *J. Chem. Phys.* **161**, 074304 (2024), *JCP and CPR Editors' Choice 2024, cover article.*

44. L. Chen, A. P. Fidler, A. M. McKillop, and **M. L. Weichman**, "Exploring the impact of vibrational cavity coupling strength on ultrafast CN + *c*-C_6H_{12} reaction dynamics", *Nanophotonics* **13**, 2591 (2024).

43. A. P. Fidler, L. Chen, A. M. McKillop, and **M. L. Weichman**, "Ultrafast dynamics of CN radical reactions with chloroform solvent under vibrational strong coupling", *J. Chem. Phys.* **159**, 164302 (2023), *Emerging Investigators Special Collection, Editor's Choice, cover article.*

42. A. D. Wright, J. C. Nelson, and **M. L. Weichman**, "A versatile platform for gas-phase molecular polaritonics", *J. Chem. Phys.* **159**, 164202 (2023).

41. A. D. Wright, J. C. Nelson, and **M. L. Weichman**, "Rovibrational polaritons in gas-phase methane", *J. Am. Chem. Soc.* **145**, 5982 (2023).

40. J. H. Lehman and **M. L. Weichman**, "Optical frequency combs for molecular spectroscopy, kinetics, and sensing", in *Emerging Trends in Chemical Applications of Lasers*, edited by M. R. Berman, L. Young, and H.-L. Dai (American Chemical Society, 2021) Chap. 4, pp. 61–88.

Publications (before Princeton)

39. M. C. Babin, M. DeWitt, J. Lau, **M. L. Weichman**, J. B. Kim, H. Song, H. Guo, and D. M. Neumark, "Observation of resonances in the transition state region of the F + NH_3 reaction using anion photoelectron spectroscopy", *Nat. Chem.* **15**, 194 (2022).

38. L. R. Liu, P. B. Changala, **M. L. Weichman**, Q. Liang, J. Toscano, J. Klos, S. Kotochigova, D. J. Nesbitt, and J. Ye, "Collision-induced C_{60} rovibrational relaxation probed by state-resolved nonlinear spectroscopy", *Phys. Rev. X Quantum* **3**, 030332 (2022). ***Related News:*** Physics.

37. M. C. Babin, M. DeWitt, J. Lau, **M. L. Weichman**, J. B. Kim, L. Cheng, and D. M. Neumark, "Photoelectron spectroscopy of cryogenically cooled NiO_2^- via slow photoelectron velocity-map imaging", *Phys. Chem. Chem. Phys.* **24**, 17496 (2022).

36. M. Babin, M. DeWitt, **M. L. Weichman**, J. A. DeVine, and D. M. Neumark, "High-resolution anion photoelectron spectroscopy of cryogenically cooled 4-atom silicon carbides", *Mol. Phys.* **119**, e1817596 (2021).

35. P. B. Changala, **M. L. Weichman**, K. F. Lee, M. E. Fermann, and J. Ye, "Rovibrational quantum state resolution of the C_{60} fullerene", *Science* **363**, 49 (2019). ***Related News:*** c&en; NIST; Gizmodo.

34. **M. L. Weichman**, P. B. Changala, J. Ye, Z. Chen, M. Yan, and N. Picqué, "Broadband molecular spectroscopy with optical frequency combs", *J. Mol. Spec.* **355**, 66 (2019).

33. S. Debnath, X. Song, M. R. Fagiani, **M. L. Weichman**, M. Gao, S. Maeda, T. Taketsugu, W. Schöllkopf, A. Lyalin, D. M. Neumark, and K. R. Asmis, "CO_2 adsorption on $Ti_3O_6^-$: A novel carbonate binding motif", *J. Phys. Chem. C* **123**, 8439 (2019).

32. M. C. Babin, J. A. DeVine, **M. L. Weichman**, and D. M. Neumark, "Slow photoelectron velocity-map imaging of cold C_7 and C_9", *J. Chem. Phys.* **149**, 174306 (2018).

