
EDUCATION

- May 2017 **Ph.D. in Chemistry**
Yale University, New Haven, CT
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**
Advisor: Prof. Melanie S. Sanford
University of Michigan, Ann Arbor, MI

PUBLICATIONS

[^] denotes Bryn Mawr College undergraduate

1. Vogel, J. A.; Hammami, R.[^]; Ko, A.[^]; Datta, H.[^]; Eiben, Y. N.[^]; Labenne, K. J.[^]; McCarver, E. C.[^]; Yilmaz, E. Z.[^]; **Melvin, P. R.** "Synthesis of Highly Reactive Sulfone Iminium Fluorides and Their Use in Deoxyfluorination and Sulfur Fluoride Exchange Chemistry" *Org. Lett.* **2022**, *in print*.
2. 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.
3. **Melvin, P. R.**; Ferguson, D. M.; Schimler, S. D.; Bland, D. C.; Sanford, M. S. "Room Temperature Deoxyfluorination of Benzaldehydes with Sulfonyl Fluoride and Tetramethylammonium Fluoride" *Org. Lett.* **2019**, *21*, 1350.
4. *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**
5. **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.
6. Hazari, N.; **Melvin, P. R.**; Mohadjer Beromi, M. "Well-defined nickel and palladium precatalysts for cross-coupling" *Nat. Rev. Chem.*, **2017**, *1*, 25.
7. **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.
8. 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.

9. 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.

10. **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 $(\eta^3\text{-1-}t\text{-Bu-indenyl})\text{Pd}(\text{IPr})(\text{Cl})$ " *Biel. J. Org. Chem.* **2015**, *11*, 2476.

11. **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.

12. **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: $(\eta^3\text{-1-}t\text{-Bu-indenyl})_2(\mu\text{-Cl})_2\text{Pd}_2$ " *ACS Catal.*, **2015**, *5*, 3680.

13. 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.

14. 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.

EXTERNAL FUNDING

Under Review National Science Foundation Research at Undergraduate Institutions Grant

- Project title: "RUI: Design of Novel Sulfone Iminium Fluorides for Divergent Fluorination Pathways"
- Total funds requested: \$253,682 over a 3-year period

Under Review National Science Foundation Launching Early-Career Pathways in the Mathematical and Physical Sciences (LEAPS-MPS) Grant

- Project title: "LEAPS-MPS: Synthesis of Novel Nickel and Palladium Precatalysts Ligated by Carbon(0) Ligands and Their Use in Challenging Cross-Coupling Reactions"
- Total funds requested: \$245,923

2020 – 2022 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.' PCT Int. Appl. **2018**, WO 2018183328.

2. Hazari, N.; Hruszkewycz, D. P.; **Melvin, P. R.** 'Novel Precatalyst Scaffold for Cross-Coupling Reactions, and Methods of Making and Using Same.' PCT Int. Appl. **2016**, WO 2016057600. Also published as CN106795191, IN201717015106, JP2017537879, KR1020170086026, US20170305948, EP3204395. Approved in Europe (Germany, France, Ireland, Italy, Switzerland, & United Kingdom), China, Japan, and the United States.

SELECTED PRESENTATIONS

1. **Melvin, P. R.** “Development of Highly Tunable Reagents for Deoxyfluorination” 263rd American Chemical Society National Meeting, San Diego, CA (March 23, 2022) – Oral Presentation
2. **Melvin, P. R.**, Schimler, S. D., Sanford, M. S. “Fluorination reactions with the combination of sulfonyl fluoride and tetramethylammonium fluoride” 256th American Chemical Society National Meeting, Boston, MA (August 19, 2018) – Oral Presentation
3. **Melvin, P. R.**; Hazari, N. “Rational Design of Improved Pd(II) Precatalysts and Their Applications Towards New Cross-Coupling Reactions” 253rd American Chemical Society National Meeting, San Francisco, CA (April 5, 2017) – Oral Presentation
4. **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
5. **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
6. **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
6. **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)
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)
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 – Richard Davis, Ph.D. Student
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 – Shiraz Harel '23
2020 – Yael Eiben '23
2020 – Ebrar Yilmaz '23
2020 – Lucy Miller '23

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)

Committee Member:

Mary Sexton (Ph.D. Chemistry, '21)
Edwin Ragwan (Ph.D. Chemistry, ongoing)
Diana Rachii (M.A. Chemistry, ongoing)
James Vogel (Chemistry, ongoing)
Richard David (Chemistry, ongoing)

COLLEGE COMMITTEES AND SERVICE

2021 Biochemistry Tenure-Track Faculty Search Committee, Department of Chemistry
2021 Haverford Organic Tenure-Track Faculty Search Committee, BMC Representative
2020 – 2022 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 **Golden Apple Award Nominee** – Student-nominated award for outstanding faculty
2016 **NSF Graduate Research Opportunities Worldwide Fellowship** – University of Oslo
2014 – 2017 **NSF Graduate Research Fellowship** – Yale University
2013 **Yale University DOX Fellowship** – Yale University
2010 **College of Arts and Sciences Research Grant** – West Chester University of PA
2008 – 2012 **Board of Governor's Full Tuition Scholarship** – 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)