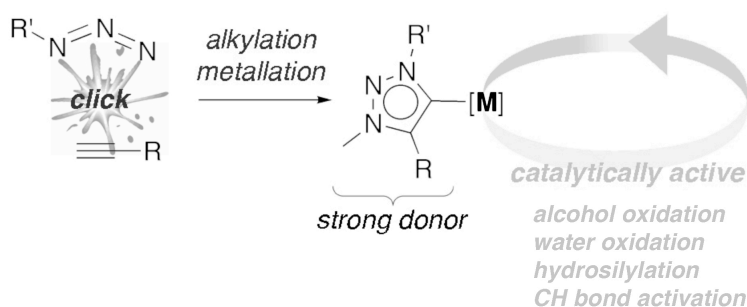


MESOIONIC LIGANDS, AN ATTRACTIVE PLATFORM FOR METAL-MEDIATED BOND ACTIVATION

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Mesoionic compounds are characterized by a ring structure that contains resonance-conjugated positive and negative charges. These compounds constitute a very interesting class of ligands that can, principally, bind as anionic ligands or as neutral donor sites. Moreover, the presence of both, positive and negative charges, may provide access to the transient storage of electrons and protons, respectively. We have been interested in exploring these particular properties and the effects these mesoionic ligands impart on the metal center, specifically for (catalytic) activation of strong and typically less reactive bonds. We have focused on pyridylideneamides and on triazolylidenes, a specific class of mesoionic carbenes homologous to classical NHCs (Fig). These mesoionic carbenes are exceptionally strong donors when compared to other formally neutral ligands such as phosphines and classical Arduengo-type carbenes.^[1] We have recently obtained evidence that the mesoionic character also entails ligand-centered reactivity, which has been exploited in bond activation catalysis.^[2] This presentation will discuss some fundamental aspects and most recent developments in oxidation catalysis and C–H bond activation.^[3]



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