"Dimetallation Reactions in Organic Synthesis”

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The catalytic diboration reaction allows for the conversion of simple alkenes into stereochemically and functionally-enriched products. Our recent research has focused on the development of chiral catalysts for this transformation that enable enantioselective diboration. Mechanistic studies have revealed much about how these reactions operate and they have allowed for an expansion of the substrate scope such that simple alkenes, dienes and allenes will participate in enantioselective diboration reactions. These processes facilitate the synthesis of complex natural products and their application to the construction of the cytotoxic agents scleophytin A and vigulariol will also be presented.