31. T. Wang, T. Yang, C. Xiao, Z. Sun, D. Zhang, X. Yang, **M. L. Weichman**, and D. M. Neumark, "Dynamical resonances in chemical reactions", *Chem. Soc. Rev.* **47**, 6744 (2018).

30. **M. L. Weichman** and D. M. Neumark, "Slow photoelectron velocity-map imaging spectroscopy of cryogenically cooled anions", *Annu. Rev. Phys. Chem.* **69**, 101 (2018).

29. **M. L. Weichman**, S. Debnath, J. T. Kelly, S. Gewinner, W. Schöllkopf, D. M. Neumark, and K. R. Asmis, "Dissociative water adsorption on gas-phase titanium dioxide cluster anions probed with infrared photodissociation spectroscopy", *Top. Catal.* **61**, 92 (2018).

28. J. A. DeVine, **M. L. Weichman**, C. Xie, M. C. Babin, M. A. Johnson, J. Ma, H. Guo, and D. M. Neumark, "Autodetachment from vibrationally excited vinylidene anions", *J. Phys. Chem. Lett.* **9**, 1058 (2018).

27. J. A. DeVine, A. A. Taka, M. C. Babin, **M. L. Weichman**, H. P. Hratchian, and D. M. Neumark, "High-resolution photoelectron spectroscopy of $TiO_3H_2^-$: Probing the $TiO_2^- + H_2O$ dissociative adduct", *J. Chem. Phys.* **148**, 222810 (2018).

26. **M. L. Weichman**, B. Vlaisavljevich, J. A. DeVine, N. S. Shuman, S. G. Ard, T. Shiozaki, D. M. Neumark, and A. A. Viggiano, "Electronic structure of SmO and SmO^- via slow photoelectron velocity-map imaging spectroscopy and spin-orbit CASPT2 calculations", *J. Chem. Phys.* **147**, 234311 (2017).

25. J. A. DeVine*, **M. L. Weichman***, B. Laws, J. Chang, M. C. Babin, G. Balerdi, C. Xie, C. L. Malbon, W. C. Lineberger, D. R. Yarkony, R. W. Field, S. T. Gibson, J. Ma, H. Guo, and D. M. Neumark, "Encoding of vinylidene isomerization in its anion photoelectron spectrum", *Science* **358**, 336 (2017), **equal contribution.*

24. **M. L. Weichman**, J. A. DeVine, M. C. Babin, J. Li, J. Ma, H. Guo, and D. M. Neumark, "Feshbach resonances in the exit channel of the $F + CH_3OH \longrightarrow HF + CH_3O$ reaction observed using transition-state spectroscopy", *Nat. Chem.* **9**, 950 (2017). ***Related News:*** Nature Chemistry News & Views.

23. **M. L. Weichman**, L. Cheng, J. B. Kim, J. F. Stanton, and D. M. Neumark, "Low-lying vibronic level structure of the ground state of the methoxy radical: Slow-electron velocity map imaging (SEVI) spectra and Köppel-Domcke-Cederbaum (KDC) vibronic Hamiltonian calculations", *J. Chem. Phys.* **146**, 224309 (2017).

22. J. D. Gaynor and **M. L. Weichman**, "Viewpoints on the 2017 Pacific Conference on Spectroscopy and Dynamics", *J. Phys. Chem. A* **121**, 2863 (2017).

21. J. A. DeVine, **M. L. Weichman**, M. C. Babin, and D. M. Neumark, "Slow photoelectron velocity-map imaging of cold *tert*-butyl peroxide", *J. Chem. Phys.* **147**, 013915 (2017).

20. J. A. DeVine, **M. L. Weichman**, J. Ma, B. Jiang, H. Guo, and D. M. Neumark, "Non-adiabatic effects on excited states of vinylidene observed with slow photoelectron velocity-map imaging", *J. Am. Chem. Soc.* **138**, 16417 (2016).

19. J. A. DeVine, **M. L. Weichman**, S. J. Lyle, and D. M. Neumark, "High-resolution photoelectron imaging of cryogenically cooled α-and β-furanyl anions", *J. Mol. Spec.* **332**, 16 (2017).

