



Exponent[®]
Engineering & Scientific Consulting

Daniel Marron, Ph.D.

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Professional Profile

Dr. Marron is a chemist with broad experience in leveraging analysis of molecular species to inform the mechanisms of macroscopic phenomena such as catalysis, material synthesis, degradation, and contamination. His analytical skills include high resolution mass spectrometry (HRMS), MS coupled to liquid and gas chromatography (LC-MS, GC-MS), and structural determination by X-ray diffraction (XRD). Additionally, he is proficient with nuclear magnetic resonance (NMR), Fourier transform infrared (FTIR), and UV-visible spectroscopies.

Before joining Exponent, Dr. Marron conducted his doctoral work at Stanford University. His primary research focused on developing new electrocatalytic methods for energy storage in liquid organic hydrogen carriers (LOHCs). In addition to the chemical characterization techniques above, this work made use of a variety of voltametric and amperometric electrochemical characterization techniques. Other projects during his doctoral work utilized air-free and low-temperature sampling techniques with HRMS to discover catalytic intermediates in a variety of reactions for fine chemical synthesis.

Academic Credentials & Professional Honors

Ph.D., Chemistry, Stanford University, 2024

B.S., Chemistry, Virginia Polytechnic Institute and State Univ, 2018

B.S., Biochemistry, Virginia Polytechnic Institute and State Univ, 2018

Stanford Center for Molecular Analysis and Design Fellow, 2019-2021

Phi Beta Kappa, Virginia Tech, 2014

Professional Affiliations

American Chemical Society

Publications

Lauridsen, P.J.; Kim, Y.J.; Marron, D.P.; Zhu, J.S.; Waymouth, R.M.; Du Bois, J. Ligand Oxidation Activates Ruthenium(II) Precatalysts for C-H Hydroxylation. *Journal of the American Chemical Society*, 2024, 146, 33, 23067-23074.

Marron, D.P.; Galvin, C.G.; Dressel, J. M.; Waymouth R.M. Cobaltocene-mediated hydride transfer enables electrocatalytic carbonyl reduction. *Journal of the American Chemical Society*, 2024 146 (25), 17075-17083.

Marron, D.P.; Galvin, C.G.; Waymouth R.M. Cyclopentadienone iridium bipyridyl complexes: acid-stable transfer hydrogenation catalysts. *Organometallics*, 2023, 42 (15), 1849-1853.

Galvin, C.G.; Marron, D.P.; Dressel, J.M.; Waymouth, R.M. Coordination-induced bond weakening and electrocatalytic proton-coupled electron transfer of a ruthenium verdazyl complex. *Journal of the American Chemical Society*, 2023, 63, 2, 954-960.

Ramsay-Burrough, S.; Marron, D. P.; Armstrong, K. C.; Del Castillo, T. J.; Zare, R. N.; Waymouth, R. M. Mechanism-Guided Design of Robust Palladium Catalysts for Selective Aerobic Oxidation of Polyols. *Journal of the American Chemical Society*, 2023, 145 (4), 2282–2293.

Delaney, C. P.; Marron, D. P.; Shved, A. S.; Zare, R. N.; Waymouth, R. M.; Denmark, S. E. Potassium Trimethylsilanolate-Promoted, Anhydrous Suzuki-Miyaura Cross-Coupling Reaction Proceeds via the “Boronate Mechanism”: Evidence for the Alternative Fork in the Trail. *Journal of the American Chemical Society*, 2022, 144 (10), 4345–4364.

Lee, J. K.; Han, H. S.; Chaikasetsin, S.; Marron, D. P.; Waymouth, R. M.; Prinz, F. B.; Zare, R. N. Condensing Water Vapor to Droplets Generates Hydrogen Peroxide. *Proceedings of the National Academy of Science*. 2020, 117 (49), 30934–30941.

Presentations

Marron, D.P.; Galvin, C.G.; Dressel, J.D.; Waymouth, R.M. Enabling Electrocatalytic Carbonyl Reduction by Cobaltocene-Mediated Hydride Transfer. ACS National Meeting in San Francisco. Invited Talk. August 2023.

Marron, D.P.; Galvin, C.G.; New Electrocatalytic Strategies Towards a Closed-loop Acetone Isopropanol Fuel Cell. Merck Poster Session. Stanford, CA May 2022.

Marron, D.P., Hunter, B.M., Gray H.B. Controlled C-H Oxidation Catalyzed by Mixed Transition Metal Nanoparticles. Oral Presentation, Caltech. August, 2017.

Marron, D.P., Grams, J.R.; Gates, A.M.; Josan, J.S. Collagen Inspired Biomimetic Linkers. Oral and Poster Presentation, Virginia Tech Summer Symposium. August 2016.