“Metal-Catalyzed Cross-Coupling Reactions of Alkyl Electrophiles”

Abstract. Despite the tremendous accomplishments that have been described in the development of transition metal-catalyzed coupling processes, it is nevertheless true that many significant opportunities remain. For example, to date the overwhelming majority of studies have focused on couplings between two sp²-hybridized reaction sites (e.g., an aryl metal with an aryl halide).

As of 2001, there were relatively few examples of metal-catalyzed coupling reactions of alkyl electrophiles. During the past decade, we have pursued the discovery of transition metal-based catalysts for coupling activated and unactivated alkyl electrophiles that bear β hydrogens. Our recent efforts to develop broadly applicable methods, including enantioselective processes, will be discussed.