

## Precious Catalysis with Non-Noble Metal Catalysts

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The cost-effective and waste-free synthesis of materials, life science goods and all kinds of organic products require efficient chemical transformations. In this regard, development of more active and selective catalysts constitutes a key factor for achieving improved processes and providing the basis for a sustainable chemical industry. Despite continuous advancements in all areas of catalysis, still organic syntheses as well as the industrial production of most chemicals can be improved significantly in terms of sustainability and efficiency. In the talk, it will be shown how new and improved homogeneous and heterogeneous catalysts based on earth abundant metals can be developed by learning from each other. Specifically, the phenomenon of cooperative catalysis will be addressed in the context of non-noble metal-based catalysts. In detail, it will be demonstrated that recently developed molecular-defined as well as nano-structured cobalt and iron catalysts enable catalytic (de)hydrogenation processes with high yields and unprecedented selectivity. Examples which demonstrate the potential of such catalytic processes with bio-relevant metal complexes compared to more traditional catalytic reactions will also include reactions for energy technologies.

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