

Christopher Uyeda

Curriculum Vitae

Department of Chemistry
Purdue University
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EDUCATION

- 2005–2011 **Harvard University, Cambridge, MA**
A.M. Chemistry, May 2008
Ph.D. Chemistry, March 2011
- 2001–2005 **Columbia University, New York, NY**
B.S. Biomedical Engineering, *summa cum laude*, May 2005

ACADEMIC EXPERIENCE

- 2019–present **Associate Professor**
- 2013–2018 **Assistant Professor**
Purdue University, Department of Chemistry, West Lafayette, IN
- 2011–2013 **NSF Center for Chemical Innovation Postdoctoral Fellow**
California Institute of Technology, Department of Chemistry, Pasadena, CA
Research Advisor: Professor Jonas Peters
- 2005–2010 **Graduate Research Assistant**
Harvard University, Department of Chemistry and Chemical Biology, Cambridge, MA
Research Advisor: Professor Eric N. Jacobsen
Dissertation: Catalysis of the Claisen Rearrangement by Hydrogen-Bond Donors
- 2002–2005 **Undergraduate Research Assistant**
Columbia University, Chemistry Department, New York, NY
Research Advisor: Professor Ronald Breslow

AWARDS AND HONORS

- 2019 Camille Dreyfus Teacher-Scholar Award
- 2019 Kavli Fellow
- 2019 Padwa Lecturer, Columbia University
- 2018 Purdue Seeds for Success Award
- 2018 Purdue College of Science Award for Outstanding Contributions to Undergraduate Teaching
- 2018 Thieme Chemistry Journals Award
- 2017 ACS Division of Organic Chemistry Young Investigator Symposium
- 2017 NIH Maximizing Investigators' Research Award
- 2016 Alfred P. Sloan Foundation Research Fellowship
- 2016 NSF CAREER Award
- 2015 ACS PRF Doctoral New Investigator
- 2011–2013 NSF Center for Chemical Innovation Postdoctoral Fellowship
- 2010 Fieser Lecture in the Chemical Sciences, Harvard University
- 2008 Christensen Prize for Outstanding Research Achievement
- 2006 Robert B. Woodward Fellow
- 2005 Tau Beta Pi Engineering Honor Society
- 2004 Pfizer Synthetic Organic Chemistry Summer Undergraduate Research Fellowship

*Corresponding author

Independent Publications:

- (35) Werth, J.; Berger, K.; Uyeda, C.* "Cobalt Catalyzed Reductive Spirocyclopropanation Reactions." *Adv. Synth. Catal.* **2019**, DOI: 10.1002/adsc.201901293
- (34) Farley, C. M.; Uyeda, C.* "Organic Reactions Enabled by Catalytically Active Metal–Metal Bonds." *Trends in Chemistry* **2019**, *1*, 497–509.
[Invited Review: Special Issue on Transition Metal Catalysis]
- (33) Adolph, C. M.; Lee, S. A.; Uyeda, C.* "Dinickel Catalyzed Carbonylation Reactions Using Metal Carbonyl Reagents as CO Sources." *Tetrahedron* **2019**, *75*, 3336–3340.
[Invited Contribution: Ryan Shenvi Tetrahedron Award Issue]
- (32) Zhou, Y.-Y.; Uyeda, C.* "Catalytic Reductive [4 + 1]-Cycloadditions of Vinylidenes and Dienes." *Science* **2019**, *363*, 857–862.
[Highlight in Synfacts by M. Lautens and E. Larin]
[Perspective in Science by K. Johnson and D. Weix]
[News Article in C&E News (Vol. 97, Issue 8)]
[News Article on Phys.org (Feb. 22, 2019)]
- (31) Farley, C. M.; Zhou, Y.-Y.; Banka, N.; Uyeda, C.* "Catalytic Reductive Cyclopentanations of Enones." *J. Am. Chem. Soc.* **2018**, *140*, 12710–12714.
[Selected as an ACS Editor's Choice Article]
- (30) Werth, J.; Uyeda, C.* "Transition Metal Catalyzed Reductive Dimethylcyclopropanations of 1,3-Dienes." *Angew. Chem., Int. Ed.* **2018**, *57*, 13902–13906.
[Highlight in Synfacts by P. Knochel and D. Ziegler]
- (29) Maity, A. K.; Zeller, M.; Uyeda, C.* "Carbene Formation and Transfer at a Dinickel Active Site." *Organometallics* **2018**, *37*, 2437–2441.
[Invited Cover Art]
- (28) Powers, I. G.; Andjaba, J. M.; Luo, X.; Mei, J.; Uyeda, C.* "Catalytic Azoarene Synthesis by a Dinuclear Ni Complex" *J. Am. Chem. Soc.* **2018**, *140*, 4110–4118.
- (27) Rounds, H. R.; Zeller, M.; Uyeda, C.* "Dinuclear Pathways for the Activation of Strained Three-Membered Rings" *Organometallics*, **2018**, *37*, 545–550.
- (26) Werth, J.; Uyeda, C.* "Regioselective Simmons–Smith-Type Cyclopropanations of Polyalkenes Enabled by Transition Metal Catalysis" *Chem. Sci.* **2018**, *9*, 1604–1609.
[Highlight in Synfacts by P. Knochel and D. Ziegler]
- (25) Hartline, D. R.; Zeller, M.; Uyeda, C.* "Catalytic Carbonylative Rearrangement of Norbornadiene via Dinuclear Carbon–Carbon Oxidative Addition" *J. Am. Chem. Soc.* **2017**, *139*, 13672–13675.
- (24) Pal, S.; Zhou, Y.-Y.; Uyeda, C.* "Catalytic Reductive Vinylidene Transfer Reactions" *J. Am. Chem. Soc.* **2017**, *139*, 11686–11689.
- (23) Kwon, D.-H.; Proctor, M.; Mendoza, S.; Uyeda, C.; Ess, D. H.* "Catalytic Dinuclear Nickel Spin Crossover Mechanism and Selectivity for Alkyne Cyclotrimerization" *ACS Catal.* **2017**, *7*, 4796–4804.
- (22) Steiman, T. J.; Uyeda, C. "Dinickel, 1,1-(1,8-Naphthyridine-2,7-diyl)bis[N-(2,6-diisopropylphenyl)ethan-1-imine](benzene)" *e-EROS* **2017**.
- (21) Adolph, C. M.; Werth, J.; Selvaraj, R.; Wegener, E. C.; Uyeda, C.* "Dehydrogenative Transformations of Imines Using a Heterogeneous Photocatalyst" *J. Org. Chem.* **2017**, *82*, 5959–5965.
- (20) Powers, I. G.; Kiattisewee, C.S.; Mullane, K. C.; Schelter, E. J.; Uyeda, C.* "A 1,2-Addition Pathway for C(sp²)-H Activation at a Dinickel Imide" *Chem. Eur. J.* **2017**, *23*, 7694–7697.
- (19) Powers, I. G.; Uyeda, C.* "Metal–Metal Bonds in Catalysis." *ACS Catal.* **2017**, *7*, 936–958.
[Invited Perspective]

- (18) Behlen, M. J.; Zhou, Y.-Y.; Steiman, T. J.; Pal, S.; Hartline, D. R.; Zeller, M.; Uyeda, C.* "Dinuclear Oxidative Addition Reactions Using an Isostructural Series of Ni₂, Co₂, and Fe₂ Complexes." *Dalton Trans.* **2017**, 46, 5493–5497. [Invited contribution to a themed issue "Multimetallic Complexes: Synthesis and Applications"]
- (17) Hartline, D. R.; Uyeda, C.* "Well-Defined Models for the Elusive Dinuclear Intermediates of the Pauson–Khand Reaction." *Angew. Chem., Int. Ed.* **2016**, 55, 6084–6087.
- (16) Zhou, Y.-Y.; Uyeda, C.* "Reductive Cyclopropanations Catalyzed by Dinuclear Nickel Complexes." *Angew. Chem., Int. Ed.* **2016**, 55, 3171–3175.
- (15) Uyeda, C.*; Steiman, T. J.; Pal, S. "Catalytically Active Nickel–Nickel Bonds Using Redox-Active Ligands." *Synlett* **2015**. [Invited Synfacts account]
- (14) Pal, S.; Uyeda, C.* "Evaluating the Effect of Catalyst Nuclearity in Ni-Catalyzed Alkyne Cyclotrimerizations." *J. Am. Chem. Soc.* **2015**, 137, 8042–8045.
- (13) Steiman, T. J.; Uyeda, C.* "Reversible Substrate Activation and Catalysis at an Intact Metal–Metal Bond Using a Redox-Active Supporting Ligand." *J. Am. Chem. Soc.* **2015**, 137, 6104–6110.
- (12) Zhou, Y.-Y.; Hartline, D. R.; Steiman, T. J.; Fanwick, P. E.; Uyeda, C.* "Dinuclear Nickel Complexes in Five States of Oxidation Using a Redox-Active Ligand." *Inorg. Chem.* **2014**, 53, 11770–11777.

