

## EDUCATION

- May 2017      **Ph.D. in Chemistry**  
Yale University, New Haven, CT  
Advisor: Nilay Hazari  
Thesis Title: *Improved catalytic activity of Pd(II) precatalysts through mechanistic insights into activation pathways*
- May 2012      **B.S. in Chemistry, Summa Cum Laude**  
Honors College  
West Chester University of Pennsylvania, West Chester, PA

## PROFESSIONAL APPOINTMENTS

- 2019 – present      **Assistant Professor of Organic Chemistry**  
Department of Chemistry, Bryn Mawr College, Bryn Mawr, PA
- 2017 – 2019      **Postdoctoral Research Fellow**  
University of Michigan, Ann Arbor, MI  
Advisor: Prof. Melanie S. Sanford

## PUBLICATIONS

*From Independent Career at Bryn Mawr College:*

<sup>^</sup> denotes Bryn Mawr College undergraduate student    <sup>#</sup> denotes Bryn Mawr graduate student

1. Mohammed, N.<sup>^</sup>; Harmon, A. C.<sup>^</sup>; Vogel, J. A.<sup>#</sup>; **Melvin, P. R.** “Synthesis of Primary Carbamoyl Fluorides Through an SIF-Mediated Rearrangement of Hydroxamic Acids” *Manuscript in Preparation*.
2. Chappell, W. P.; Schur, N.; Vogel, J. A.<sup>#</sup>; Sammis, G. M.; **Melvin, P. R.**; Ball, N. D. “Poison to Promise: The Resurgence of Organophosphorus Fluoride Chemistry” *Chem*, **2024**, *10*, 1644.
3. Vogel, J. A.<sup>#</sup>; Miller, K. F.<sup>^</sup>; Shin, E.<sup>^</sup>; Krussman, J. M.<sup>^</sup>; **Melvin, P. R.** “Expanded Access to Fluoroformamidines via a Modular Synthetic Pathway” *Org. Lett.* **2024**, *26*, 1277.
4. Vogel, J. A.<sup>#</sup>; Krussman, J. M.<sup>^</sup>; Miller, K. F.<sup>^</sup>; Shin, E.<sup>^</sup>; **Melvin, P. R.** “A Modified Beckmann Rearrangement for the Facile Synthesis of Amidines and Imidates via Imidoyle Fluoride Intermediates” *RSC Adv.* **2023**, *13*, 30129.
5. Miller, L. P.<sup>^</sup>; Vogel, J. A.<sup>#</sup>; Harel, S.<sup>^</sup>; Krussman, J. M.<sup>^</sup>; **Melvin, P. R.** “Rapid Generation of P(V) – F Bonds via Sulfone Iminium Fluoride Reagents” *Org. Lett.* **2023**, *25*, 1834.
6. Vogel, J. A.<sup>#</sup>; Hammami, R.<sup>^</sup>; Ko, A.<sup>^</sup>; Datta, H.<sup>^</sup>; Eiben, Y. N.<sup>^</sup>; Labenne, K. J.<sup>^</sup>; McCarver, E. C.<sup>^</sup>; Yilmaz, E. Z.<sup>^</sup>; **Melvin, P. R.** “Synthesis of Highly Reactive Sulfone Iminium Fluorides and Their Use in Deoxyfluorination and Sulfur Fluoride Exchange Chemistry” *Org. Lett.* **2022**, *24*, 5962.

*Prior to Independent Career:*

7. Ferguson, D. M.; **Melvin, P. R.**; Sanford, M. S. “Deoxyfluorination of (Hetero)aryl Aldehydes Using Tetramethylammonium Fluoride and Perfluorobutanesulfonyl Fluoride or Trifluoromethanesulfonic Anhydride” *Isr. J. Chem.* **2019**, *60*, 3.

