

Tomoya Ozaki

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PERSONAL STATEMENT

My research interests lie in the field of organic synthesis, with a particular emphasis on photochemistry, mechanistic studies, and computational chemistry. My Ph.D. work in Professor Shih-Yuan Liu's lab focuses on the photoisomerization of 1,2-azaborines, boron(B)-nitrogen(N)-containing aromatic heterocycles. A highlight of this work is the synthesis and characterization of BN-benzvalene, the first second-row heteroatom-containing benzvalene. I am planning to pursue postdoctoral studies in the field of polymer chemistry after graduation. Looking ahead, my career goal is to establish my own research lab as a professor, where I will develop novel chemical methodologies to contribute to a more sustainable future.

EDUCATION

2022–present	Boston College , Boston, Massachusetts, USA Ph.D. in Chemistry	Research Advisor: Prof. Shih-Yuan Liu
2017–2021	Kyoto University , Kyoto, Japan Bachelor of Science; Department of Chemistry	Research Advisor: Prof. Hideki Yorimitsu
Feb–Dec 2019	University of Sydney , Sydney, New South Wales, Australia Exchange Student	

RESEARCH EXPERIENCE

2021–present	Ph.D. Candidate , Boston College	Research Advisor: Prof. Shih-Yuan Liu
<ul style="list-style-type: none">Developed modular synthesis of cyclobutane cis-β-amino alcohols through BN-Dewar benzeneDeveloped novel boron-containing Molecular Solar Thermal (MOST) energy storage materialsSynthesized and characterized the first boron-and-nitrogen-containing benzvaleneDeveloped positional isomerizations of 1,2-azaborine through BN-benzvaleneSynthesizing and characterizing new BN-PAHs through late-stage functionalization of 1,2-azaborine		
Apr–Jul 2021	Assistant Technical Staff , Kyoto University	Research Advisor: Prof. Hideki Yorimitsu
<ul style="list-style-type: none">Developed a late-stage functionalization of primary sulfonamides via sulfonyl pyrroles		
2020–2021	Undergraduate Researcher , Kyoto University	Research Advisor: Prof. Hideki Yorimitsu
<ul style="list-style-type: none">Developed a method to generate aryllithium reagents from N-arylpyrroles using lithium		

HONORS AND AWARDS

2025	Dissertation Fellowship , Boston College
2024	Cell Press Prize for the poster presentation , BORAM 18, Los Angeles, USA.
2024	BSCJ Award for Best Oral Presenter , 51st Symposium on Main Group Element Chemistry, Kyoto, Japan
2024	LaMattina Family Graduate Fellowship in Chemical Synthesis , Boston College

2023	The Brian Lawrence Gray Award for Best Poster, Chemistry Graduate Symposium
2021	Keidanren Ishizaka Memorial Foundation (Declined due to an overlap with the Takenaka Scholarship)
2021–2026	Takenaka Scholarship
2019	Keidanren Global Scholarship

