Robert R. Knowles, Ph.D.

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Princeton University
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Updated March 11, 2024

EMPLOYMENT

Professor of Chemistry, *Princeton University*	Mar. 2017 – present
Assistant Professor of Chemistry, *Princeton University*	July 2011 – Mar. 2017
NIH NRSA Postdoctoral Fellow, *Harvard University* Advisor: Eric Jacobsen	Dec. 2008 – June 2011

EDUCATION

Doctor of Philosophy, *California Institute of Technology* Advisor: David MacMillan	July 2003 – Oct. 2008
Bachelor of Science in Chemistry, *College of William and Mary* Advisors: Robert Hinkle and David Kranbuehl	Sep. 1999 – May 2003

AWARDS & HONORS

• E. J. Corey Award (*American Chemical Society)*	2023
• Arthur C. Cope Scholar Award (*American Chemical Society)*	2018
• Mitsui Catalysis Science Award of Encouragement	2018
• E. Bright Wilson Prize (*Harvard University, Dept. of Chemistry and Chemical Biology)*	2018
• Novartis Early Career Award in Organic Chemistry	2017
• Camille Dreyfus Teacher-Scholar Award	2017
• Grammaticakis-Neumann Prize (*Swiss Chemical Society*)	2017
• Amgen Young Investigator Award	2016
• Eli Lilly Grantee Award	2016
• Bristol Myers Squibb Innovation Grant	2015
• Alfred P. Sloan Foundation Research Fellow	2014
• Thieme Chemistry Journal Award	2013
• ACS PRF Doctoral New Investigator	2012
• NIH NRSA Postdoctoral Fellow, *Harvard University*	2008 – 2010
• Eli Lilly Graduate Fellowship in Organic Chemistry, *California Institute of Technology*	2004 – 2005
• Institute Graduate Fellowship, *California Institute of Technology*	2003 – 2004
• James Monroe Scholar, *College of William and Mary*	1999 – 2003

PUBLICATIONS

63. Rodgers, L. V. H.; Nguyen, S. T.; Cox, J. H.; Zervas, K.; Yuan, Z.; Sangtawesin, S.; Stacey, A.; Jaye, C.; Weiland, C.; Pershin, A.; Gali, A.; Thomsen, L.; Meynell, S. A.; Hughes, L. B.; Bleszynski Jayich, A. C.; Gui, X.; Cava, R. J.; Knowles, R. R.; De Leon, N. P. Diamond Surface Functionalization via Visible Light-Driven C-H Activation for Nanoscale Quantum Sensing. *Proc. Nat. Acad. Sci.* **2024**, *121*, e2316032121.

62. Organobismuth Compounds as Aryl Radical Precursors via Light-Driven Single Electron Transfer. Chiappini, N. D.; Geunes, E. P.; Bodak, E. T.; Knowles, R. R. *ACS Catalysis*, **2024**, *14*, 2664–2670.

61. Photocatalytic Anti-Markovnikov Hydroamination of Alkenes with Heteroaryl Amines. Geunes, E. P.; Meinhardt, J. M.; Wu, E. J.; Knowles, R. R. *J. Am. Chem. Soc.* **2023**, *145*, 21738–21744.

60. Catalytic Asymmetric Hydrogen Atom Transfer: Enantioselective Hydroamination of Alkenes. Hejna, B. G.; Ganley, J. M.; Shao, H.; Tian, H.; Ellefsen, J. D.; Fastuca, N. J.; Houk, K. N.; Miller, S. J.; Knowles, R. R. *J. Am. Chem. Soc.* **2023**, *145*, 16118–16129.

59. Singly Reduced Iridium Chromophores: Synthesis, Characterization, and Photochemistry. Baek, Y.; Reinhold, A.; Tian, L.; Jeffrey, P.; Scholes, G. D.; Knowles, R. R. *J. Am. Chem. Soc.* **2023**, *145*, 12499–12508.

58. Isotopic Fractionation as a Mechanistic Probe in Light-Driven C-H Bond Exchange Reactions. Qiu, G.; Ni, C.-L.; Knowles, R. R. *J. Am. Chem. Soc.* **2023**, *145*, 11537–11543.

