

Joseph Derosa

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Current Address

Boston University
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Employment:

Boston University, College of Arts and Sciences, Department of Chemistry, Boston, MA, USA.
Innovation Career Development Assistant Professor of Chemistry, July 2023 – present

California Institute of Technology, Division of Chemistry and Chemical Engineering, Pasadena, CA, USA.
Arnold O. Beckman Postdoctoral Fellow, January 2020 – June 2023
Research Advisor: Jonas C. Peters, Ph.D.

Education:

The Scripps Research Institute, Skaggs Graduate School of Chemical and Biological Sciences, La Jolla, CA, USA.
Ph.D. in Chemistry, July 2015 – December 2019
Research Advisor: Keary M. Engle, Ph.D.

Macaulay Honors College at The City College of New York, New York, NY, USA.
B.S. in Biochemistry, August 2011 – May 2015 (*magna cum laude*)
Research Advisor: Mark. R. Biscoe, Ph.D.

Academic Honors and Awards:

ACS Petroleum Research Fund Doctoral New Investigator Grant	2025–2027
Innovation Career Development Professorship	2024–2027
Early Career Shimadzu Equipment Grant	2024
Arnold O. Beckman Postdoctoral Fellowship	2020–2023
Ruth L. Kirschstein National Research Service Award (NIH F32) [Declined]	2020–2023
Turner B. and Lesly Shelton Award	2018
Abbvie Scholar Award	2018
National Science Foundation Graduate Research Fellowship	2017–2019
Fishman, Meyer, & Gloria Award	2015
Benjamin Harrow Award	2015
Rose Brescia Award	2014
William E. Macaulay Honors Scholarship	2011–2015

Independent Publications (§Indicates equal contribution; †Undergraduate co-authors):

30. Su, S.; Guo, Y.; **Derosa, J.** “Recent Developments in Shono-type Oxidation: Strategies for Modular α -C(sp³)-H Functionalization.” *ACS Electrochem.* **2025**, DOI: 10.1021/acselectrochem.5c00443.
29. Akana-Schneider, B. D.; Genova, J. S.; **Derosa, J.** “Electrochemical Azolation of Electron-rich Fluoroarenes: A Controlled Redox Chain Unlocks C–N Bond-forming e -S_NAr.” *Angew. Chem. Int. Ed.* **2025**, e20841.
28. Xuan, Z.; Gerhardt, E.†; Parnitzke, B.; **Derosa, J.** “Electroreductive Iron Catalysis Enabled by a Redox Mediator: Alkyne Semi-Hydrogenation as a Model System.” *ACS Catal.* **2025**, *15*, 13904–13909.
27. Parnitzke, B., Lalis, R.; Gerhardt, E.†; Maity, T. ‡; Liu, Y. ‡; Xuan, Z.; Gutierrez, O.; **Derosa, J.** “Mediator-Enabled Co-Catalyzed Z-Selective Semi-Hydrogenation via Hydride-Free Multi-Site Proton-Coupled Electron Transfer.” *ACS Catal.* **2025**, DOI:10.1021/acscatal.5c08388.
26. Akana-Schneider, B. ‡, Guo, Y. ‡, Parnitzke, B. **Derosa, J.** “Strategies for Arene Dissociation from η^6 -Arene Transition Metal Complexes.” *Dalton Trans.* **2024**, *53*, 18819–18827. (Invited for “2024 New Talent: Americas” Edition)
25. Su, S.; Guo, Y.; Parnitzke, B.; Poerio, T.†; **Derosa, J.** “A Voltage-Controlled Approach Toward Shono-type Amination.” *J. Am. Chem. Soc.* **2024**, *146*, 28663–28668.

Mentored Publications (Undergraduate, Graduate, and Postdoctoral):

24. **Derosa, J.**‡; Ovia, J. M. ‡; Li, M.; Peters, J. C. “Tunable Multi-Site Proton-Coupled Electron Transfer Mediators: Distinct Pathways for Substrate Reduction Versus Competing Hydrogen Evolution.” *J. Am. Chem. Soc.* **2025**, *In Press*.

