

ORGANIC SEMINAR



Guest Speaker:

Professor Ramesh Giri

University of New Mexico
Department of Chemistry and
Chemical Biology

Friday, April 21st, 9:00am

Hutchison Hall Room 473

University of Rochester
Department of Chemistry



Cross-Coupling as a Platform for Olefin Dicarbofunctionalization

Abstract:

Integration of cross-coupling, a reaction with unlimited depth and breadth of industrial and academic applications, into tandem reaction manifolds has the potential to create a methodology of unparalleled synthetic power for making highly diversified carbo- and heterocycles. We are investigating to develop Cu, Ni and Pd-based catalysts for olefin dicarbofunctionalization. In this talk, our attempts to develop Cu-based catalytic systems for direct and tandem cyclization-couplings of olefin-tethered organometallic reagents will be presented. The effectiveness of Ni and Pd-based catalysts for similar tandem cyclization-coupling reactions of olefin-tethered alkyl halides as well as carbonyl compounds with aryl halides/organozinc reagents will also be showcased, which facilitates to generate a wide range of complex carbocycles and N,O-heterocycles. In addition, mechanistic details leading to a general catalytic cycle for Cu-catalyzed cross-couplings will be presented based on the synthesis and characterization of novel (PN)CuI-complexes and anionic organoborates as reaction intermediates, reactivity studies and monitoring of reaction progress in situ by NMR spectroscopy.

Host: Daniel J. Weix- Email: weix@chem.rochester.edu