

Choose Your Own Adventure in Metal-Hydride Catalysis

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Abstract: Metal hydrides promote a wide-range of organic transformations that include both C-C bond making and C-C bond breaking processes. This lecture will highlight the development of Rh and Co-catalysts for use in enantioselective hydrofunctionalizations (e.g., hydroacylation, hydroamination, and hydrothiolation). In addition, a unique transfer hydroformylation will be described that allows conversion of aldehydes/alcohols to olefins. The presentation emphasizes mechanistic studies that showcase the role of counter-ions for controlling selectivities. Lastly, we disclose applications of these catalysts for transforming feedstocks into more complex building blocks and natural products.