Publications from Postdoctoral, Graduate, and Undergraduate Research:

- (11) Huo, P.; Uyeda, C.; Goodpaster, J. D.; Peters, J. C.; Miller III, T. F. "Breaking the Correlation between Energy Costs and Kinetic Barriers in Hydrogen Evolution via a Cobalt Pyridine-Diimine-Dioxime Catalyst." *ACS Catal.* **2016**, 6, 6114–6123.
- (10) Uyeda, C.; Peters, J. C.* "Selective Nitrite Reduction at Heterobimetallic CoMg Complexes." *J. Am. Chem. Soc.* **2013**, 135, 12023–12031.
- (9) Uyeda, C.; Tan, Y.; Fu, G. C.*; Peters, J. C.* "A New Family of Nucleophiles for Photoinduced, Copper-Catalyzed Cross-Couplings via Single-Electron Transfer: Reactions of Thiols with Aryl Halides under Mild Conditions (0 °C)." *J. Am. Chem. Soc.* **2013**, 135, 9548–9552.
- (8) Brown, A. R.; Uyeda, C.; Brotherton, C. A.; Jacobsen, E. N.* "Enantioselective Thiourea-Catalyzed Intramolecular Cope-Type Hydroamination." *J. Am. Chem. Soc.* **2013**, 135, 6747–6749.
- (7) Uyeda, C.; Peters, J. C.* "Access to Formally Ni(I) States in a Heterobimetallic NiZn System." *Chem. Sci.* **2013**, 4, 157–163.
- (6) McCrory, C. C. L.§; Uyeda, C.§; Peters, J. C.* "Electrocatalytic Hydrogen Evolution in Acidic Water with Molecular Cobalt Tetraazamacrocycles." *J. Am. Chem. Soc.* **2012**, 134, 3164–3170. (§Equal Contributions)
- (5) Uyeda, C.; Jacobsen, E. N.* "Transition State Charge Stabilization through Multiple Non-Covalent Interactions in the Guanidinium-Catalyzed Enantioselective Claisen Rearrangement." *J. Am. Chem. Soc.* **2011**, 133, 5062–5075.
- (4) Uyeda, C.; Rötheli, A. R.; Jacobsen, E. N.* "Catalytic Enantioselective Claisen Rearrangements of *O*-Allyl β -Ketoesters." *Angew. Chem. Int. Ed.* **2010**, 122, 9947–9950.
- (3) Uyeda, C.; Jacobsen, E. N.* "Enantioselective Claisen Rearrangements with a Hydrogen-Bond Donor Catalyst." *J. Am. Chem. Soc.* **2008**, 130, 9228–9229.
- (2) Uyeda, C.; Biscoe, M. R.; LePlae, P.; Breslow, R.* "Hydrophobically Directed Selective Reduction of Ketones using Amine Boranes." *Tetrahedron Lett.* **2005**, 47, 127–130.
- (1) Biscoe, M. R.; Uyeda, C.; Breslow, R.* "Requirements for Selective Hydrophobic Acceleration in the Reduction of Ketones." *Org. Lett.* **2004**, 6, 4331–4334.

INVITED LECTURES

55. ACS Central Regional Meeting (Ligand Design for Homogeneous Transition Metal Chemistry); Columbus OH; May 2020
54. Bristol-Myers Squibb, Lawrenceville, NJ, New Brunswick, NJ; May 2020
53. Harvard University, Cambridge, MA; April 2020
52. Grubbs Symposium, Shenzhen Grubbs Institute, Southern University of Science and Technology, China; April 2020
51. Scripps Research Institute, La Jolla, CA; Nov. 2019