PUBLICATIONS

6. Ozaki, T.; Liu, S.-Y. “Boron-Nitrogen-Containing Benzene Valence Isomers” *Chem. Eur. J.* **2024**, e202402544. <https://doi.org/10.1002/chem.202402544>
5. Ozaki, T.; Bentley, S.; Rybansky, N.; Li, B.; Liu, S.-Y. “A BN-Benzvalene” *J. Am. Chem. Soc.* **2024**, 146, 24748–24753. <https://pubs.acs.org/doi/10.1021/jacs.4c08088>
 *Selected for a Supplementary Journal Cover.
 *Highlighted in SYNFACTS 2024, 20(12), 1260.
4. Robichaud, H. M.; Ishibashi, J. S. A.; Ozaki, T.; Lamine, W.; Miqueu, K.; Liu, S.-Y. “The Aromatic Claisen Rearrangement of a 1,2-Azaborine” *Org. Biomol. Chem.* **2023**, 21, 3778–3783. <https://doi.org/10.1039/D2OB02186B>
3. Ozaki, T.; Yorimitsu, H.; Perry, G, J, P. “Late-stage sulfonic acid/sulfonate formation from sulfonamides via sulfonyl pyrroles” *Tetrahedron* **2022**, 117–118, 132830. <https://doi.org/10.1016/j.tet.2022.132830>
 *Highlighted in SYNFACTS 2022, 18(09), 0956.
2. Ozaki, T.; Yorimitsu, H.; Perry, G, J, P. “Primary Sulfonamide Functionalization via Sulfonyl Pyrroles: Seeing the N–Ts Bond in a Different Light” *Chem. Eur. J.* **2021**, 27, 15387–15391. <https://doi.org/10.1002/chem.202102748>
1. Ozaki, T.; Kaga, A.; Saito, H.; Yorimitsu, H. “Generation of Aryllithium Reagents from N-Arylpyrroles Using Lithium” *Synthesis* **2021**, 53, 3019–3028. DOI: [10.1055/a-1482-2567](https://doi.org/10.1055/a-1482-2567)

FUNDINGS AND FELLOWSHIPS

2021–2026 Takenaka Scholarship

- Graduate fellowship awarded to Japanese students for studies abroad
- 2.5 million yen for tuition fee and 2.0 million yen for living expenses per year
- Only 3–5 students receive this fellowship each year in Japan

2019 Keidanren Global Scholarship

- Undergraduate program fellowship awarded to Japanese students for studies abroad
- Award Amount: 1.0 million yen

PRESENTATIONS

4. 18th Boron in the Americas Meeting (BORAM), Los Angeles, USA.
 Poster Presentation: “Photo- and Catalyst-mediated Transformations of BN-Benzvalene”
3. 51st Symposium on Main Group Element Chemistry, Kyoto, Japan, 2024
 Poster Presentation: “A BN-Benzvalene: Synthesis and Characterization”
 Oral Presentation: “BN-Benzvalene-Mediated Functional Group Dance on 1,2-Azaborine”

2. ACS Spring 2024, New Orleans, USA.
Poster Presentation: "Photocyclization of 1,2-azaborine: Modular and Stereoselective Synthesis of Cyclobutane β -amino Alcohols"
Oral Presentation: "Recent Developments in the Photochemistry of 1,2-azaborine: Exploring BN/CC Isosterism in Valence Isomers of Benzene"
1. The 101st CSJ (Chemical Society of Japan) Annual Meeting, Japan, 2021
Oral Presentation: "Generation of Aryllithium Reagents from N-Arylpyrroles Using Lithium"

TEACHING AND MENTORSHIP

2023–present **Research Mentor, Laboratory of Prof. Shih-Yuan Liu**

- Supervised a Boston College graduate student, Hannah Robichaud (2023–2024)
- Supervised a Boston College graduate student, Skylar Diamandis (2024–present)
- Supervised a Boston College graduate student, Nick Pugliano (2024–present)
- Supervised a Boston College undergraduate student, Nina Rybansky (2024–present)

2021 **Research Mentor, Laboratory of Prof. Hideki Yorimitsu**

- Supervised a Kyoto University undergraduate student, Yuki Miyake (Apr–Jul 2021)

2016–2017 **Graduate Teaching Assistant, CHEM5537 (Mechanistic Organic Chemistry)**

Instructor: Prof. Jeffery Byers, Boston College

- Taught 20 first-year graduate students about the basic principles of Physical Organic Chemistry
- Topics include molecular orbital theory, kinetics, mechanistic studies, and computational methods

REFERENCES

- **Shih-Yuan Liu**, Professor of Chemistry, Boston College (shihyuan.liu@bc.edu)
- **James P. Morken**, Professor of Chemistry, Boston College (morken@bc.edu)
- **Hideki Yorimitsu**, Professor, Department of Chemistry, Kyoto University (yori@kuchem.kyoto-u.ac.jp)