

Curriculum Vitae
Tianning Diao
New York University

Department of Chemistry
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Professional Position

Assistant Professor
New York University, NY

July 2014-present

Education and Training

Postdoctoral Researcher
Advisor: Professor Paul J. Chirik

2012 - 2014
Princeton University, NJ

Ph. D., Chemistry
Advisor: Professor Shannon S. Stahl

2007 - 2012
University of Wisconsin-Madison, WI

B.S., Chemistry
Advisor: Professor Jie Wu

2003 - 2007
Fudan University, Shanghai, China

Summer Research Intern
Advisor: Dr. Matthew H. Yates

Summer, 2009
Eli Lilly and Company, Indianapolis, IN

Honors and Awards

Camille-Dreyfus Teacher-Scholar Award	2019
Thieme Chemistry Journal Award	2019
<i>Organometallics</i> -Editorial Advisory Board	2019-
ACS-Catalysis-Early Career Advisory Board	2018
Chinese-American Chemistry Professors Association Distinguished Junior Faculty Award	2018
Organometallics Distinguished Author Award	2018
Sloan Research Fellowship	2018
Goddard Junior Faculty Fellowship	2017
NSF-CAREER Award	2016
Charles and Martha Casey Excellence Award in Organic Chemistry Research	2012
Hirschman-Rich Graduate Award (Bioorganic)	2011
Abbott Laboratories Organic Synthesis Award	2011
Eastman Summer Research Award	2010

Publications

16. Lin, Q.; Diccianni, J. B.; Diao, T.* "Nickel-Catalyzed Stereoselective Alkene Carbonylation: Methodology and Mechanism" *Acc. Chem. Res., Invited Review*.
15. Vacala, T.; Diao, T.* "Nickel-Catalyzed Alkene Carbonylation Reactions" *ACS Cat., Invited Review*.
14. Diccianni, J. B.; Diao, T.* "(Xantphos)Ni(I)-Alkyl Mediated Insertion of CO₂" *Trends in Chemistry, Invited Review Submitted*.
13. Diccianni, J. B.; Hu, T. C.; Diao, T.* "(Xantphos)Ni(I)-Alkyl Mediated Insertion of CO₂" *Submitted*.
12. Lin, Q.; Diao, T.* "Mechanism of Ni-Catalyzed Reductive 1,2-Dicarbonylation of Alkenes" *Submitted*.
11. Diccianni, J. B.; Chin, M.; Diao, T.* "Synthesis of Lactate Derivatives via Reductive Radical Addition to α -Oxyacrylates" *Tetrahedron* **2019**, 10.1016/j.tet.2019.05.002. (Invited contribution in honor of John Hartwig's Tetrahedron Award)
10. Anthony, D.; Lin, Q.; Baudet, J.; Diao, T.* "Ni-Catalyzed Asymmetric Reductive Diarylation of Vinylarenes" *Angew. Chem. Int. Ed.* **2019**, *58*, 3198-3201.
9. Diccianni, J. B.; Katigbak, J.; Hu, C.; Diao, T.* "Mechanistic Characterization of Ni(I)-Mediated Alkyl Bromide Activation: Oxidative Addition, Electron Transfer, or Halogen-Atom-Abstraction" *J. Am. Chem. Soc.* **2019**, *141*, 1788-1796.
8. Kuang, Y.; Wang, X.; Anthony, D.; Diao, T.* "Ni-Catalyzed Two-Component Reductive Dicarbonylation of Alkenes via Radical Cyclization" *Chem. Comm.* **2018**, *54*, 2558-2561.
7. Xu, H.; Wang, X.; Hu, C.; Diao, T.* "Structural Characterization of β -Agostic Bonds in Pd-Catalyzed Polymerization" *Organometallics* **2017**, *36*, 4099-4102.
6. Kuang, Y.; Anthony, D.; Katigbak, J.; Marrucci, F.; Humagain, S.; Diao, T.* "Ni(I)-Catalyzed Reductive Cyclization of 1,6-Dienes: Mechanism-Controlled *trans*-Selectivity" *Chem* **2017**, *3*, 268-280.
5. Diccianni, J. B.; Heitmann T.; Diao, T.* "Nickel-Catalyzed Reductive Cycloisomerization of Enynes with CO₂" *J. Org. Chem.* **2017**, *82*, 6895-6903.
4. Diccianni, J. B.; Hu, C.; Diao, T.* "Binuclear, High-Valent Nickel Complexes: Ni-Ni Bonds in Aryl-Halogen Bond Formation" *Angew. Chem. Int. Ed.* **2017**, *56*, 3635-3639.
3. Xu, H.; White, P.; Hu, C.; Diao, T.* "Structure and Isotope Effects of β -H Agostic (α -Diimine)Ni Cation as the Polymerization Intermediate" *Angew. Chem. Int. Ed.* **2017**, *56*, 1535-1538.
2. Diccianni, J. B.; Hu, C.; Diao, T.* "N-N Bond Forming Reductive Elimination via a Mixed-Valent Ni(II)-Ni(III) Intermediate" *Angew. Chem. Int. Ed.* **2016**, *55*, 7534-7538.
1. Xu, H.; Diccianni, J. B.; Katigbak, J.; Hu, C.; Zhang, Y.; Diao, T.* "Bimetallic C-C Bond Forming Reductive Elimination from Nickel" *J. Am. Chem. Soc.* **2016**, *138*, 4779-4786.