57. Chemical Recycling of Thiol Epoxy Thermosets to Monomer via Light-Driven C-C Bond Cleavage. Nguyen, S. T.; Fries, L. J.; Cox, J. H.; Ma, Y.; Fors, B. P.; Knowles, R. R. *J. Am. Chem. Soc.* **2023**, *145*, 11151–11160.

56. Radicals as Exceptional Electron-Withdrawing Groups: Nucleophilic Aromatic Substitution of Halophenols via Homolysis-Enabled Electronic Activation. Shin, N. Y.; Tsui, E.; Reinhold, A.; Scholes, G. D.; Bird, M. J.; Knowles, R. R.; *J. Am. Chem. Soc.* **2022**, *144*, 21783–21790.

55. Radical Redox Annulations: A General Light-Driven Method for the Synthesis of Saturated Heterocycles. Murray, P. R. D., Leibler, I. N.-M.; Hell, S. M.; Villalona, E.; Doyle, A. G.; Knowles, R. R.; *ACS Catalysis,* **2022**, *12*, 13732–13740.

54. Interference of Nuclear Wavepackets in a Pair of Proton Transfer Reactions. Zhang, X.; Schwarz, K. N.; Zhang, L.; Fassioli, F.; Fu, B.; Nguyen, L. Q.; Knowles, R. R.; Scholes, G. D. *Proc. Nat. Acad. Sci.* **2022**, *119*, e2212114119.

53. Noncovalent Stabilization of Radical Intermediates in the Enantioselective Hydroamination of Alkenes with Sulfonamides. Xu, E. Y.; Werth, J.; Roos, C. B.; Bendelsmith, A. J.; Sigman, M. S.; Knowles, R. R.; *J. Am. Chem. Soc.* **2022**, *144*, 18948–18958.

52. Reversible Homolysis of a Carbon-Carbon σ-Bond Enabled by Complexation-Induced Bond-Weakening Catalysis. Kim, S.; Chen, P.; Houk. K. N.; Knowles, R. R. *J. Am. Chem. Soc.* **2022**, *144*, 15488–15496.

51. Ion-Pair Reorganization Regulates Reactivity on Photoredox Catalysis. Earley, J. D.; Zieleniewska, A.; Ripberger, H. H.; Shin, N. Y.; Lazorski, M. S.; Mast, Z. J.; Sayre, H. J.; McCusker, J. K.; Scholes, G. D.; Knowles, R. R.; Reid, O. G.; Rumbles, G. *Nat. Chem.* **2022**, *14*, 746–752.

50. Contra-thermodynamic Positional Isomerization of Olefins. Zhao, K.; Knowles, R. R. *J. Am. Chem. Soc.* **2022**, *144*, 137–144.

49. Ir(III)-Naphthoquinone Complex as a Platform for Photocatalytic Activity. Guerra, W. D.; Sayre, H. J.; Ripberger, H. H.; Odella, E.; Scholes, G. D.; Moore, T. A.; Knowles, R. R.; Moore, A. L. *Journal of Photochemistry and Photobiology*, **2022**, *9*, 100098.

48. Photochemical and Electrochemical Applications of Proton-Coupled Electron Transfer in Organic Synthesis. Murray, P. R. D.; Cox, J. H.; Chiappini, N. D.; Roos, C. B; McLoughlin, E. A.; Hejna, B. G.; Nguyen, S. T.; Ripberger, H. H.; Ganley, J. M.; Tsui, E.; Shin, N. Y.; Koronkiewicz, B.; Qiu, G.; Knowles, R. R. *Chem. Rev.* **2022**, *122*, 2017–2291.

47. PCET-based Ligand Limits Charge Recombination with an Ir(III) Photoredox Catalyst. Sayre, H.; Ripberger, H. H.; Odella, E.; Zieleniewska, A.; Heredia, D. A.; Rumbles, G.; Scholes, G. D.; Moore, T. A.; Moore, A. L.; Knowles, R. R. *J. Am. Chem. Soc.* **2021**, *143*, 13034–13043.

46. Depolymerization of Hydroxylated Polymers *via* Light-Driven C-C Bond Cleavage. Nguyen, S. T.; McLoughlin, E.; Cox, J. H.; Fors, B. P.; Knowles, R. R. *J. Am. Chem. Soc.* **2021**, *143*, 12268–12277.