23. **Derosa, J.**; Garrido-Barros, P.; Li, M.; Peters, J. C. "Use of a PCET Mediator Enables a Ni-HER Electrocatalyst to Act as a Hydride Delivery Agent." *J. Am. Chem. Soc.* **2022**, *144*, 20118–20125.
22. Apolinar, O. ‡; Kang, T. ‡; Alturaifi, T. M.; Bedekar, P. G. †; Rubel, C. Z.; **Derosa, J.**; Sanchez, B. B.; Wong, Q. N.; Sturgell, E. J.; Chen, J. S.; Wisniewski, S. R.; Liu, P.; Engle, K. M. "Three-Component Asymmetric Ni-Catalyzed 1,2-Dicarbofunctionalization of Unactivated Alkenes via Stereoselective Migratory Insertion." *J. Am. Chem. Soc.* **2022**, *144*, 19337–19343.
21. Garrido-Barros, P.; **Derosa, J.**; Chalkley, M. J.; Peters, J. C. "Tandem Electrocatalytic N₂ Fixation via Proton-Coupled Electron Transfer." *Nature* **2022**, *609*, 71–76.
20. **Derosa, J.**; Garrido-Barros, P.; Peters, J. C. "Electrocatalytic Ketyl-Olefin Cyclization at a Favorable Applied Bias Enabled by a Concerted Proton-Electron Transfer Mediator." *Inorg. Chem.* **2022**, *61*, 6672–6678.
19. Kleinmans, R. ‡; Apolinar, O. ‡; **Derosa, J.**; Karunananda, M. K.; Li, Z.-Q.; Tran, V. T.; Wisniewski, S. R.; Engle, K. M. "Nickel-Catalyzed 1,2-Diarylation of Alkenyl Ketones: A Comparative Study of Carbonyl-Directed Reaction Systems." *Org. Lett.* **2021**, *23*, 5311–5316.
18. **Derosa, J.**‡; Garrido-Barros, P.‡; Peters, J. C. "Electrocatalytic Reduction of C–C π -Bonds *via* a Cobaltocene-Derived Concerted Proton-Electron Transfer Mediator: Fumarate Hydrogenation as a Model Study." *J. Am. Chem. Soc.* **2021**, *143*, 9303–9307. (‡Authors contributed equally.)
17. Wethman, R.; **Derosa, J.**; Tran, V. T.; Kang, T.; Apolinar, O.; Abraham, A.; Kleinmans, R.; Wisniewski, S. R.; Coombs, J. R.; Engle, K. M. "An Under-Appreciated Source of Reproducibility Issues in Cross-Coupling: Solid-State Decomposition of Primary Sodium Alkoxides in Air." *ACS Catal.* **2021**, *11*, 502–508.
16. Apolinar, O.; Tran, V. T.; Kim, N.; Schmidt, M. A.; **Derosa, J.**; Engle, K. M. "Sulfonamide Directivity Enables Ni-Catalyzed 1,2-Diarylation of Diverse Alkenyl Amines." *ACS Catal.* **2020**, *10*, 14234–14239.
15. **Derosa, J.**; Apolinar, O.; Kang, T.; Tran, V. T.; Engle, K. M. "Recent Developments in Nickel-Catalyzed Intermolecular 1,2-Dicarbofunctionalization of Alkenes." *Chem. Sci.* **2020**, *11*, 4287–4296.
14. Tran, V. T.; Li, Z.; Apolinar, O.; **Derosa, J.**; Wisniewski, S. R.; Eastgate, M. D.; Engle, K. M. "Ni(COD)(DQ): An Air-Stable 18-Electron Ni(0)–Olefin Precatalyst." *Angew. Chem. Int. Ed.* **2020**, *59*, 7409–7413.
13. Tran, V. T.; Li, Z.; Gallagher, T. J. †; **Derosa, J.**; Liu, P.; Engle, K. M. "Nickel-Catalyzed 1,2-Allylmethylation of *N*-Allyl Heterocycles." *Angew. Chem. Int. Ed.* **2020**, *59*, 7023–7034.