50. Loyola University Chicago, Chicago, IL; Oct. 2019
49. Baylor University, Waco, TX, Sept. 2019
48. Texas A&M, College Station, TX; Sept. 2019
47. University of Houston, Houston, TX; Sept. 2019
46. ACS National Meeting (Emerging Research in Molecular Synthesis and Catalysis) San Diego, CA; Aug. 2019
45. Gordon Research Conference (Inorganic Reaction Mechanisms) Galveston, TX; March 2019
44. Columbia University, New York, NY; *Padwa Lecture*; Jan. 2019
43. ExxonMobil, Baytown, TX; Nov. 2018
42. Merck Process Chemistry, Rahway, NJ; Nov. 2018
41. Boston College, Boston, MA; Oct. 2018
40. University of Wisconsin–Madison, WI; Sept. 2018
39. University of California–Berkeley, CA; Sept. 2018
38. University of Arizona, Tucson, AZ; Aug. 2018
37. ACS National Meeting (Symposium honoring Prof. Tianning Diao, Organometallics Distinguished Author Symposium); Boston, MA; Aug. 2018
36. Eli Lilly; Indianapolis, IN; July 2018
35. University of Chicago, Chicago, IL; May 2018
34. Stanford University, Palo Alto, CA; May 2018
33. Indiana University, Indianapolis, IN; April; 2018
32. University of North Carolina–Chapel Hill; April 2018
31. Ohio State University, OH; March 2018
30. University at Buffalo, NY; March 2018
29. University of Illinois–Urbana Champagne, IL; Feb. 2018
28. University of California–Santa Barbara, CA; Feb. 2018
27. University of California–Irvine, CA; Feb. 2018
26. University of Southern California, Los Angeles, CA; Feb. 2018
25. Michigan State University, East Lansing, MI; Feb. 2018
24. University of Minnesota, Minneapolis, MN; Jan. 2018
23. Brigham Young University, Provo, UT; Jan. 2018
22. Indo–US Bilateral Meeting on Organometallic Chemistry, India; Dec. 2017
21. Indian Institute of Technology–Bombay, India; Dec. 2017
20. International Seminar for Young Chemists on Precisely Designed Catalysts, Japan; Nov. 2017
19. Osaka University, Japan; Nov. 2017
18. Kyoto University, Japan; Nov. 2017
17. University of Tokyo, Japan; Nov. 2017
16. University of Rochester, Rochester, NY; Oct. 2017
15. New York University, New York, NY; Oct. 2017
14. Princeton University, Princeton, NJ; Sept. 2017
13. ACS Division of Organic Chemistry Young Investigator Symposium, Washington, D.C.; Aug. 2017
12. Gordon Research Conference (Organic Reactions and Processes) Stonehill College, MA; July, 2017
11. ACS Green Chemistry and Engineering Conference (Making Our Way to a Sustainable Tomorrow); Washington, DC; April 2017
10. University of California–Riverside, Riverside, CA; April 2017
9. Gordon Research Conference (Inorganic Reaction Mechanisms) Short Talk, Galveston, TX; March 2017
8. Emory University, Atlanta, GA; Feb. 2017
7. Gordon Research Conference (Organometallics) Short Talk, Salve Regina, RI; July 2016
6. Dow AgroSciences, Indianapolis, IN; May 2016
5. ACS Central Regional Meeting (Frontiers in Organometallic Chemistry Symposium); Covington, KY; May 2016
4. ACS National Meeting (Alpha Olefins Symposium); San Diego, CA; March 2016
3. Eastern Illinois University, Charleston, IL; Nov. 2015
2. Ball State University, Muncie, IN; Feb. 2015
1. University of Texas at El Paso, El Paso, TX; Oct. 2014

FUNDING SOURCES

Active:

- 2019–2020 ExxonMobil Chemical Company
“Lewis Acid Responsive Catalysts for Polar-Containing Polyolefins”
- 2019 Camille Dreyfus Teacher–Scholar Award
- 2017–2022 NIH MIRA (R35 GM-124791)
“Transition Metal Catalyzed Reductive Carbene Transfer Reactions”
- 2016–2021 NSF CAREER Award (CHE-1554787)
“CAREER: SusChEM: Metal–Metal Bonds as Active Sites in Catalysis”

Completed:

- 2018–2019 ExxonMobil Chemical Company
“Bimetallic Naphthyridine Compounds for Olefin Polymerization”
- 2018 College of Science Outstanding Contributions to Undergraduate Teaching
- 2017–2018 Purdue Research Foundation Grant
“Catalytic Activations of Strained Bicyclic Ring Systems”
- 2017 Purdue Research Foundation Summer Faculty Grant
“Catalytic Reductive Transformations of Carbenes”
- 2016–2017 Purdue Research Foundation Grant
“Catalytic Reductive Transformations of Carbenes”
- 2015 – 2017 American Chemical Society Petroleum Research Fund (Doctoral New Investigator)
“Light-Driven Dehydrogenative Carbon–Carbon Coupling Reactions”
- 2015–2017 Alfred P. Sloan Foundation Fellowship

PROFESSIONAL ACTIVITIES

- 2018 Inorganic Chemistry GRS, Discussion Leader and Career Panelist
- 2017–2019 Summer Science Program (presented guest lectures on the organic chemistry of drug discovery to groups of high school students)
- 2014–present Served as a research mentor for local high school students through ACS Project SEED and my NSF CAREER award (CHE-1554787)
- 2014–2017 Soybean Product Innovation Competition, Faculty Mentor