8. **Melvin, P. R.**; Ferguson, D. M.; Schimler, S. D.; Bland, D. C.; Sanford, M. S. "Room Temperature Deoxyfluorination of Benzaldehydes with Sulfuryl Fluoride and Tetramethylammonium Fluoride" *Org. Lett.* **2019**, *21*, 1350.
9. \*Dardir, A. H.; **\*Melvin, P. R.**; Davis, R. M.; Hazari, N.; Mohadjer Beromi, M. "Rapidly Activating Pd-Precatalysts for Suzuki-Miyaura and Buchwald-Hartwig Couplings of Aryl Esters" *J. Org. Chem.* **2018**, *83*, 469.  
**\*Co-first author**
10. **Melvin, P. R.**; Nova, A.; Balcells, D.; Hazari, N.; Tilset, M. "DFT Investigation of Suzuki-Miyaura Reactions with Aryl Sulfamates Using a Dialkylbiarylphosphine-Ligated Palladium Catalyst" *Organometallics*, **2017**, *36*, 3664.
11. Hazari, N.; **Melvin, P. R.**; Mohadjer Beromi, M. "Well-defined nickel and palladium precatalysts for cross-coupling" *Nat. Rev. Chem.*, **2017**, *1*, 25.
12. **Melvin, P. R.**; Hazari, N.; Mohadjer Beromi, M.; Shah, H.; Williams, M. "Pd-Catalyzed Suzuki-Miyaura and Hiyama-Denmark Couplings of Aryl Sulfamates" *Org. Lett.* **2016**, *18*, 5784.
13. Charboneau, D. J.; Balcells, D.; Hazari, N.; Lant, H.; Mayer, J. M.; **Melvin, P. R.**; Mercado, B. Q.; Morris, W. D.; Repisky, M.; Suh, H. "Dinitrogen-Facilitated Reversible Formation of a Si-H Bond in a Pincer-Supported Ni Complex" *Organometallics*, **2016**, *35*, 3154.
14. Goh, T.; Huang, J.; Yager, K. G.; Sfeir, M. Y.; Nam, C.; Tong, X.; Guard, L. M.; **Melvin, P. R.**; Antonio, F.; Bartolome, B. G.; Lee, M. L.; Hazari, N.; Taylor, A. D. "Quaternary Organic Solar Cells Enhanced by Cocrystalline Squaraines with Power Conversion Efficiencies >10%" *Adv. Energy Mater.*, **2016**, *6*, 1600660.
15. **Melvin, P. R.**; Hazari, N.; Lant, H. M. C.; Peczak, I. L.; Shah, H. P. "Comparison of the catalytic activity for the Suzuki-Miyaura reaction of  $(\eta^5\text{-Cp})\text{Pd}(\text{IPr})\text{Cl}$  with  $(\eta^3\text{-cinnamyl})\text{Pd}(\text{IPr})(\text{Cl})$  and  $(\eta^3\text{-1-t-Bu-indenyl})\text{Pd}(\text{IPr})(\text{Cl})$ " *Biel. J. Org. Chem.*, **2015**, *11*, 2476.
16. **Melvin, P. R.**; Balcells, D.; Hazari, N.; Nova, A. "Understanding Precatalyst Activation in Cross-Coupling Reactions: Alcohol Facilitated Reduction from Pd(II) to Pd(0) in Precatalysts of the Type  $(\eta^3\text{-allyl})\text{Pd}(\text{L})(\text{Cl})$  and  $(\eta^3\text{-indenyl})\text{Pd}(\text{L})(\text{Cl})$ " *ACS Catal.*, **2015**, *5*, 5596.
17. **Melvin, P. R.**; Nova, A.; Balcells, D.; Dai, W.; Hazari, N.; Hruszkewycz, D. P.; Shah, H. P.; Tudge, M. T. "Design of a Versatile and Improved Precatalyst Scaffold for Palladium-Catalyzed Cross-Coupling:  $(\eta^3\text{-1-t-Bu-indenyl})_2(\mu\text{-Cl})_2\text{Pd}_2$ " *ACS Catal.*, **2015**, *5*, 3680.
18. Dei, W.; Chalkley, M.; Brudvig, G.; Hazari, H.; **Melvin, P. R.**; Pokhrel, R.; Takase, M. "Synthesis and Properties of NHC-Supported Palladium(I) Dimers with Bridging Allyl, Cyclopentadienyl, and Indenyl Ligands" *Organometallics*, **2013**, *32*, 5114.
19. Harding, B.; **Melvin, P. R.**; Dougherty, W.; Kassel, S.; Goodson, F. "Capturing a Ghost. Synthesis and Structural Characterization of  $\text{Pd}(\text{dba})[\text{P}(\text{o-Tol})_3]_2$ " *Organometallics*, **2013**, *32*, 3570.

