

The School of Natural Sciences  
Presents  
**Hybrid Catalysis for Cross–Coupling and C–H  
Functionalization Reactions**

**Marvin Parasram, Ph.D.**  
Department of Chemistry  
Princeton University

**DETAILS:**

Tuesday, January 7<sup>th</sup>, 2020  
9:30am-10:30am  
COB 1 265

**ABSTRACT**

Hybrid catalysis features the synergistic interplay of two chemical concepts. Recently, the union of radical and organometallic chemistry has become a mainstream approach to solving outstanding challenges in synthetic chemistry. This seminar will highlight the implementation of hybrid catalysis for the development of the first endo-selective Mizoroki–Heck reaction empowered by a single Pd-catalytic cycle featuring hybrid Pd-radical intermediates. Also, the discovery of a mild, efficient, and general protocol for the site-selective desaturation and remote functionalization of ubiquitous aliphatic alcohols via hydrogen-atom-transfer (HAT) of photoinduced hybrid Pd-radical intermediates will be discussed.

Another area of hybrid catalysis features the merger of two catalytic cycles of different inherent natures, such as Transition-Metal (TM)-Photoredox catalysis. This dual approach has resulted in novel C–C bond formation of versatile feedstocks that are otherwise difficult to achieve by traditional means. However, most approaches to date feature the coupling of nucleophiles and electrophiles. Thus, the development of a photoredox assisted cross-electrophile coupling reaction (PACR) could enable novel C–C bond formation and uncover new reactivity. This seminar will feature recent work on the development of a tri-catalytic cross-electrophile coupling of abundant epoxides and (hetero)aryl iodides under visible light.

**BIOGRAPHY**

Marvin was born and raised in The Bronx, New York. He received his B.S. degree in Chemistry from Stony Brook University in 2010. Later that year, he joined the laboratory of Professor Vladimir Gevorgyan at the University of Illinois at Chicago as a Ph.D. student. During his Ph.D. studies, he was involved in the development of novel Pd-catalyzed synthetic methodologies. Currently, he is an NIH Postdoctoral Fellow in the Doyle group at Princeton University. Marvin is developing synthetic methodology in the burgeoning area of Ni-Photoredox catalysis featuring the coupling of two electrophiles. Outside the lab, he enjoys spending time with his family, snowboarding, kayaking, playing video games, watching sci-fi movies, reading fiction novels, and cheering for his New York Giants.

**For more information, please contact:**  
**Christine Isborn**  
[cisborn@ucmerced.edu](mailto:cisborn@ucmerced.edu)