45. Mechanistic Investigation and Optimization of Photoredox Anti-Markovnikov Hydroamination. Qin, Y.; Zhu, Q.; Sun, R.; Ganley, J. M.; Knowles, R. R.; Nocera, D. G. *J. Am. Chem. Soc.* **2021**, *143*, 10232–10242.

44. 1,3 Alkyl Transposition in Allylic Alcohols Enabled by Proton-Coupled Electron Transfer. Zhao, K.; Seidler, G.; Knowles, R. R. *Angew. Chem. Int. Ed.*, **2021**, *60*, 20190–20195.

43. Intermolecular Crossed [2+2] Cycloaddition Promoted by Visible-Light Triplet Photosensitization: Expedient Access to Polysubstituted 2-Oxaspiro[3.3]heptanes. Murray, P. R. D.; Bussink, W. M. M.; Davies, G. H. M.; van der Mei, F. W.; Antropow, A. H.; Edwards, J. T.; D'Agostino, L. A.; Ellis, J. M.; Hamann, L. G.; Romanov-Michailidis, F.; Knowles, R. R. *J. Am. Chem. Soc.* **2021**, *143*, 4055–4063.

42. Expeditious Synthesis of Aromatic-Free Piperidinium-Functionalized Polyethylene as Alkaline Anion Exchange Membranes. You, W.; Ganley, J. M.; Ernst, B. G.; Peltier, C. R.; Ko, H-Y.; DiStasio R. A.; Knowles, R. R.; Coates, G. W. *Chemical Science* **2021**, *12*, 3898–3910.

41. Photocatalytic Generation of Aminium Radical Cations for C-N Bond Formation. Ganley, J. M.; Murray, P. R. M.; Knowles, R. R. *ACS Catalysis,* **2020**, *10*, 11712–11738.

40. Catalytic Generation of Alkoxy Radicals from Unfunctionalized Alcohols. Tsui, E.;Wang, H.; Knowles, R. R. *Chemical Science,* **2020**, *11*, 11124–11141.

39. Catalytic Hydroetherification of Unactivated Olefins Enabled by Proton-Coupled Electron Transfer. Tsui, E.; Metrano, A. J.; Tsuchiya, Y.; Knowles, R. R. *Angew. Chem. Int. Ed.* **2020**, *59*, 11845–11859.

38. Enantioselective Hydroamination of Alkenes with Sulfonamides Enabled by Proton-Coupled Electron Transfer. Roos, C. B.; Demaerel, J.; Graff, D.E; Knowles, R. R. *J. Am. Chem. Soc.* **2020**, *142*, 5974–5979.

37. Light-driven Depolymerization of Native Lignin Enabled by Proton-Coupled Electron Transfer. Nguyen, S. T.; Murray, P. R. M.; Knowles, R. R. *ACS Catalysis,* **2020**, *10*, 800–805.

36. Light-driven Deracemization Enabled by Excited-State Electron Transfer. Shin, N. Y.; Ryss, J. M.; Zhang, X.; Miller, S. J.; Knowles, R. R. *Science,* **2019**, *366*, 364–369.

35. Anti-Markovnikov Hydroamination of Unactivated Alkenes with Primary Alkyl Amines. Miller, D. C.; Ganley, J. M.; Musacchio, A. J.; Sherwood, T. C.; Ewing, W. R.; Knowles, R. R. *J. Am. Chem. Soc.* **2019**, *141*, 16590–16594.

34. Understanding Chemoselectivity in Proton-Coupled Electron Transfer: A Kinetic Study of Amide and Thiol Activation. Qui, G.; R.; Knowles, R. R. *J. Am. Chem. Soc.* **2019**, *141*,16574-16578.

33. C-H Alkylation via Multisite Proton-Coupled Electron Transfer of an Aliphatic C-H Bond. Morton, C. M.; Zhu, Q.; Ripberger, H.; Troian-Gauthier, L; Toa, Z. S. D.; Knowles, R. R.; Alexanian, E. J. *J. Am. Chem. Soc.* **2019**, *141,* 13253–13260.