12. **Derosa, J.**‡; Kang, T.‡; Tran, V. T.; Karunananda, M. K.; Jenkins, T. C.; Xu, K. L.; Wisniewski, S. R.; Schmidt, M. A.; Eastgate, M. D.; Engle, K. M. "Nickel-Catalyzed 1,2-Diarylation of Alkenyl Carboxylates: A Gateway to 1,2,3-Trifunctionalized Building Blocks." *Angew. Chem. Int. Ed.* **2020**, *59*, 1201–1205. (‡Authors contributed equally.)
11. Medina, J. M.; Kang, T.; Erbay, T. G.; Shao, H.; Gallego, G. M.; Yang, S.; Tran-Dube, M.; Richardson, P. F.; **Derosa, J.**; Helsel, R.; Patman, R. L.; Wang, F.; Ashcroft, C. P.; Braganza, J. F.; McAlpine, I.; Liu, P.; Engle, K. M. "Cu-Catalyzed Hydroboration of Benzyldienecyclopropanes: Reaction Optimization, (Hetero)Aryl Scope, and Origins of Pathway Selectivity." *ACS Catal.* **2019**, *9*, 11130–11136.
10. van der Puyl, V. A.†; **Derosa, J.**; Engle, K. M. "Directed, Nickel-catalyzed Umpolung 1,2-Carboamination of Alkenyl Carbonyl Compounds." *ACS Catal.* **2019**, *9*, 224–229.
9. **Derosa, J.**; Kleinmans, R.; Tran, V. T.; Karunananda, M. K.; Wisniewski, S. R.; Eastgate, M. D.; Engle, K. M. "Nickel-Catalyzed 1,2-Diarylation of Simple Alkenyl Amides." *J. Am. Chem. Soc.* **2018**, *140*, 17878–17883.
8. **Derosa, J.**; van der Puyl, V. A.†; Tran, V. T.; Liu, M.; Engle, K. M. "Directed Nickel-Catalyzed 1,2-Dialkylation of Alkenyl Carbonyl Compounds." *Chem. Sci.* **2018**, *9*, 5278–5283.
7. **Derosa, J.**; Tran, V. T.; van der Puyl, V. A.†; Engle, K. M. "Carbon–Carbon π -Bonds as Conjunctive Reagents in Cross-Coupling." *Aldrichimica Acta* **2018**, *51*, 21–32.
6. **Derosa, J.**‡; O'Duill, M. L.‡; Holcomb, M. R.; Boulous, M. N.†; Patman, R. L.; Wang, F.; Tran-Dube, M.; McAlpine, I.; Engle, K. M. "Copper-Catalyzed Chan-Lam *O*-Cyclopropylation of Phenols and Aza-Heterocycles," *J. Org. Chem.* **2018**, *83*, 3417–3425. (‡Authors contributed equally.)
5. **Derosa, J.**‡; Tran, V. T. ‡; Boulous, M. N.†; Chen, J. S.; Engle, K. M. "Nickel-catalyzed β,γ -Dicarbofunctionalization of Alkenyl Carbonyl Compounds *via* Conjunctive Cross-coupling," *J. Am. Chem. Soc.* **2017**, *139*, 10657–10660. (‡Authors contributed equally.)
4. **Derosa, J.**; Cantu, A. L.†; O'Duill, M. L.; Turnbull, J. L.†; Liu, Z.; De La Torre, D. M.; Engle, K. M. "Directed Palladium(II)-Catalyzed *anti*-Hydrochlorination of Unactivated Alkynes with In Situ Generated HCl," *J. Am. Chem. Soc.* **2017**, *139*, 5183–5193.
3. Liu, Z.; **Derosa, J.**; Engle, K. M. "Palladium(II)-Catalyzed Regioselective *syn*-Hydroarylation of Disubstituted Alkynes Using a Removable Directing Group," *J. Am. Chem. Soc.* **2016**, *138*, 13076–13081.
2. Wang, C.-Y.; Ralph, G. R.; **Derosa, J.**; Biscoe, M. R. "Stereospecific Pd-Catalyzed Acylation of Enantioenriched Alkylcarbastannatranes: A General Alternative to Asymmetric Enolate Reactions," *Angew. Chem. Int. Ed.* **2017**, *56*, 856–860.
1. Wang, C.-Y.; **Derosa, J.**; Biscoe, M. R. "The Use of Stable, Optically Active Organometallic Nucleophiles in Cross-Coupling Reactions: A New Approach to Asymmetric Synthesis," *Chem. Sci.* **2015**, *6*, 5105–5113.

