
Address: School of Molecular Sciences
Arizona State University
Tempe, AZ 85287-1604, U.S.A

Phone: (480) 572-4518

Email: dnishior@asu.edu

Education: **Arizona State University**, Tempe, AZ (Aug 2018 – present)

Ph.D. candidate in Chemistry

Advisor: Gary F. Moore

The University of Tokyo, Tokyo, Japan (Apr 2018 – Aug 2018)

Ph.D. candidate in Chemistry

Advisor: Hiroshi Nishihara

The University of Tokyo, Tokyo, Japan (2016 – 2018)

M.S. in Chemistry

Advisor: Hiroshi Nishihara

The University of Tokyo, Tokyo, Japan (2012 – 2016)

B.S. in Chemistry

Advisor: Hiroshi Nishihara

Internships: **United Nations Industrial Development Organization (UNIDO)**, Vienna, Austria (Apr 2018 – Aug 2018)

Pennsylvania State University, State College, PA (Sep 2015 – Oct 2015)

Fellowships and Awards:

(12) Biodesign Student Travel Grant (2023)

(11) Graduate College Completion Fellowship (2023 – 2024)

(10) Graduate College Q4 Travel Award (2023)

(9) Graduate and Professiona Student Association (GPSA) Travel Grant (2022 – 2023)

- (8) Outstanding student recognized for leadership and accomplishments at the annual ceremony College Leaders ceremony (2022)
- (7) Graduate College Q1 Travel Award (2022)
- (6) Graduate College Q1 Online/Remote Travel Award (2021)
- (5) Outstanding Graduate Research Assistant Award from Arizona State University (2020)
- (4) Fellowship from Heiwa Nakajima Foundation (2018 – 2020)
- (3) Tobitate! (Leap for Tomorrow) Study Abroad Program Scholarship from Japan's Ministry of Education, Culture, Sport, Science, and Technology (Apr 2018 – Aug 2018)
- (2) Study and Visit Abroad Program (SAVP) scholarship from the University of Tokyo (2015)
- (1) Best Poster Presenter Award of "ICE (International Chemistry for English) Summer Seminar" from the University of Tokyo (2014)

Journal Publications

At Arizona State University:

- (14) Nishiori, D.[‡]; Hensleigh, L. K.[‡]; Nguyen, N. P.[‡]; Peterson, I.; Moore, G. F.* **Shedding More Light on Solar Photochemistry and Wavelength-Resolving How Fluxes of Chemical Substrates, Electrons, and Photons Establish Photoelectrosynthetic Turnover Frequencies.** **2024** (submitted).
- (13) Nishiori, D.; Menzel, J. P.; Armada, N.; Reyes Cruz, E. A.; Nannenga, B. L.; Batista, V. S.; Moore, G. F.* **Breaking a Molecular Scaling Relationship Using an Iron-Iron Fused Porphyrin Electrocatalyst for Oxygen Reduction.** *J. Am. Chem. Soc.* **2024**, Article ASAP. DOI: 10.1021/jacs.3c08586
- (12) Nguyen, N. P.; Hensleigh, L. K.; Nishiori, D.; Reyes Cruz, E. A.; Moore, G. F.* **Degrade-Repair Cycle of a Fuel-Forming Photoelectrode.** *ACS Appl. Energy Mater.* **2022**, 5, 13128–13133 (Cover Article).
- (11) Reyes Cruz, E. A.[‡]; Nishiori, D.[‡]; Wadsworth, B. L.[‡]; Nguyen, N. P.; Hensleigh, L. K.; Khusnutdinova, D.; Beiler, A. M.; Moore, G. F.* **Molecular-Modified Photocathodes for Applications in Artificial Photosynthesis and Solar-to-Fuel Technologies.** *Chem. Rev.* **2022**, 122, 16051–16109 (Cover article).
- (10) Nishiori, D.[‡]; Wadsworth, B. L.[‡]; Moore, G. F.* **Parallels Between Enzyme Catalysis, Electrocatalysis, and Photoelectrosynthesis.** *Chem Catalysis.* **2021**, 1, 978-996.

