

Discovery of new catalytic reactions for generation of molecular complexity and diversity

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Recent advances in the discovery and development of new nickel-catalyzed processes will be described. Illustrations in the reductive coupling of unsaturated components and in the development of new transformations of easily accessible phenol derivatives will be provided. In these areas, our recent efforts have focused on the design of regiodivergent processes and on the development of strategies to enable regioselectivity and enantioselectivity to be simultaneously addressed in catalytic transformations. Mechanistic studies are providing considerable insight into the origins of selectivity and reactivity in the processes under development. In addition to the focus on catalysis by nickel-NHC complexes, the lecture will also describe recent collaborative work in biocatalysis using cytochrome P450 enzymes as an enabling tool for organic synthesis.



John MONTGOMERY is the Margaret and Herman Sokol Professor in the Department of Chemistry at the University of Michigan. He received his undergraduate degree at the University of North Carolina in 1987 under the direction of Profs. Joe Templeton and Maurice Brookhart. He received his Ph.D. at Colorado State University in 1991 under the direction of Prof. Louis Hegedus, and he was an American Cancer Society Postdoctoral Fellow at the University of California at Irvine from 1991 - 1993 with Prof. Larry Overman. In 1993, he began his independent career at Wayne State University, he moved to the University of Michigan in 2005, and in 2013 he was appointed as the Margaret and Herman Sokol Professor.

His research interests focus on the development of new methods for organic synthesis. His lab has made many advances in the use of nickel and copper catalysis in organic chemistry, and these studies have enabled the invention of new catalysts and synthetic methods as well as their

utilization in the synthesis of complex molecules, natural products, and novel bioactive substances. More recent collaborative studies have focused on the use of biosynthetic enzymes as versatile tools for organic synthesis. He has received an Arthur C. Cope Scholar Award from the American Chemical Society, and he is a Fellow of the American Association for the Advancement of Science.