
Aristidis Vasilopoulos

UW–Madison Department of Chemistry
1101 University Avenue
Madison, WI 53706
(608)-265-6288
vasilopoulos@wisc.edu

Home Address
325 S Hamilton St, Apt. 305
Madison, WI 53703
(603)-732-6734
arisvas4@gmail.com

Education

University of Wisconsin–Madison
Ph.D., Chemistry

Madison, WI
2015 – December 2020

Boston College
B. S., Chemistry, Minor in Computer Science

Chestnut Hill, MA
2011 – 2015

Research Experience

Doctoral Research

Advisor: Prof. Shannon S. Stahl

University of Wisconsin–Madison
August 2015 – present

- Conceived a C(sp³)–H methylation reaction that proceeds via triplet energy transfer activation of di-*tert*-butyl peroxide. The resulting practical, direct methylation protocol was employed to methylate secondary and tertiary C–H bonds of alkylarene and *N*-Boc amine C–H substrates (collaborator: Dr. Shane Krska, Merck).
- Identified a mild Cu-catalyzed benzylic C–H fluorination reaction using *N*-fluorobenzenesulfonimide as the oxidant. Benzyl fluoride products were elaborated without isolation via acid-catalyzed substitution reactions to access C–O, C–N, and C–C bonds that are difficult to form using direct oxidative coupling approaches.
- Developed a thermal Cu-catalyzed benzylic C–H arylation reaction that converts inexpensive alkylarenes to 1,1-diaryllkanes using a peroxide oxidant with aryl boronate nucleophiles.
- Improved aerobic Cu/nitroxyl-catalyzed oxidative amide coupling reactivity, leading to a simplified catalyst system capable of forming densely functionalized amide products from primary alcohols and amines.
- Collaborated in the discovery of a photocatalytic C(sp³)–H benzyloxylation reaction using a photoactive Cu catalyst with *tert*-butylperoxybenzoate. The method was inspired by the photocatalytic C–H methylation reaction described above.

Undergraduate Research

Advisor: Prof. Jeffery A. Byers

Boston College
June 2012 – February 2015

- Synthesized air- and moisture-sensitive ligands and iron complexes in multi-step syntheses.
- Computed geometry optimizations for ruthenium complexes using density functional theory in Gaussian.

Publications

- 1) **Aristidis Vasilopoulos**, Shane W. Krska, Shannon S. Stahl. C(sp³)–H Methylation via Photosensitization of Peroxides. *Manuscript in preparation*.
- 2) **Aristidis Vasilopoulos**, Joshua A. Buss, Dung L. Golden, Shannon S. Stahl. Copper-Catalyzed C–H Fluorination/Functionalization Sequence Enabling Benzylic C–H Cross Coupling with Diverse Nucleophiles. *Submitted*.
- 3) Paige E. Pizsel, **Aristidis Vasilopoulos**, Shannon S. Stahl. Oxidative Amide Coupling from Functionally Diverse Alcohols and Amines using Aerobic Copper/Nitroxyl Catalysis. *Angew. Chem. Int. Ed.* **2019**, *58*, 12211-12215.
- 4) **Aristidis Vasilopoulos**, Susan L. Zultanski, Shannon S. Stahl. Feedstocks to Pharmacophores: Cu-Catalyzed Oxidative Arylation of Inexpensive Alkylarenes Enabling Direct Access to Diarylalkanes. *J. Am. Chem. Soc.* **2017**, *139*, 7705-7708.

- 5) Tessa M. Baker, Teresa L. Mako, **Aristidis Vasilopoulos**, Bo Li, Jeffery A. Byers, Michael L. Neidig. Magnetic Circular Dichroism and Density Functional Theory Studies of Iron(II)-Pincer Complexes: Insight into Electronic Structure and Bonding Effects of Pincer N-Heterocyclic Carbene Moieties. *Organometallics* **2016**, *35*, 3692-3700.

Relevant Technical Skills

- | | |
|--|--|
| + Analysis of complex reaction mixtures using LC-MS (Empower, Virscidian, MassLynx) | + Design of catalytic homogenous reactions |
| + High-throughput experimentation for organic reaction development (96-well plates) | + Characterization of molecules by NMR spectroscopy (including 2D), MS, IR, and UV-Vis |
| + DFT calculations in Gaussian, Unix shell operation, and coding in Java, C, and SQL | + Glovebox operation and upkeep as well as general Schlenk techniques |
| + Engineering of custom photoboxes | + Isolation of organic molecules via normal and reverse-phase chromatography |
| + Sequencing of a Matrix liquid handling robot | + HPLC and GC proficiency |

Leadership Roles

- Pioneered a research collaboration between the Stahl lab and Merck for studying oxidative C(sp³)-H functionalization (spent 13 weeks at Merck in Kenilworth, NJ from August 2017 – present).
- Served as lead Chemical Hygiene Officer in the Stahl group for lab clean-ups and safety trainings (4 years).
- Organized the purchases of an automated flash chromatography system for the Stahl lab and a UPLC-MS system for the UW-Madison chemistry department.
- Fostered three residence hall communities as a Resident Advisor at Boston College (3 years).

Mentoring and Teaching Experience

Undergraduate researcher mentor	September 2018 – December 2019
REU student mentor	June 2019 – August 2019
Graduate student researcher mentor	February 2017 – March 2018
Organic chemistry TA	August 2015 – May 2016

Presentations

- Aristidis Vasilopoulos, Shannon S. Stahl. C(sp³)-H Methylation via Photosensitized Peroxide Activation. UW-Madison Catalysis Supergroup Seminar Series, March 2019. (Oral)
- Aristidis Vasilopoulos, Jordan E. Nutting, Shannon S. Stahl. Transition Metal Catalyzed Aerobic Oxidations. UW-Madison Recruiting Weekend Poster Session, February 2017. (Poster)
- Aristidis Vasilopoulos, Jessica L. Drake, Teresa L. Mako, Jeffery A. Byers. Applications and Synthesis of Iron-NHC Catalysts. BC Undergraduate Research Poster Session, September 2014. (Poster)

Awards and Fellowships

Received from UW-Madison

William B. Dickinson Fellowship in Organic Chemistry	2020
Sam C. Slifkin Award in Chemistry	2018
Harlan L. and Margaret L. Goering Organic Chemistry Fellowship	2018

Received from Boston College

Boston College Undergraduate Research Fellowship	2014
John Kozarich Summer Undergraduate Research Fellowship	2013