18. **M. L. Weichman**, J. A. DeVine, and D. M. Neumark, "High-resolution photoelectron imaging of cryogenically cooled Fe_4O^- and Fe_5O^-", *J. Chem. Phys.* **145**, 054302 (2016).

17. **M. L. Weichman**, X. Song, M. R. Fagiani, S. Debnath, S. Gewinner, W. Schöllkopf, D. M. Neumark, and K. R. Asmis, "Gas phase vibrational spectroscopy of cold $(TiO_2)_n^-$ (n=3-8) clusters", *J. Chem. Phys.* **144**, 124308 (2016).

16. **M. L. Weichman**, J. A. DeVine, D. S. Levine, J. B. Kim, and D. M. Neumark, "Isomer-specific vibronic structure of the 9-, 1-, and 2-anthracenyl radicals via slow photoelectron velocity-map imaging", *Proc. Natl. Acad. Sci. U.S.A.* **113**, 1698 (2016).

15. J. B. Kim, **M. L. Weichman**, T. F. Sjolander, D. M. Neumark, J. Kłos, M. H. Alexander, and D. E. Manolopoulos, "Spectroscopic observation of resonances in the $F + H_2$ reaction", *Science* **349**, 510 (2015).

14. **M. L. Weichman**, J. B. Kim, and D. M. Neumark, "Slow photoelectron velocity-map imaging spectroscopy of the *ortho*-hydroxyphenoxide anion", *J. Phys. Chem. A* **119**, 6140 (2015).

13. J. B. Kim, **M. L. Weichman**, and D. M. Neumark, "Low-lying states of FeO and FeO^- by slow photoelectron spectroscopy", *Mol. Phys.* **113**, 2105 (2015).

12. **M. L. Weichman**, J. B. Kim, J. A. DeVine, D. S. Levine, and D. M. Neumark, "Vibrational and electronic structure of the α- and β-naphthyl radicals via slow photoelectron velocity-map imaging", *J. Am. Chem. Soc.* **137**, 1420 (2015).

11. J. B. Kim, **M. L. Weichman**, and D. M. Neumark, "Assignment of electronic bands in the photoelectron spectrum of the VO_2^- anion", *J. Chem. Theory Comput.* **10**, 5235 (2014).

10. J. B. Kim, **M. L. Weichman**, and D. M. Neumark, "Slow photoelectron velocity-map imaging spectroscopy of the Fe_3O^- and Co_3O^- anions", *J. Chem. Phys.* **141**, 174307 (2014).

9. J. B. Kim, **M. L. Weichman**, and D. M. Neumark, "Structural isomers of Ti_2O_4 and Zr_2O_4 anions identified by slow photoelectron velocity-map imaging spectroscopy", *J. Am. Chem. Soc.* **136**, 7159 (2014).

8. **M. L. Weichman**, J. B. Kim, and D. M. Neumark, "Rovibronic structure in slow photoelectron velocity-map imaging spectroscopy of CH_2CN^- and CD_2CN^-", *J. Chem. Phys.* **140**, 104305 (2014).

7. J. B. Kim, **M. L. Weichman**, and D. M. Neumark, "Vibronic structure of VO_2 probed by slow photoelectron velocity-map imaging spectroscopy", *J. Chem. Phys.* **140**, 034307 (2014).

6. T. Westermann, J. B. Kim, **M. L. Weichman**, C. Hock, T. I. Yacovitch, J. Palma, D. M. Neumark, and U. Manthe, "Resonances in the entrance channel of the elementary reaction of fluorine and methane", *Angew. Chem., Int. Ed.* **53**, 1122 (2014).

5. J. B. Kim, **M. L. Weichman**, and D. M. Neumark, "High-resolution anion photoelectron spectra of TiO_2^-, ZrO_2^-, and HfO_2^- obtained by slow electron velocity-map imaging", *Phys. Chem. Chem. Phys.* **50**, 20973 (2013).

