

Title: "Molecular and nanoscale catalysts for selective dehydrogenation and hydrogenation reactions for energy storage and synthesis."

Short abstract: In this presentation recent advancements of our research towards selective dehydrogenation and hydrogenation reactions are presented. This covers catalytic organic transformations with metal nanoparticles and metal complexes including: catalytic conversions of alcohols to acids, nitriles to primary amines and imines, amination of alcohols, methylation of amines or alkynes to (Z)-alkenes. In addition we are investigating hydrogen storage on the molecular level using C1 molecules like methanol or formaldehyde for example.