Catalysis for Sustainable Chemical Processes and Energy Technologies

Abstract: Despite continuous advancements in all areas of chemistry, still most organic synthesis as well as the industrial production of chemicals is far away from being sustainable and efficient. Currently, more than 80% of all products of the chemical industry are made via catalysis. In this regard, the development of new and more efficient catalysts constitutes a key factor for achieving improved processes for all kinds of products today and in the future. In the talk, several challenges for catalysis will be presented; e.g. the development of efficient non-noble metal-based catalysts. In this respect, it will be shown that recently developed molecular-defined as well as nano-structured cobalt and iron catalysts enable catalytic hydrogenation processes of esters and nitro derivatives with high yields and unprecedented selectivity. Specific examples which demonstrate the potential of catalytic processes with bio-relevant metal complexes compared to more traditional catalytic reactions will include also dehydrogenations. The potential of (de)hydrogenations for energy technologies will be also highlighted.

Tuesday, February 28, 2017
Cram Conference Room, 3440 Mol Sci
2:00 pm

Please contact imai@chem.ucla.edu (x54208) for additional information.
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