4. **M. L. Weichman**, J. B. Kim, and D. M. Neumark, "Vibrational fine structure of C_5 via anion slow photoelectron velocity-map imaging", *J. Chem. Phys.* **139**, 144314 (2013).

3. J. B. Kim, **M. L. Weichman**, T. I. Yacovitch, C. Shih, and D. M. Neumark, "Slow photoelectron velocity-map imaging spectroscopy of the C_9H_7 (indenyl) and $C_{13}H_9$ (fluorenyl) anions", *J. Chem. Phys.* **139**, 104301 (2013).

2. C. Hock, J. B. Kim, **M. L. Weichman**, T. I. Yacovitch, and D. M. Neumark, "Slow photoelectron velocity-map imaging spectroscopy of cold negative ions", *J. Chem. Phys.* **137**, 244201 (2012).

1. M. K. Sprague, E. R. Garland, A. K. Mollner, C. Bloss, B. D. Bean, **M. L. Weichman**, L. A. Mertens, and M. Okumura, "Kinetics of *n*-butoxy and 2-pentoxy isomerization and detection of primary products by infrared cavity ringdown spectroscopy", *J. Phys. Chem. A* **116**, 6327 (2012).

Invited Presentations (since Princeton)

55.	UChicago Department of Chemistry Closs Lecture, Chicago, IL	Apr. 2026
54.	Northwestern University INQUIRE Seminar, Evanston, IL	Apr. 2026
53.	UIUC Physical Chemistry Seminar, Champaign-Urbana, IL	Apr. 2026
52.	Symposium on Fluctuations in Chemical Physics, APS March Meeting, Denver, CO	Mar. 2026
51.	UC Berkeley Physical Chemistry Seminar, Berkeley, CA	Mar. 2026
50.	Origins of Life Initiative Forum, Harvard University, Cambridge, MA	Feb. 2026
49.	MIT Physical Chemistry Seminar, Cambridge, MA	Feb. 2026
48.	University of Southern California Physical Department Seminar, Los Angeles, CA	Feb. 2026
47.	Columbia University Physical Chemistry Seminar, New York City, NY	Jan. 2026
46.	Virginia Tech Highlands in Chemistry Seminar, Blacksburg, VA	Nov. 2025
45.	Cornell University Physical Chemistry Seminar, Ithaca, NY	Nov. 2025
44.	University of Pennsylvania Physical Chemistry Seminar, Philadelphia, PA	Nov. 2025
43.	Purdue University Physical Chemistry Seminar, West Lafayette, IN	Oct. 2025
42.	Dartmouth College Chemistry Department Seminar, Hanover, NH	Oct. 2025
41.	CU Boulder Physical Chemistry Seminar, Boulder, CO	Oct. 2025
40.	Symposium on Free Radicals, Snowbird, UT	Aug. 2025
39.	Telluride Workshop on Polariton Chemistry and Molecular Cavity QED, Telluride, CO	Jul. 2025
38.	Caltech Workshop on New Developments in Physical Chemistry, Pasadena, CA	Jul. 2025
37.	Conference on Dynamics of Molecular Collisions, Snowbird, UT	Jul. 2025
36.	Tel Aviv University Physical Chemistry Seminar, Tel Aviv, Israel	Jun. 2025
35.	Weizmann Institute Chemistry Colloquium, Rehovot, Israel	Jun. 2025
34.	Technion Schulich Faculty Chemistry Colloquium, Haifa, Israel	Jun. 2025
33.	Technion Physical Chemistry Seminar, Haifa, Israel	Jun. 2025
32.	Symposium on Multidimensional Spectroscopy, ACS Meeting, San Diego, CA	Mar. 2025
31.	DCP-JCP Editors Choice Symposium, APS March Meeting, Anaheim, CA	Mar. 2025
30.	Temple University Chemistry Department Seminar, Philadelpha, PA	Feb. 2025
29.	Sandia National Laboratories Chemical Physics Seminar, webinar	Feb. 2025
28.	Conference on Molecular Quantum Technologies, Puerto Varas, Chile	Dec. 2024
27.	New York University & Flatiron Institute Light-Matter Seminar, New York City, NY	Dec. 2024
26.	Workshop on Coherent Control with Modified Vacuum Fields, Stockholm, Sweden	Aug. 2024
25.	Telluride Workshop on Dynamics on Multiple Surfaces, Telluride, CO	Jul. 2024