Prior to NYU

13. Schuster, C. H.; Diao, T.; Pappas, I.; Chirik, P. J. "Bench-Stable, Substrate-Activated Cobalt

- Carboxylate Pre-Catalysts for Alkene Hydrosilylation with Tertiary Silanes” *ACS Catalysis* **2016**, 2632-2636.
12. Palmer, W. N.; Diao, T.; Pappas, I.; Chirik, P. J. “High-Activity Cobalt Catalysts for Alkene Hydroboration with Electronically Responsive Terpyridine and α -Diimine Ligands” *ACS Catalysis* **2015**, 5, 622-626.
 11. Atienza, C. C. H.; Diao, T.; Weller, K. J.; Nye, S. A.; Lewis, K. M.; Delis, J. G. P.; Boyer, J. L.; Roy, A. K.; Chirik, P. J. “Bis(imino)pyridine Cobalt-Catalyzed Dehydrogenative Silylation of Alkenes: Scope, Mechanism, and Origins of Selective Allylsilane Formation” *J. Am. Chem. Soc.* **2014**, 136, 12108-12118.
 10. Diao, T.; Stahl, S. S. “O₂-Promoted Allylic Acetoxylation of Alkenes: Assessment of “Push” versus “Pull” Mechanisms and Comparison Between O₂ and Benzoquinone” *Polyhedron* **2014**, 84, 96-102.
 9. Pun, D.; Diao, T.; Stahl, S. S. “Aerobic Dehydrogenation of Cyclohexanone to Phenol Catalyzed by Pd(TFA)₂/2-Dimethylaminopyridine: Evidence for the Role of Pd Nanoparticles”, *J. Am. Chem. Soc.* **2013**, 135, 8213-8221.
 8. Diao, T.; Pun, D.; Stahl, S. S. “Aerobic Dehydrogenation of Cyclohexanone to Cyclohexenone Catalyzed by Pd(DMSO)₂(TFA)₂: Evidence for Ligand-Controlled Chemoselectivity”, *J. Am. Chem. Soc.* **2013**, 135, 8205-8212.
 7. Diao, T.; White, P.; Guzei, I.; Stahl, S. S. “Characterization of DMSO Coordination to Palladium(II) in Solution and Insights into the Aerobic Oxidation Catalyst, Pd(DMSO)₂(TFA)₂” *Inorg. Chem.* **2012**, 51, 11898-11909.
 6. Diao, T.; Wadzinski, T. J.; Stahl, S. S. “Direct Aerobic α,β -Dehydrogenation of Aldehydes and Ketones with a Pd(TFA)₂/4,5-Diazafluorenone Catalyst” *Chem. Sci.* **2012**, 3, 887-891.
 5. Diao, T.; Stahl, S. S. “Synthesis of Cyclic Enones via Direct Palladium-Catalyzed Aerobic Dehydrogenation of Ketones” *J. Am. Chem. Soc.* **2011**, 133, 14566-14569.
 4. Ye, X.; Johnson, M. D.; Diao, T.; Yates, M. H.; Stahl, S. S. “Development of Safe and Scalable Continuous-flow Methods for Palladium-Catalyzed Aerobic Oxidation Reactions” *Green Chem.* **2010**, 12, 1180-1186.
 3. Diao, T.; Sun, X.; Fan, R.; Wu, J. “Unexpected Ring-opening Reaction of Aziridine with Acetic Anhydride in DMF” *Chem. Lett.* **2007**, 36, 604-605.
 2. Wu, J.; Diao, T.; Sun, W.; Li, Y. “Expedient Approach to Coumarins via Pechmann Reaction Catalyzed by Molecular Iodine or Ag(OTf)” *Synth. Commun.* **2006**, 36, 2949-2956.
 1. Wu, J.; Zhang, L.; Diao, T. “Expedient Approach to Quinolines via Friedländer Synthesis Catalyzed by FeCl₃ or Mg(ClO₄)₂” *Synlett.* **2005**, 17, 2653-2657.

Book Chapter

Shannon S. Stahl; Diao, T. Oxidation Adjacent to C=X Bonds by Dehydrogenation. In *Comprehensive Organic Synthesis II*; Knochel, P., Molander, G. A., Eds.; Elsevier *Comp. Org. Synth.* **2014**, 7, 178-212.