- (9) Reyes Cruz, E. A.; Nishiori, D.; Wadsworth, B. L.; Khusnutdinova, D.; Karcher, T.; Landrot, G.; Lasalle-Kaiser, B.*; Moore, G. F.* **Six-Electron Chemistry of a Binuclear Fe(III) Fused Porphyrin**. *ChemElectroChem* **2021**, *8*, 3614-3620 (Invited article honoring Jean-Michel Savéant / Cover article).
- (8) Nishiori, D.; Wadsworth, B. L.; Reyes Cruz, E. a.; Nguyen, N. P., Hensleigh, L. H.; Karcher, T.; Moore, G. F.* **Photoelectrochemistry of metalloporphyrin-modified GaP semiconductors**. *Photosynth. Res.* **2022**, *151*, 1–10 (Invited contribution for a special issue co-edited by Elizabeth Young and Gary F. Moore on “Photochemistry and Electrochemistry of Natural and Artificial Photosynthesis”).
- (7) Nguyen, N. P.; Wadsworth, B. L.; Nishiori, D.; Reyes Cruz, E. A.; Moore, G. F.* **Understanding and Controlling the Performance-Limiting Steps of Catalyst-Modified Semiconductors**. *J. Phys. Chem. Lett.* **2021**, *12*, 199–203.
- (6) Wadsworth, B. L.; Nishiori, D.; Nguyen, N. P.; Reyes Cruz, E. A.; Moore, G. F.* **Electrochemistry of Polymeric Cobaloxime-Containing Assemblies in Organic and Aqueous Solvents**. *ECS J. Solid State Sci. Technol.* **2020**, *9*, 061018 (Invited contribution for a special issue in honor of Karl M. Kadish).
- (5) Wadsworth, B. L.; Nguyen, N. P.; Nishiori, D.; Beiler, A. M.; Moore, G. F.* **Addressing the Origin of Photocurrents and Fuel Production Activities in Catalyst-Modified Semiconductor Electrodes**. *ACS Appl. Energy Mater.* **2020**, *3*, 7512–7519 (Cover article).

At the University of Tokyo:

- (4) Nishiori, D.; Zhu, W.; Salles, R.; Miyachi, M.*; Yamanoi, Y.*; Ikuta, T.; Maehashi, K.; Tomo, T.; Nishihara, H.* **Photosensing System Using Photosystem I and Gold Nanoparticle on Graphene Field-Effect Transistor**. *ACS Appl. Mater. Interfaces* **2019**, *11*, 42773–42779.
- (3) Henriksson, A.; Nishiori, D.; Maeda, H.; Miyachi, M.; Yamanoi, Y.*; Nishihara, H.* **Attachment Chemistry of Aromatic Compounds on a Silicon(100)**. *Surface. Surf. Sci.* **2018**, *669*, 140–144.
- (2) Miyachi, M.; Okuzono, K.; Nishiori, D.; Ikehira, S.; Tomo, T.; Allakhverdiev, S. I.; Yamanoi, Y.*; Nishihara, H.* **Photochemical hydrogen evolution by combining cyanobacterial photosystem I and a platinum nanoparticle-terminated molecular wire**. *Chem. Lett.* **2017**, *46*, 1479–1481.

- (1) Miyachi, M.; Ikehira, S.; Nishiori, D.; Yamanoi, Y.*; Yamada, M.; Iwai, M.; Tomo, T.; Allakhverdiev, S. I.; Nishihara, H.* **Photocurrent Generation of Reconstituted Photosystem II on Self-Assembled Gold Film**. *Langmuir* **2017**, *33*, 1351–1358.