24. European Conference on the Dynamics of Molecular Systems, Aarhus, Denmark Jul. 2024
23. Fritz Haber Institute Department of Molecular Physics Seminar, Berlin, Germany May 2024
22. E-MRS Symposium on Polaritonics for Next Generation Materials, Strasbourg, France May 2024
21. Yale University Chemistry Department Seminar, New Haven, CT Apr. 2024
20. Washington University in St. Louis Physics Colloquium, St. Louis, MO Apr. 2024
19. Symposium on Current Trends in Polariton Chemistry, ACS Meeting, New Orleans, LA Mar. 2024
18. University of Delaware AMO Physics Seminar, Newark, DE Feb. 2024
17. Royal Society of Chemistry Spectroscopy & Dynamics Group Meeting, Leicester, UK Jan. 2024
16. University of Maryland Department Seminar, College Park, MD Dec. 2023
15. Coblentz Society Award Symposium Honoring Wei Xiong, SciX Meeting, Reno, NV Oct. 2023
14. Wintergreen Meeting of Physical Chemists, Wintergreen, VA Sept. 2023
13. Symposium in Honor of Marsha Lester, ACS Meeting, San Francisco, CA Aug. 2023
12. International Conference on Chemical Bonding, Kauai, HI Jul. 2023
11. Telluride Workshop on Polariton Chemistry and Molecular Cavity QED, Telluride, CO Jun. 2023
10. UNC Charlotte Chemistry Department Seminar, Charlotte, NC Apr. 2023
9. Conference on Molecular Quantum Technologies, Puerto Natales, Chile Dec. 2022
8. Gordon Research Conference on Molecular Interactions & Dynamics, Easton, MA Jul. 2022
7. Cavity Enhanced Spectroscopy Meeting, Lecco, Italy Jun. 2022
6. Quantum Frontiers in Molecular Science Telluride Workshop, webinar Jun. 2022
5. Stony Brook University AMO Physics Seminar, Stony Brook, NY Nov. 2021
4. CSU Chico Chemistry Department Seminar, webinar Oct. 2021
3. International Symposium on Molecular Beams, webinar Jun. 2021
2. Johns Hopkins Chemistry Department Seminar, webinar Oct. 2020
1. Telluride Science Summer Lecture Series, webinar Jul. 2020

Current Funding

- **Camille Dreyfus Teacher-Scholar Award**, 2026–2031, $100k, "Spectroscopy, dynamics, and photonic control of complex chemical systems" (TC-26-089).
- **Princeton University Sustainability of Our Planet Award**, 2025–2028, $150k, co-PI with Luc Deike, "Ice nucleation in solar radiation management science."
- **Air Force Office of Scientific Research**, 2025–2030, $1.0m, "Precision and ultrafast spectroscopy of photochemistry under electronic strong coupling" (FA9550-25-1-0157).
- **Simons Foundation**, 2025–2028, $1.5m, PI with co-PIs Luc Deike and Michael Mueller, "New platforms for solar radiation management science" (SFI-MPS-SRM-00011998).
- **RCSA Cottrell Scholar Award**, 2025–2028, $120k, "Quantum state resolution of aromatic molecules for laboratory astrochemistry" (CS-CSA-2025-008).
- **Princeton Plasma Physics Laboratory Lab Directed Research and Development**, 2024–2027, $634k, "Single-particle and ensemble aerosol experiments for solar radiation management science."
- **The David and Lucile Packard Foundation, Packard Fellowships for Science and Engineering**, 2023–2028, $875k, "The stratosphere in focus: New spectroscopic tools for single-particle aerosol science."