32. Catalytic Ring Expansions of Cyclic Alcohols Enabled by Proton-Coupled Electron Transfer. Zhao, K.; Yamashita, K.; Carpenter, J.; Sherwood, T. C.; Ewing, W. R.; Cheng, P. T. W.; Knowles, R. R. *J. Am. Chem. Soc.* **2019**, *141,* 8752–8757.

31. PCET-Enabled Olefin Hydroamidation Reactions with *N*-Alkyl Amides. Nguyen, S. T.; Zhu, Q.; Knowles, R. R. *ACS Catalysis* **2019**, *9*, 4502–4507.

30. Evaluation of Excited State Bond Weakening for Ammonia Synthesis from a Manganese Nitride: Stepwise Proton-Coupled Electron Transfer is Preferred Over Hydrogen Atom Transfer. Loose, F.; Wang, D.; Tian, L.; Scholes, G. D.; Knowles, R. R.; Chirik, P. J. *Chem. Comm.* **2019**, *55*, 5595–5598.

29. Decarboxylative Intramolecular Arene Alkylation Using N-(Acyloxy)phthalimides, as Organic Photocatalyst, and Visible Light. Sherwood, T. C.; Xiao, H.-Y.; Bhaskar, R. G.; Simmons, E. M.; Zaretsky, S.; Rauch, M. P.; Knowles, R. R. and Dhar, T. G. M. *J. Org. Chem.* **2019**, *84*, 8360–8379.

28. N–H Bond Formation in a Manganese(V) Nitride Yields Ammonia by Light-Driven Proton-Coupled Electron Transfer. Wang, D.; Loose, F.; Chirik, P. J.; Knowles, R. R. *J. Am. Chem. Soc.* **2019**, *141*, 4795–4799.

27. Rate-Driving Force Relationships in the Multisite PCET Activation of Ketones. Qui, G.; R.; Knowles, R. R. *J. Am. Chem. Soc.* **2019**, *141*, 2721-2730.

26. A Redox Strategy for Light-Driven, Out-of-Equilibrium Isomerizations and Application to Catalytic C–C Bond Cleavage Reactions. Ota, E.; Wang, H.; Frye, N. L.; R.; Knowles, R. R. *J. Am. Chem. Soc.* **2019**, *141*, 1457–1462.

25. Applications of and Prospects for Triplet-Triplet Annihilation Photon Upconversion. Rauch, M. P.; R.; Knowles, R. R. *CHIMIA.* **2018,** *72*, 501–507. (*Laureate Article for Grammaticakis-Neumann Prize*)

24. Enantioselective Synthesis of Pyrroloindolines via Non-Covalent Stabilization of Indole Radical Cations and Applications to the Synthesis of Alkaloid Natural Products. Gentry, E. C.; Rono, L. J.; Hale, M. E.; Matsuura, R.; Knowles, R. R. *J. Am. Chem. Soc.* **2018,** *140*, 3394–3402.

23. Intermolecular Anti-Markovnikov Hydroamination of Unactivated Alkenes with Sulfonamides Enabled by Proton-Coupled Electron Transfer. Zhu, Q.; Graf, D. E.; Knowles, R. R. *J. Am. Chem. Soc.* **2018,** *140*, 741–747.

22. Catalytic Intermolecular Hydroaminations of Unactivated Olefins with Secondary Alkyl Amines. Musacchio, A. J.; Lainhart, B. C.; Zhang, X.; Naguib, S. G.; Sherwood, T. C.; Knowles, R. R. *Science*, **2017**, *355*, 727–730.

21. Catalytic Alkylation of Remote C-H Bonds Enabled by Proton-Coupled Electron Transfer. Choi, G. C.; Zhu, Q.; Miller, D. C.; Gu, C. J.; Knowles, R. R. *Nature*, **2016**, *539*, 268–271.

20. Catalytic Ring-Opening of Cyclic Alcohols Enabled by PCET Activation of Strong O-H Bonds. Yayla, H. G.; Wang, H.; Tarantino, K. T.; Orbe, H. S.; Knowles, R. R. *J. Am. Chem. Soc.* **2016**, *138*, 10794–10797.

