THE UNIVERSITY OF TOLEDO
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# CHEMISTRY AND BIOCHEMISTRY COLLOQUIUM

## Design and Utility of Nickel- and Copper-Catalyzed Processes for the Conversion of Feedstock Reagents to High-Value Products

**Abstract**: The development and mechanistic study of several classes of nickel-and copper-catalyzed processes will be discussed. Recent efforts from our laboratory have focused on the utilization of simple alkenes, arenes, alkynes, and allenes in various synthetic processes. The discovery of new catalytic reactions and the development of strategies for controlling and reversing regiochemistry in the processes will be discussed. Reaction types include the reductive coupling of two pi-components, C-H functionalization processes, and novel annulation procedures. Additionally, recent insights into engineering the stability of Ni(0) complexes of N-heterocyclic carbene ligands to increase practicality and utility in a variety of carbon-carbon and carbon-heteroatom bond-forming processes will be described..

John Montgomery
Professor
Department Chemistry
University of Michigan

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Inquiries can be made of:
Joe Schmidt, PhD
419-530-1512
Joseph.Schmidt@utoledo.edu


DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY
THE UNIVERSITY OF TOLEDO