

Catalysis for Synthesis - Concepts and Scrutiny

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Despite their thermodynamic stability, the high kinetic reactivity of carbon-carbon triple bonds opens promising gateways into many useful catalytic transformations. This lecture intends to summarize some recent contributions from our laboratory. After a short review of our work in the area of alkyne metathesis, I will focus on some unconventional ways to harness the reactivity of various acetylene derivatives. This includes the use of carbophilic Lewis acids based on Pt(+2) or Au(+1), as well as the first examples of ruthenium-catalyzed *trans*-hydrogenation, *trans*-hydroboration as well as *trans*-hydrostannation reactions of internal alkynes. The organometallic and mechanistic aspects of these transformations will be discussed in some detail. Selected applications to natural product synthesis are meant to showcase the current state of development.