19. Synthetic Applications of Proton-Coupled Electron Transfer. Gentry, E. C.; Knowles, R. R. *Acc. Chem. Res.* **2016**, *49*, 1546–1556.

18. Catalytic Carbocation Generation Enabled by the Mesolytic Cleavage of Alkoxyamine Radical Cations. Zhu, Q.; Gentry, E. C.; Knowles, R. R. *Angew. Chem. Int. Ed.* **2016**, *55*, 9969–9973.

17. Proton-Coupled Electron Transfer in Organic Synthesis: Fundamentals, Applications and Opportunities. Miller, D. C.; Tarantino, K. T.; Knowles R. R. *Topics in Current Chemistry* **2016**, *374* (*30*), 145–203. DOI:10.1007/s41061-016-0030-6.

16. Catalytic C-N Bond Forming Reactions Enabled by Proton-Coupled Electron Transfer Activation of Amide N-H Bonds. Nguyen, L. Q.; Knowles R. R. *ACS Catalysis* **2016**, *6*, 2894–2903.

15. Discovery and Mechanistic Study of a Photocatalytic Indoline Dehydrogenation for the Synthesis of Elbasvir. Yayla, H. G.; Peng, F.; Mangion, I. K.; McLaughlin, M.; Campeau, L.-C.; Davies, I. W.; DiRocco, D. A.; Knowles, R. R. *Chem. Sci.* **2016**, *7*, 2066–2073.

14. Catalytic Olefin Hydroamidation Enabled by Proton-Coupled Electron Transfer. Miller, D. C.; Choi, G. C.; Orbe, H. S.; Knowles, R. R. *J. Am. Chem. Soc.* **2015**, *137*, 13492–13495.

13. Reaching Your Full (Over)potential: A Novel Approach to Electrocatalytic Oxygen Reduction. Knowles, R. R. *ACS Central Science* **2015**, *1*, 224–225.

12. Catalytic Alkene Carboamination Enabled by Oxidative Proton-Coupled Electron Transfer. Choi, G. C.; Knowles, R. R. *J. Am. Chem. Soc.* **2015**, *137*, 9226–9229.

11. Bond Weakening Catalysis: Conjugate Aminations Enabled by the Soft Homolysis of Strong N-H Bonds. Tarantino, K. T.; Miller, D. C.; Callon, T. A.; Knowles, R. R. *J. Am. Chem. Soc.* **2015**, *137*, 6440–6443.

10. Proton-Coupled Electron Transfer in Organic Synthesis: Novel Homolytic Bond Activations and Catalytic Asymmetric Reactions with Free Radicals. Yayla, H. G.; Knowles, R. R. *Synlett* **2014**, *25*, 2819–2826 (*Synpacts* article).

9. Catalytic Olefin Hydroamination with Aminium Radical Cations: A Photoredox Method for Direct C-N Bond Formation. Musacchio, A. J.; Nguyen, L. Q.; Beard, G. H.; Knowles, R. R. *J. Am. Chem. Soc.* **2014**, *136*, 12217–12220.

8. Enantioselective Photoredox Catalysis Enabled by Proton-Coupled Electron Transfer. Development of an Asymmetric Aza-Pinacol Cyclization Rono, L. J.; Yayla, H. G.; Wang, D. Y.; Armstrong, M. F.; Knowles, R. R. *J. Am. Chem. Soc.* **2013**, *135*, 17735–17738.

7. Catalytic Ketyl Olefin Cyclizations Enabled by Proton-Coupled Electron Transfer. Tarantino, K. T.; Liu, P.; Knowles, R. R. *J. Am. Chem. Soc.* **2013**, *135*, 10022–10015.

PUBLICATIONS FROM POSTDOCTORAL, GRADUATE & UNDERGRADUATE WORK

6. Total Synthesis of Diazonamide A. Knowles, R. R.; Carpenter, J. E.; Blakey, S. B.; Kayano, A.; Mangion, I. K.; MacMillan D. W. C. *Chemical Science* **2011**, *2*, 308–311.

5. Attractive Non-Covalent Interactions in Asymmetric Catalysis: Links Between Enzymes and Small-Molecule Catalysts. Knowles, R. R.; Jacobsen, E. N. *Proc. Nat. Acad. Sci. USA* **2010**, *107*, 20678–20685.