Presentations:

- Bristol Myers Squibb (BMS), Cambridge, MA, (11/13/2025), “Voltage-Controlled Approaches for Selective Electrosynthesis and Catalysis”
- ACS WRM 2025, *Chemistry at the Cutting Edge of Catalysis* (10/27/2025), “Metallocene Mediators for (Tandem) Electrocatalytic Reactions”
- ACS WRM 2025, *Emerging Leaders in Organic Chemistry* (10/27/2025), “Voltage-Controlled Approaches for Selective Electrosynthesis”
- University of New Hampshire (9/30/2025), “Voltage-Controlled Approaches for Selective Electrosynthesis and Catalysis”
- University of Nottingham (8/18/2025), “Voltage-Controlled Approaches for Selective Electrosynthesis and Catalysis”
- ACS Spring 2025, “Voltage-Controlled Approaches for Selective Late-Stage Functionalization”

Teaching Experience:

CH 203 “Organic Chemistry I” (Undergraduate Course), Fall 2024-25

Department of Chemistry, Boston University, Boston, MA, USA.

CH 645 “Transition Metal Chemistry” (Graduate Course), Spring 2024-25

Department of Chemistry, Boston University, Boston, MA, USA.

Mentorship Experience:

Xiaoan Wu, Undergraduate Student Researcher, May 2025 – present (*Boston University*)

Arya Reddy, Undergraduate Student Researcher, January 2025 – present (*Boston University*)

Sam Rekulak, Undergraduate Student Researcher, October 2024 – present (*Boston University*)

Brett Akana-Schneider, Postdoctoral Associate, June 2024 – present (*Boston University*)

Zi Xuan, Postdoctoral Associate, June 2024 – July 2025 (*Boston University*)

Tegan Poeiro, Undergraduate Student Researcher, January 2024 – May 2025 (*Boston University*)

Ethan Gerhardt, Undergraduate Student Researcher, January 2024 – May 2025 (*Boston University*)

Siyuan Su, Postdoctoral Associate, October 2023 – present (*Boston University*)

Joy Mun, Undergraduate Student Researcher (for credit), September 2023 – May 2024 (*Boston University*)

Alan Bunyatov, Undergraduate Student Researcher, September 2023 – May 2024 (*Boston University*)

Yahui “Leyla” Guo, Graduate Student Researcher, September 2023 – present (*Boston University*)

Bryan Parnitzke, Graduate Student Researcher, September 2023 – present (*Boston University*)

Professional Academic Service and Experience

Departmental Service at Boston University:

Undergraduate Research Opportunities Program (UROP) Faculty Advisory Committee, Fall 2024 –

Department of Chemistry Safety Committee, Spring 2024 –

Graduate Admissions Committee Member (Organic Representative), Fall 2023 –

Faculty Search Committee Member (Biological Chemistry), Fall 2023 – Spring 2024

Reviewing Service:

ACS Petroleum Research Fund, 2024

National Science Foundation, Review Panel, 2024

Department of Energy, Review Panel, 2025

Reviewer for Journals:

Journal of the American Chemical Society, ACS Catalysis, Organometallics, Organic Letters, Journal of Organic Chemistry, Chemical Communications, Nature Communications, Tetrahedron, Science Advances

Professional Organizations, Honorary Societies, and Affiliations:

American Chemical Society, Member