‡ = Contributed equally

* = Corresponding author

Conference Presentations

- (13) Nishiori, D.; Menzel, J. P.; Armada, N.; Reyes Cruz, E. A.; Nannenga, B. L.; Batista, V. S.; Moore, G. F. Breaking a Molecular Scaling Relationship using an Iron-Iron Fused Porphyrin Electrocatalyst for Oxygen Reduction. **Renewable Energy: Solar Fuels Gordon Research Conference**, February 2024 (Poster Presentation).
- (13) Nishiori, D.; Menzel, J. P.; Armada, N.; Reyes Cruz, E. A.; Nannenga, B. L.; Batista, V. S.; Moore, G. F. Breaking a Molecular Scaling Relationship using an Iron-Iron Fused Porphyrin Electrocatalyst for Oxygen Reduction. **Renewable Energy: Solar Fuels Gordon Research Seminar**, February 2024 (Poster Presentation).
- (12) Nishiori, D.; Reyes Cruz, E. A.; Nguyen, N. P.; Hensleigh, L. K.; Moore, G. F. Breaking an Iron Law in Electrocatalysis. **Biodesign Institute Fusion 2023**, April 2023 (Poster Presentation).
- (11) Nishiori, D.; Wadsworth, B. L.; Moore, G. F. Parallels between enzymatic catalysis, electrocatalysis, and semiconductor photoelectrosynthesis. **2023 I-APS Meeting**, January 2023 (Poster Presentation).
- (10) Nishiori, D.; Reyes Cruz, E. A.; Nguyen, N. P.; Hensleigh, L. K.; Moore, G. F. Strategies for Breaking Molecular Scaling Relationships in Electrocatalysis. **2nd Workshop on Artificial Photosynthesis**, November 2022 (Poster Presentation– Virtual).
- (9) Nishiori, D.; Reyes Cruz, E. A.; Nguyen, N. P.; Hensleigh, L. K.; Moore, G. F. Strategies for Breaking Molecular Scaling Relationships in Electrocatalysis. **Electron Donor-Acceptor Interactions Gordon Research Conference**, August 2022 (Poster Presentation).
- (8) Nishiori, D.; Wadsworth, B. L.; Moore, G. F. Parallels between enzymatic catalysis, electrocatalysis, and semiconductor photoelectrosynthesis. **Winter Poster Session 2021 on Artificial Photosynthesis**, December 2021 (Poster Presentation – Virtual).
- (7) Nishiori, D.; Wadsworth, B. L.; Reyes Cruz, E. a.; Nguyen, N. P., Hensleigh, L. H.; Karcher, T.; Moore, G. F. Photoelectrochemistry of metalloporphyrin-modified GaP

semiconductors. **ENFL Student Presentation Award Competition in 2021 ACS Fall 2021 Meeting**, Virtual Meeting, August 2021 (Oral Presentation – Virtual).

- (6) Nishiori, D.; Wadsworth, B. L.; Reyes Cruz, E. a.; Nguyen, N. P., Hensleigh, L. H.; Karcher, T.; Moore, G. F. Photoelectrochemistry of metalloporphyrin-modified GaP semiconductors. **ACS Fall 2021 National Meeting & Exposition**, Virtual Meeting, August 2021 (Poster Presentation – Virtual).
- (5) Nishiori, D.; Wadsworth, B. L.; Reyes Cruz, E. A.; Nguyen, N. P.; Moore, G. F. Photoelectrochemistry of Metalloporphyrin-Modified Gallium Phosphide Surfaces, **Materials Research Society Spring Meeting and Exhibit**, Virtual Meeting, November 2020 (Poster Presentation – Virtual).
- (4) Nishiori, D.; Ikuta, T.; Miyachi, M.; Maehashi, K.; Tomo, T.; Yamanoi, Y.; Nishihara, H. A Light Sensor Based on Photosystem I and Graphene FET, **8th Meeting of Molecular Architectonics**, December 2017 (Poster Presentation).
- (3) Nishiori, D.; Miyachi, M.; Okuzono, K.; Yamanoi, Y.; Tomo, T.; Iwai, M.; Allakhverdiev, S. I.; Nishihara, H. Photochemical Hydrogen Evolution with Cyanobacterial Photosystem I - Platinum nanoparticle Hybrid Systems, **The 5th Ito International Research Conferences**, November 2017 (Poster Presentation).
- (2) Nishiori, D.; Miyachi, M. Okuzono, K.; Yamanoi, Y.; Tomo, T.; Iwai, M.; Allakhverdiev, S. I.; Nishihara, H. Photochemical hydrogen evolution with cyanobacterial photosystem I–platinum nanoparticle hybrid systems, **8th International Conference “Photosynthesis and Hydrogen Energy Research for Sustainability-2017”**, October 2017 (Poster Presentation).
- (1) Nishiori, D.; Miyachi, M.; Ikehira, S.; Liu, W.; Yamanoi, Y.; Yamada, M.; Iwai, M.; Tomo, T.; Allakhverdiev, S. I.; Nishihara, H. Construction and electrochemical analysis of Photosystem II – Platinum nanoparticle complex linked by a molecular wire, **19th Annual meeting of The Photobiology Association of Japan**, September 2016 (Poster Presentation).

Teaching Experience

- (1) Arizona State University, Tempe, Arizona (2018–2020)
Graduate Teaching Assistant
 - i. CHM 114 General Chemistry Laboratory
 - ii. CHM 116 General Chemistry Laboratory

Outreach Activities

- (3) Arizona State University's Open Door Event volunteer, Tempe, AZ (2023)
- (2) 2019 MRS Spring Meeting & Exhibit Symposium Assistant, Phoenix, AZ (2019)
- (1) NPO Matching Hongo, Tokyo, Japan (2018)