4. Concerning the Mechanism of the $FeCl_3$-Cataylzed α-Oxyamination of Aldehydes. Evidence for a Non-SOMO Activation Pathway. Van Humbeck, J. F.; Simonovich, S. P.; Knowles, R. R.; MacMillan D. W. C. *J. Am. Chem. Soc.* **2010**, *132*, 10012–10014.

3. Enantioselective Thiourea-Catalyzed Cationic Polycyclizations. Knowles, R. R.; Lin, S.; Jacobsen, E. N. *J. Am. Chem. Soc.* **2010**, *132*, 5030–5032.

2. Modelling the Effects of Confinement on the Glass Transition Temperatures and Segmental Mobility. Kranbuehl, D. E.; Knowles, R. R.; Hossain, A.; Hurt, M. *Journal of Physics: Condensed Matter* **2003**, *15*, S1019–S1029.

1. Monte Carlo Simulations of the Effect of Confinement Geometry on the Lowering of the Glass Transition Temperature. Kranbuehl, D. E.; Knowles, R. R.; Hossain, A.; Gilchriest, A. *Journal of Non-Crystalline Solids* **2002**, *307*, 495–502.

INVITED LECTURES

1.	Merck – Rahway, NJ	Jan. 2014
2.	SUNY – Binghamton	Mar. 2014
3.	2nd International Conference on Proton-Coupled Electron Transfer – Uppsala, Sweden	July 2014
4.	SUNY – Albany	Sep. 2014
5.	Brooklyn College – City University of New York	Oct. 2014
6.	Johns Hopkins University	Oct. 2014
7.	North Jersey ACS Symposium (*Award symposium in honor of Dave MacMillan*) – Piscataway, NJ	Dec. 2014
8.	Bristol Myers Squibb – Wallingford, CT	Jan. 2015
9.	Bristol Myers Squibb – Hopewell, NJ	Feb. 2015
10.	Inorganic Reaction Mechanisms Gordon Conference – Galveston, TX	Mar. 2015
11.	249th ACS National Meeting (*Fresenius Symposium in honor of Abby Doyle*) – Denver, CO	Mar. 2015

12.	Bristol Myers Squibb – New Brunswick, NJ	May 2015
13.	Gilead Biosciences – San Francisco, CA	May 2015
14.	Heterocycles Gordon Conference – Newport, RI	June 2015
15.	Eli Lilly – Indianapolis, IN	June 2015
16.	Nanyang Technological University – Singapore	July 2015
17.	7th Pacific Symposium on Radical Chemistry – Singapore	July 2015
18.	Natural Products Gordon Conference – Andover, NH	July 2015
19.	250th ACS National Meeting (*SABIC Symposium in honor of Melanie Sanford*) – Boston, MA	Aug. 2015
20.	Amgen – Cambridge, MA	Aug. 2015
21.	Lehigh University	Sep. 2015
22.	ICIQ Symposium on Photocatalysis – Tarragona, Spain	Oct. 2015
23.	Rutgers University	Oct. 2015
24.	University of Ottawa (*Student-Invited Speaker*)	Oct. 2015
25.	Hunter College	Nov. 2015
26.	Emory University	Nov. 2015
27.	Georgia State University	Nov. 2015
28.	Boston University	Nov. 2015
29.	University of California – Berkeley *(Amgen Lecturer)*	Dec. 2015
30.	New Jersey Biotechnology Chemistry Consortium	Dec. 2015
31.	PacifiChem – Honolulu, HI	Dec. 2015
32.	University of Washington	Jan. 2016
33.	Purdue University	Jan. 2016
34.	University of Michigan – Ann Arbor	Jan. 2016
35.	Wesleyan University	Jan. 2016
36.	University of Illinois – Urbana-Champaign	Feb. 2016
37.	Colorado State University (*Aldrich Lecturer*)	Feb. 2016
38.	University of Wisconsin – Madison	Mar. 2016
39.	Nagoya University – Nagoya, Japan	Mar. 2016
40.	Kyoto University – Kyoto, Japan	Mar. 2016
41.	RIKEN – Tokyo, Japan	Mar. 2016
42.	University of Tokyo – Tokyo, Japan	Mar. 2016
43.	North Carolina State University	Apr. 2016
44.	MIT (*Student-Invited Speaker*)	May 2016
45.	AbbVie Pharmaceuticals – Worcester, MA	May 2016
46.	Janssen Pharmaceuticals – San Diego, CA	June 2016
47.	Organic Reactions and Processes Gordon Conference – Easton, MA	July 2016
48.	Stereochemistry Gordon Conference – Newport, RI	July 2016
49.	Texas A&M University	Sept. 2016
50.	Green Chemistry Institute Pharmaceutical Roundtable Symposium – Novartis, Cambridge, MA	Oct. 2016
51.	Amgen – Cambridge, MA *(Young Investigator Award Symposium*)	Oct. 2016
52.	Cornell University	Nov. 2016
53.	Stanford University	Nov. 2016
54.	Caltech	Nov. 2016
55.	Columbia University (*Padwa Lecturer)*	Dec. 2016
56.	University of Manchester – Manchester, UK	Jan. 2017