#### **OTHER SCHOLARLY CONTRIBUTIONS**

1. **Melvin, P. R.** "Asymmetric Construction of S(VI)-Fluorine Cores" *Nat. Chem.* (2024). DOI: 10.1038/s41557-024-01454-8.

#### **EXTERNAL FUNDING**

- 2023 – 2026      National Science Foundation (NSF) Research at Undergraduate Institutions Grant (RUI)
- Project title: "RUI: Further Expansion of Sulfone Iminium Reagents and Their Use in Fluorination and Cyanation Methodologies"
  - Total funds awarded: \$268,179 over a 3-year period

- 2021 – 2023 Charles E. Kaufman Foundation Integrated Research-Education Grant
- Project title: “*Doing what nature cannot*: fluorine incorporation through the development of a dual-purpose reagent”
  - Total funds awarded: \$100,000 over a 2-year period

## ***PATENTS***

1. Hazari, N.; **Melvin, P. R.** 'Cross-Coupling Reaction Catalysts, and Methods of Making and Using Same.' Patent granted in Japan (553549). Pending in China (201880034005.2), Europe (18775030.2), South Korea (10-2019-7030854), & The United States of America (16/496,601).
2. Hazari, N.; Hruszkewycz, D. P.; **Melvin, P. R.** 'Novel Precatalyst Scaffold for Cross-Coupling Reactions, and Methods of Making and Using Same.' Patent granted in China (ZL2015800544925), France (3204395), Germany (602015053546.4), India (439708), Ireland (3204395), Italy (3204395), Japan (6799531), South Korea (10-2499277), Switzerland (3204395), United Kingdom (3204395), & The United States of America (10894802).

## ***SELECTED PRESENTATIONS AND INVITED TALKS***

*From Independent Career at Bryn Mawr College:*

**Melvin, P. R.** “Chemistry on the Undergraduate Timescale” Invited Seminar – OwlsFest, Bryn Mawr College, Bryn Mawr, PA (October 25, 2024) – Oral Presentation

**Melvin, P. R.** “Rapid and Efficient Fluorination Methodologies Enabled by Sulfone Iminium Fluorides” Invited Seminar – *Inimmune, Missoula, MT* (August 5, 2024) – Oral Presentation

**Melvin, P. R.** “Rapid and Efficient Fluorination Methodologies Enabled by Sulfone Iminium Fluorides” Invited Seminar for Emerging Investigators in Organic and Inorganic Chemistry Symposium – *Mid-Atlantic Regional Meeting (MARM) of the American Chemical Society* – University Park, PA (June 7, 2024) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Accelerated Deoxyfluorination Methodologies via Reagent Development” Invited Seminar – *Temple University, Philadelphia, PA* (March 19, 2024) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Accelerated Deoxyfluorination Methodologies via Reagent Development” Invited Seminar – *Youngstown State University, Youngstown, OH* (March 15, 2024) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Accelerated Deoxyfluorination Methodologies via Reagent Development” Invited Seminar – *West Chester University of Pennsylvania, West Chester, PA* (October 19, 2023) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Reagent Development at a Primarily Undergraduate Institution (PUI)” Invited Seminar – *Yale University, New Haven, CT* (October 16, 2023) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Accelerated Deoxyfluorination Methodologies via Reagent Development” Invited Seminar – *Swarthmore College, Swarthmore, PA* (October 12, 2023) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Accelerated Deoxyfluorination Methodologies via Reagent Development” Invited Seminar – *Bryn Mawr College, Bryn Mawr, PA* (September 29, 2023) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Accelerated Deoxyfluorination Methodologies via Reagent Development” Invited Seminar – *Haverford College, Haverford, PA* (September 22, 2023) – Oral Presentation