Manuscript Reviewer: Science, Nature, Nature Chemistry, Journal of the American Chemical Society, Angewandte Chemie, Chemical Science, ACS Catalysis, Advanced Synthesis and Catalysis, Organic Letters, Journal of Organic Chemistry, Inorganic Chemistry, Organometallics, Tetrahedron, Dalton Transactions, Catalysis Science and Technology

Ad Hoc Grant Reviewer: NSF CAREER Program, ACS PRF DNI Program, DOE BES Catalysis

Review Panel Member: NSF CHE Catalysis

Purdue University:

- 2020 H.C. Brown Symposium, Chair
- 2019–2020 Inorganic Junior Faculty Search Committee, Chair
- 2019 College of Science Undergraduate Career Panel, Panelist
- 2018–2019 Inorganic Senior Faculty Search Committee, Chair
- 2017–2018 Organic Faculty Search Committee, Member
- 2016–present Service Course Committee, Member
- 2014–present Graduate Recruiting Committee, Member

2014–2015	H.C. Brown Graduate Research Award Committee
2013–2016	Diversity Implementation Committee
2013–2019	H.C. Brown Symposium, Session Chair

TEACHING ACTIVITIES

Title of Course	Semester	Course	Students
Organic Chemistry	Fall 2013	CHM 255, undergraduate	361
Organic Chemistry	Fall 2014	CHM 255, undergraduate	351
Catalytic Methods and Mechanisms in Organic Synthesis	Spring 2015	CHM 696, graduate	12
Organic Chemistry	Fall 2015	CHM 255, undergraduate	331
Catalytic Methods and Mechanisms in Organic Synthesis	Spring 2016	CHM 696, graduate	25
Organic Chemistry	Fall 2016	CHM 255, undergraduate	262
Catalytic Methods and Mechanisms in Organic Synthesis	Spring 2017	CHM 696, graduate	20
Organic Chemistry	Fall 2017	CHM 255, undergraduate	297
Catalytic Methods and Mechanisms in Organic Synthesis	Spring 2018	CHM 696, graduate	24
Advanced Organic Chemistry	Fall 2018	CHM 651, graduate	41
Organic Chemistry	Spring 2019	CHM 255, undergraduate	480
Advanced Organic Chemistry	Fall 2019	CHM 651, graduate	38

MENTORING ACTIVITIES

Current Graduate Students:

From Aug. 2019	Kyle Brook M.A. University of California – Irvine B.A. University of Illinois at Chicago
From Aug. 2019	Mingxin Liu, Ross Fellow B.S. Jilin University, China
From Aug. 2019	Christopher Rybak B.A. Iowa State University
From Aug. 2019	Wen Xiu B.S. Nankai University, China
From Aug. 2018	Vibha Kanale M.Sc. University of Hyderabad, India
From Aug. 2018	Kristen Berger B.S. University of St. Thomas
From Aug. 2017	Sourish Biswas M.Sc. National Institute of Science Education, India
From Aug. 2017	Annah Kalb B.A. Indiana Wesleyan University
From Aug. 2016	John Andjaba, Charles Viol Fellow B.A. Mount St. Mary's University
From Aug. 2015	Conner Farley, Arthur Kelley Teaching Award B.A. University of Idaho

From Aug. 2014 **Mike Behlen**
B.A. University of Oklahoma

Current Postdoctoral Researchers:

From April 2019 **Qiang Zhao**
Ph.D. Kyoto University, Japan
Advisor: Prof. Masahiro Murakami

From Oct. 2018 **Houng Kang**
Ph.D. University of Pennsylvania
Advisor: Prof. Marisa Kozlowski

Ph.D. Degrees Granted:

Ph.D., Aug 2019 **Jake Werth**, *H.C. Brown Graduate Student Research Award*
B.A. University of Minnesota

Ph.D., July 2018 **Colby Adolph**, *Teaching Academy Award*
B.S. Schreiner University

Ph.D., July 2018 **Sudipta Pal**, *Purdue Research Foundation Fellow, H.C. Brown Graduate Student Award, Kokes Award*
B.Sc. Indian Institute of Technology–Bombay, India

Ph.D., July 2018 **Ian Powers**, *Ross Fellow, NSF Graduate Research Fellow, Ian Rothwell Seminar Award*
B.S. George Fox University

Ph.D., May 2018 **Douglas Hartline**, *Purdue Research Foundation Fellow*
B.S. Penn State University

Ph.D., May 2018 **Heather Schoonover**
M.S. Eastern Illinois University, B.S. Millikin University

Ph.D., May 2018 **Talia Steiman**, *Bilsland Fellowship, H.C. Brown Seminar Award*
B.S. Hamilton College