57.	University of Cambridge – Cambridge, UK	Jan. 2017
58.	Imperial College London – London, UK	Jan. 2017
59.	University of Oxford – Oxford, UK	Jan. 2017
60.	University of Bristol – Bristol, UK	Jan. 2017
61.	University of North Carolina – Chapel Hill	Feb. 2017
62.	University of Utah	Mar. 2017
63.	Brigham Young University	Mar. 2017
64.	University of Texas, Southwestern Medical Center (*Excellence in Chemistry Symposium)*	Mar. 2017
65.	Indiana University	Apr. 2017
66.	Yale University (*Bristol-Myers Squibb Lecturer*)	Apr. 2017
67.	GlaxoSmithKline – Upper Merion, PA	Apr. 2017
68.	Boehringer-Ingelheim – Ridgefield, CT	Apr. 2017
69.	Genentech – (*Keynote speaker, Graduate Research Symposium*) – South San Francisco, CA	May 2017
70.	Bristol Myers Squibb – Discovery Chemistry Retreat - Hopewell, NJ	May 2017
71.	Canadian Society for Chemistry Meeting (*Advances in Radicals Symposium)* – Toronto, Canada	May 2017
72.	University of Muenster – Muenster, Germany	June 2017
73.	Max Planck Institute für Kohlenforschung – Mülheim, Germany	June 2017
74.	International Conference on Hydrogen Atom Transfer – Rome, Italy	July 2017
75.	Pfizer – Groton, CT	July 2017
76.	Swiss Chemical Society Meeting (*Grammaticakis-Neumann Award Lecture*) – Bern, Switzerland	Aug. 2017
77.	City College of New York	Sep. 2017
78.	AbbVie Process Chemistry – Chicago, IL	Oct. 2017
79.	Northwestern University – Evanston, IL	Oct. 2017
80.	University of California – Irvine	Nov. 2017
81.	UCLA (*Boehringer-Ingelheim Lecturer*)	Nov. 2017
82.	University of Pennsylvania (*Organic Reactions Lecturer*)	Nov. 2017
83.	Harvard University (*E. Bright Wilson Prize Lecturer*)	Feb. 2018
84.	College of Wooster	Feb. 2018
85.	Eli Lilly Grantee Symposium - Indianapolis, IN	Mar. 2018
86.	ACS National Meeting (*Photoredox in Organic Synthesis Symposium)* – New Orleans, LA	Mar. 2018
87.	ACS National Meeting (*Somorjai Award Symposium)* – New Orleans, LA	Mar. 2018
88.	University of Minnesota (*Millipore-Sigma Lecture*)	Apr. 2018
89.	French American Chemical Society Meeting - Orleans, France	June 2018
90.	3nrd International Conference on Proton-Coupled Electron Transfer – Blowing Rock, NC	June 2018
91.	ACS National Meeting (*Cope Scholar Award Symposium)* – Boston, MA	Aug. 2018
92.	Merck – West Point, PA	Sept. 2018
93.	ORCHEM Symposium (*Plenary Speaker*) Berlin, Germany	Sept. 2018
94.	ICIQ – Tarragona, Spain	Sept. 2018
95.	NESACS Process Chemistry Symposium – Boston, MA	Oct. 2018
96.	Waseda University – Tokyo, Japan	Oct. 2018
97.	Mitsui Catalysis Award Symposium – Tokyo, Japan	Oct. 2018
98.	Universal Display Corporation – Princeton, NJ	Oct. 2018
99.	Boston College	Nov. 2018
100.	Seoul National University – Seoul, South Korea	March 2019
101.	KAIST – Daejeon, South Korea	March 2019