- **National Science Foundation, AST/AAG Laboratory Astronomy program**, 2023–2026, $519k, "Precision spectroscopy of fullerenes: Towards resolving astrophysical molecular complexity" (AST-2307443).
- **National Science Foundation, CHE/CSDM-A, CAREER Award**, 2023–2028, $650k, "CAREER: Gas-phase molecular polaritons: A new platform for chemistry under strong light-matter coupling" (CHE-2238865).
- **Department of Energy, Early Career Award**, 2022–2027, $750k, "Polariton reaction dynamics: Exploiting strong light-matter interactions for new chemistry" (DE-SC0022948).

Completed Funding

- **High Meadows Environmental Institute, Climate and Energy Grand Challenge Award**, 2023–2025, $150k, co-PI with Luc Deike, "Aerosol-cloud-turbulence interactions."
- **Princeton Catalysis Initiative**, 2023–2025, $120k, co-PI with Luc Deike, "Aerosol chemistry and physics: from single-particle spectroscopy to statistical understanding of aerosol ensembles."
- **Princeton Fund for New Ideas in the Natural Sciences**, 2022–2024, $200k, "Quantum-state-resolved spectroscopy of endohedral fullerenes."
- **Princeton Catalysis Initiative**, 2022–2024, $120k, co-PI with Sanfeng Wu, "Strong light-matter interactions in WTe_2, a novel 2D excitonic insulator."
- **Simons Foundation**, 2022–2023, $500k, co-PI with Luc Deike, "An initial small-scale experimental facility for solar geoengineering science" (award #1019423).
- **Princeton Center for Complex Materials MRSEC**, 2022–2023, $60k, "Chiral polaritonics for materials functionalization."
- **ACS Petroleum Research Fund, Doctoral New Investigator**, 2021–2023, $110k, "Gas-phase polariton chemistry: Reaction kinetics of methane under vibrational strong coupling" (PRF-62543-DNI6).
- **Princeton Center for Complex Materials MRSEC**, 2021–2022, $60k, "Strong light-matter coupling of molecular and material monolayers"

Synergistic Activities

Professional Activities and Leadership

Journal of Physical Chemistry Letters, Editorial Advisory Board member	2026–
Journal of Chemical Physics, Early Career Editorial Advisory Board member	2024–
Journal of Molecular Spectroscopy, Editorial Board member	2023–
Mentor in Chemistry Women Mentorship Network (ChemWMN)	2020–

Conference Organizing

Spectroscopy and Dynamics on Multiple Potential Energy Surfaces Telluride Workshop, organizer	2026
Polariton Chemistry and Molecular Cavity QED Telluride Workshop, organizer	2023, 2025
APS March Meeting, Division of Chemical Physics, focus topic symposium organizer	2025
Workshop on Molecular Quantum Technology, organizing committee member	2024
ACS National Meeting, PHYS symposium organizer	2023

Department Service

Princeton Chemistry Graduate Works Committee, committee member	2024–
Princeton Chemistry Physical Chemistry seminar series, organizer	2021–
Princeton Physical Chemistry Supergroup meetings, organizer	2021–
Princeton Chemistry Graduate Admissions Committee, committee member	2020–
Princeton Inclusive Community in Chemistry Committee, committee member	2020–
McCay Prize Exam in Physical Chemistry, writer and grader	2023
Princeton Chemistry Junior Faculty Search Committee, committee member	2023
Princeton Chemistry Teaching and Curriculum Committee, committee member	2020–2021

University & Other Service

Princeton University Committee on Examinations and Standing	2024–
Quantum Science and Engineering Graduate Program Committee	2024–
Quantum Science and Engineering Graduate Admissions Committee	2023–
Faculty Advisor, Yeh College	2022–2024

Ph.D. Dissertation Committees

Shuhui Yin (2020)	Clarissa Ding (2023)	Catrina Oberg (2024)
Hwon Kim (2021)	Jackson Deobald (2023)	Brianna Hoff (2025)
Nhu Tran (2022)	Grace Villalpando (2024)	Mulan Yang (2025)
Robert Kirby (2022)	Adam Reinhold (2024)	
Ben Zhang (2022)	Tyger Salters (2024)	