Patents

8. Diao, T.; Chirik, P. J.; Roy, A. K.; Lewis, K.; Weller, K. J.; Delis, J. G. P.; Yu, R. "Cobalt Terpyridine Complexes as Catalysts for Hydrosilylation and Dehydrogenative Silylation of Alkenes" WO 2015077306 A1, 2015.
7. Chirik, P. J.; Diao, T.; Yu, R. "Hydroboration and Borylation with Cobalt Catalysts" WO 2015077344 A1, 2015.
6. Diao, T.; Chirik, P. J.; Roy, A. K.; Lewis, K. M.; Delis, J. G. P.; Weller, K. J. "Dialkyl Cobalt Catalysts and Their Use for Hydrosilylation and Dehydrogenative Silylation" WO 2015171881 A1, 2015.
5. Diao, T.; Chirik, P. J.; Roy, A. K.; Lewis, K. M.; Weller, K. J.; Delis, J. G. P.; Yu, R. "Dehydrogenative Silylation, Hydrosilylation and Crosslinking Using Cobalt Catalysts" WO 2015077298 A1, 2015.
4. Diao, T.; Chirik, P. J.; Roy, A. K.; Lewis, K. M.; Nye, S. A.; Weller, K. J.; Delis, J. G. P. "Cobalt Catalysts and their Use for Hydrosilylation and Dehydrogenative Silylation" U.S. Patent US20150141647 A1, 2015.
3. Diao, T.; Chirik, P. J.; Roy, A. K.; Lewis, K. M.; Nye, S. A.; Weller, K. J.; Delis, J. G. P.; Yu, R. "Dehydrogenative Silylation, Hydrosilylation and Crosslinking Using Cobalt Catalysts" U.S. Patent US20150080536 A1, 2015.
2. Roy, A. K.; Atienza, C. C. H.; Chirik, P. J.; Lewis, K. M.; Weller, K. J.; Nye, S. A.; Delis, J. G. P.; Boyer, J. L.; Diao, T.; Pohl, E. "Selective 1,2-Hydrosilylation of Terminally Unsaturated 1,3-Dienes using Iron Catalysts" U.S. Patent US 20140330024 A1, 2014.
1. Roy, A. K.; Atienza, C. C. H.; Chirik, P. J.; Lewis, K. M.; Weller, K. J.; Nye, S.; Delis, J. G. P.; Boyer, J. L.; Diao, T.; Pohl, E. "Reusable Homogeneous Cobalt Pyridine Diimine Catalysts for Dehydrogenative Silylation and Tandem Dehydrogenative-Silylation-Hydrogenation" U.S. Patent US20140243486 A1, 2014.

Invited Lectures

Catalysis and Sensing for our Environment (CASE) conference	Jun. 2020
Yale University	Apr. 2020
MIT (student-invited speaker)	Mar. 2020
Pittsburgh University	Feb. 2020
UC-Berkeley	Feb 2020
UC-Irvine	Nov. 2019
Columbia University	Oct. 2019
Caltech	Oct. 2019
Princeton University	Oct. 2019
Northwestern University	Sep. 2019
University of Delaware	Sep. 2019
Workshop on Synthetic Organic Chemistry, Sponsored by Organic Syntheses	Aug. 2019
Peking University	Jul. 2019
Gordon Research Conference-Organometallics (invited speaker)	Jul. 2019
Gordon Research Conference-Heterocycles (invited speaker)	Jun. 2019

Scripps Research Institute	Jun. 2019
UC-San Diego	Jun. 2019
Rutgers University	May 2019
Hunter College	May 2019
University of Illinois Urbana-Champaign	Apr. 2019
Texas A&M University	Apr. 2019
University of Houston	Apr. 2019
Cornell University	Mar. 2019
SUNY-Binghamton	Mar. 2019
West Virginia	Feb. 2019
Philadelphia Organic Chemistry Club (UPenn)	Jan. 2019
Seton Hall University	Jan. 2019
SUNY-Albany	Nov. 2018
University of Wisconsin-Madison	Nov. 2018
Organic Young Investigator Symposium	Aug. 2018
Novartis mini-Symposium at University of Chicago	Apr. 2018
Purdue University	Apr. 2018
Stony Brook University	Apr. 2018
Shanghai-New York Symposium on Frontiers in Chemical Biology	Mar. 2018
Florida Heterocyclic and Synthetic Chemistry Conference	Mar. 2018
NYU-Tel Aviv: Symposium of New Horizons in Chemistry: From Fundamentals to Applications	Feb. 2018
Queens College	Jan. 2018
City College of New York	Nov. 2017
Frontiers of Inorganic and Organometallic Chemistry Lecture at Columbia University	Oct. 2017
Queens College	Apr. 2017
Lehigh University	Mar. 2017
Gordon Conference-Inorganic Reactions and Mechanism (poster)	Mar. 2017
Sichuan University	Jan. 2017
Shanghai Institute of Organic Chemistry (SIOC)	Dec. 2016
Fudan University	Dec. 2016
Shanghai University	Dec. 2016
NYU-Shanghai	Dec. 2016
TSRC-Enabling Technology for Reactions and Processes, Colorado	Aug. 2016
44th Middle Atlantic Regional Meeting of the ACS	Jun. 2016
NYU Abu Dhabi International Chemistry Conference on Organic and Bioorganic Chemistry	Feb. 2016
Gordon Conference-Organometallics (poster)	Jul. 2015
St John's University (Invited by the ACS Student Chapter)	Nov. 2015