102. Dalhousie University – Halifax, Canada — April 2019
103. Novartis Early Career Award Symposium – Basel, Switzerland — June 2019
104. Pacific Symposium on Radical Chemistry – Monterrey, CA — July 2019
105. 26th International Symposium in on Synthesis in Organic Chemistry – Cambridge UK — July 2019
106. 29th International Conference on Photochemistry – Boulder, CO — July 2019
107. Merck – Boston, MA — Aug. 2019
108. McGill University – Montreal, Canada — Sep. 2019
109. Syngenta Symposium in One-Electron Chemistry - Stein, Switzerland (*Plenary Speaker*) — Oct. 2019
110. Firmenich - Geneva, Switzerland — Oct. 2019
111. Novartis – Basel, Switzerland — Oct. 2019
112. Celgene – Cambridge, MA — Nov. 2019
113. University of Sydney – Sydney, Australia — Dec. 2019
114. University of Melbourne – Melbourne, Australia — Dec. 2019
115. Flinders University – Adelaide, Australia — Dec. 2019
116. Murdoch University – Perth, Australia — Dec. 2019
117. Eric Jacobsen's 60th Birthday Symposium – Harvard University — Feb. 2020
118. 19th NSF CCHF Virtual Symposium — June 2020
119. Vertex Pharmaceuticals – Boston (*virtual*) — Sep. 2020
120. University of California – Riverside (*virtual*) — Oct. 2020
121. Simon Fraser University – Vancouver, CA (*virtual*) — Oct. 2020
122. Pauling Medal Award Symposium (*in honor of Paul Chirik)* — Oct. 2021
123. Pharmaron – Beijing, China (*virtual*) — Nov. 2021
124. Sanofi-Aventis (*virtual*) — Dec. 2021
125. Temple University — Feb. 2022
126. University of Rochester (*Kende Lecturer*) — April 2022
127. University of Wisconsin, Madison (*Samuel McElvain Lecturer*) — May 2022
128. University of Chicago — May 2022
129. Solvay Conference on Chemistry – Brussels, Belgium — Oct. 2022
130. Ohio State University (*Hart Lecturer*) — Nov. 2022
131. Smith College (*Rosenfeld Lecturer*) — Feb. 2023
132. Duke University — Feb. 2023
133. University of Michigan (*Abbvie Lecture*) — Mar. 2023
134. ACS National Meeting (*E. J. Corey Award Symposium*) — Mar. 2023
135. University of California – Berkeley (*Heathcock Lecturer*) — Apr. 2023
136. Portland State University (*virtual*) — Apr. 2023
137. Brandeis University (*Organic Reactions Lecturer*) — Apr. 2023
138. University of California – Santa Barbera (*Genentech Lecturer*) — May 2023
139. Philadelphia Organic Chemistry Club — May 2023
140. Abbvie, Process Chemistry, North Chicago IL — July 2023
141. Pfizer – Groton CT — Aug. 2023
142. Scripps Research Institute, La Jolla CA (*TCG GreenChem Lecturer*) — Sept. 2023
143. Bristol Myers Squibb – Lawrenceville, NJ — Sept. 2023
144. GSK – King of Prussia, PA — Nov. 2023
145. Scripps Research Institute, Jupiter FL — Jan. 2024

146. European Winter School on Physical Organic Chemistry – Brixen, Italy Feb. 2024
147. University of Pavia – Pavia, Italy Feb. 2024
148. XV School of Organometallic Chemistry "Marcial Moreno Mañas," Alicante, Spain May 2024
149. iCHAT- Rome, Italy June 2024
150. Stereochemistry Gordon Conference – Newport, RI July 2024
151. Dartmouth University Oct. 2024
152. Florida State University Mar. 2025
152. University of Southern California April 2025