General Exam Committees

Graciela Villalpando (2021)	Liying Chen (2023)	Millan Wellman (2024)
Adam Reinhold (2021)	Jane Nelson (2024)	Shiloh Andersson (2025)
Catrina Oberg (2021)	Negar Baradaran (2024)	Gabrielle Carrel (2025)
Shaojun Gui (2021)	Sarah Gernhart (2024)	Jason Zhang (2025)
Teresa Lee (2022)	Alexander McKillop (2024)	Gabby Sonderegger (2025)
Connor Pollak (2023)	Avery Cirincione-Lynch (2024)	Titouan Duston (2025)
Chirag Arora (2023)	Jessica Gaetgens (2024)	Arden Floyd (2026)

Funding Agency Reviewing

National Science Foundation AST/AAG (panel)	Department of Energy BES (ad hoc)
National Science Foundation CHE/CSDM-A (panel)	Stanford Linear Accelerator LCLS-II (panel)
National Science Foundation CHE/CCI (ad hoc)	AFOSR Chemistry and Biological Sciences (ad hoc)
National Science Foundation PHY/AMO-E (ad hoc)	AFOSR DEPSCoR (ad hoc)

Journal Reviewing

ACS Nano	*J. Am. Chem. Soc.*	*Nanophotonics*	*Rev. Sci. Inst.*
ACS Photonics	*J. Chem. Phys.*	*Nat. Chem.*	*Science*
Angewandte Chemie	*J. Phys. Chem.*	*PCCP*	*Sci. Adv.*
Chem. Rev.	*J. Phys. Chem. Lett.*	*Proc. Natl. Acad. Sci.*	

Teaching

The Quantum World (CHM 305) Fall 2020, 2021, 2022, 2023, 2024, 2025
Upper-level undergraduate course, 25-40 students/year

Molecular Reaction Dynamics (CHM 512) Spring 2026
Graduate-level course, 10-15 students/year

Advanced Quantum Chemistry (CHM 502) Spring 2023, 2024, 2025
Graduate-level course, 5-10 students/year

Molecular Spectroscopy (CHM 504) Spring 2022
Graduate-level course, 5 students/year

Research Mentoring

Postdoctoral Researchers

Dr. Ashley Fidler 2021–2024
2021 Princeton Presidential Postdoctoral Research Fellow
now NRC Postdoctoral Fellow, US Navy Research Lab, Washington D.C.

Dr. Adam Wright 2021–2023
now Asst. Prof., Department of Physics, University of Warwick, Warwick, UK

Dr. Dominik Charczun 2023–2025
now Research Scientist, Nicolaus Copernicus University, Toruń, Poland

Dr. Trevor Wright 2024–2025

Dr. Cole Sagan 2023–

Dr. Meijun Zou 2025–

Ph.D. Students

Liying Chen (Chemistry) 2021–
2023 Ada and Meyer Packer Memorial Fellow in Physical Chemistry

Negar Baradaran (Chemistry) 2022–

Alexander McKillop (Chemistry) 2022–

Jane Nelson (Chemistry) 2022–
2023 DoD NDSEG Fellow

Arden Floyd (Chemistry) 2024–

Alan Chang (Quantum Science & Engineering) 2025–

Ezra Korican-Barlay (Chemistry) 2025–
2026 NSF GRFP Fellow

Neo Lin (Chemistry) 2025–
2026 DoD NDSEG Fellow

Undergraduate Students

Cameron Khan, Princeton University 2021–2023

Victoria Zhang, Harvard University (QURIP summer student) 2022

Daniel Tajes, Princeton University 2023

Christopher Tong, MIT (QURIP summer student) 2023

Kierra Forthman, University of Utah (Leadership Alliance summer student) 2024

Tanay Nambiar, Princeton University 2023–2026

Edward Myers, Princeton University 2025–2026

Madeline Rohde, Princeton University 2025–

Rachel Mark, Princeton University 2025–