**Melvin, P. R.** “Rapid and Efficient Fluorine Incorporation via Sulfone Iminium Fluorides” *23<sup>rd</sup> International Symposium on Fluorine Chemistry (ISFC)* – Quebec City, Canada (July 24, 2023) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Accelerated Deoxyfluorination Methodologies via Reagent Development” Invited Seminar – *Pomona College, Pomona, CA* (July 7, 2023) – Oral Presentation

**Melvin, P. R.** “Fluorination on the Undergraduate Timescale: Development of a Highly Reactive Reagent for Rapid Deoxyfluorination” Invited Seminar – *University of Michigan, Ann Arbor, MI* (June 15, 2023) – Oral Presentation

**Melvin, P. R.** “Rapid and Efficient Deoxyfluorination and Sulfur Fluoride Exchange (SuFEx) Enabled by Sulfone Iminium Fluorides” *265<sup>th</sup> American Chemical Society National Meeting*, Indianapolis, IN (March 27, 2023) – Oral Presentation

**Melvin, P. R.** “Development of Highly Tunable Reagents for Deoxyfluorination” *263<sup>rd</sup> American Chemical Society National Meeting*, San Diego, CA (March 23, 2022) – Oral Presentation

*Prior to Bryn Mawr College:*

**Melvin, P. R.,** Schimler, S. D., Sanford, M. S. “Fluorination reactions with the combination of sulfonyl fluoride and tetramethylammonium fluoride” *256<sup>th</sup> American Chemical Society National Meeting*, Boston, MA (August 19, 2018) – Oral Presentation

**Melvin, P. R.;** Hazari, N. “Rational Design of Improved Pd(II) Precatalysts and Their Applications Towards New Cross-Coupling Reactions” *253<sup>rd</sup> American Chemical Society National Meeting*, San Francisco, CA (April 5, 2017) – Oral Presentation

**Melvin, P. R.;** Dean, K. W. “Building Leadership Through an Honors Student Association” 2016 National Collegiate Honors Council Conference, Seattle, WA (October 14, 2016) – Oral Presentation

**Melvin, P. R.;** Hazari, N. “Rational Design of Pd(II) Precatalysts and Their Application Towards New Cross-Coupling Reactions” Center for Theoretical and Computational Chemistry Symposium, Alta, Norway (April 6, 2016) – Oral Presentation

**Melvin, P. R.;** Hazari, N. “Improved Catalytic Activity of Pd(II) Precatalysts Through Mechanistic Insights into Activation Pathways” Bristol-Meyers Squibb Symposium, Yale University, New Haven, CT (August 24, 2014) – Oral Presentation

**Melvin, P. R.;** Goodson, F. E. “Effects of Changing Reaction Parameters on Suzuki Polycondensations” Middle Atlantic Regional Meeting of the American Chemical Society, College Park, MD (May 2011) – Poster Presentation

### ***COURSES TAUGHT***

*At Bryn Mawr College:*

**CHEM 211:** Organic Chemistry I (Fall 2020, Fall 2021)

**CHEM 212:** Organic Chemistry II (Spring 2020, Spring 2021, Spring 2022, Spring 2024, Spring 2025)

**CHEM 213:** Organic Chemistry I for Postbaccalaureate Program (Fall 2023, Fall 2024)

**CHEM 251:** Research Methodology I (Fall 2019)

**CHEM 312:** Advanced Organic Chemistry: Physical Organic Chemistry (Fall 2019, Spring 2021)

**CHEM 334:** Organometallic Chemistry (Spring 2022, Spring 2024, Fall 2024)

**CHEM 398 & 399:** Senior Seminar  
**CHEM 403:** Undergraduate Supervised Research  
**CHEM 701:** Graduate Supervised Research

*At University of Michigan:*

**CHEM 215:** Organic Chemistry II (Spring 2018)  
**CHEM 419:** Physical Organic Chemistry (Fall 2018)

*At Yale University:*

**CHEM 230:** Organic Chemistry of Biological Pathways II (Fall 2013)  
**CHEM 223L:** Organic II Laboratory (Fall 2012)

*At West Chester University:*

**HON 110:** Civic Engagement and Theories of Leadership (Fall 2011)

### ***RESEARCH STUDENTS***

2019 –	James Vogel, Ph.D. Student
2020 – 2023	Richard Davis, M.S. '23
2019 – 2020	Alexis Boutchie '20
2019 – 2021	Hiya Datta '21
2019 – 2021	Ellis McCarver '21
2020 – 2022	Rania Hammami '22
2020 – 2022	Karley Labenne '22
2020 – 2022	Erica Ko '22
2020 – 2023	Shiraz Harel '23
2020 – 2023	Yael Eiben '23
2020 – 2023	Ebrar Yilmaz '23
2020 – 2023	Lucy Miller '23
2023 – 2024	Kirya Miller '24
2022 – 2024	Jenna Krussman '24
2023 –	Sal (Eunjeong) Shin '25
2023 –	Alex Harmon '25
2023 –	Nuha Mohammed '25
2024 –	Sophia Hofmann '25
2024 –	Sarah Walker '26
2025 –	Dea (Sang) Ngo '26

### ***THESIS COMMITTEES***

*Research Advisor:*

Alexis Boutchie (B.A. BCMB '20)  
Ellis McCarver (B.A. BCMB '21)  
Hiya Datta (B.A. Chemistry '21)  
Rania Hammami (B.A. (BCMB '22)  
Karley Labenne (B.A. BCMB '22)  
Erica Ko (B.A. BCMB '22)  
Shiraz Harel (B.A. Chemistry '23)  
Lucy Miller (B.A. Chemistry '23)  
Ebrar Yilmaz (B.A. BCMB '23)  
Jenna Krussman (B.A. Chemistry '24)  
Kirya Miller (B. A. Chemistry '24)  
Nuha Mohammed (Chemistry '25, ongoing)  
Alex Harmon (Chemistry '25, ongoing)

Sophia Hofmann (Chemistry '25, ongoing)  
Sal (Eunjeong) Shin (BCMB '25, ongoing)

*Committee Member:*

Mary Sexton (Ph.D. Chemistry, '21)  
Edwin Ragwan (Ph.D. Chemistry, '22)  
Cassandra Gates (Ph.D. Chemistry, '23)  
Diana Rachii (Ph.D. Chemistry, '24)  
James Vogel (Ph.D. Chemistry, ongoing)  
Richard Davis (M.S. Chemistry, '23)  
Greg Feldman (M.A. Chemistry, ongoing)

***COLLEGE COMMITTEES AND SERVICE***

2024 (Fall)	Inorganic Tenure-Track Faculty Search Committee Chair, Department of Chemistry
2023 – 2024	Junior Faculty Co-Convener
2023 – 2024	Director of Graduate Studies, Department of Chemistry
2023 – 2024	Graduate Council
2021	Biochemistry Tenure-Track Faculty Search Committee, Department of Chemistry
2021	Haverford Organic Tenure-Track Faculty Search Committee, BMC Representative
2020 – 2023	Committee on Undergraduate Awards and Fellowships
2020	Biochemistry Tenure-Track Faculty Search Committee, Department of Chemistry
2020	CNTT Faculty Search Committee, Department of Chemistry
2019 – 2022	Director of Graduate Studies, Department of Chemistry
2019 – 2022	Graduate Council

***AWARDS***

2018	<b>Golden Apple Award Nominee</b> – Student-nominated award for outstanding faculty
2016	<b>NSF Graduate Research Opportunities Worldwide Fellowship</b> – University of Oslo
2014 – 2017	<b>NSF Graduate Research Fellowship</b> – Yale University
2013	<b>Yale University DOX Fellowship</b> – Yale University
2010	<b>College of Arts and Sciences Research Grant</b> – West Chester University of PA
2008 – 2012	<b>Board of Governor's Full Tuition Scholarship</b> – West Chester University of PA

***PROFESSIONAL ASSOCIATIONS AND DEVELOPMENT***

- Postdoc to Faculty Workshop – American Chemical Society – workshop detailing the skills needed for the transition from a postdoctoral scholar to a new faculty member – August 2018
- *Omicron Delta Kappa* – National Honorary Society for Leadership, Scholarship and Service – West Chester University of Pennsylvania – **President** (2011 – 2012)