Bio-inspired Homogeneous Catalysis: Non-Noble Metals on the Move!

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In the development of new homogeneous catalysts, the catalytic activity and selectivity of metallo-enzymes play an important inspirational role. Many of the reactions catalysed by such enzymes are amongst the 'dream reactions' for a synthetic chemist in the sense of the principal chemical reaction and the (stereo-)selectivity of the reaction.

In this talk, I will highlight a number of contributions of my research group to the field of bio-inspired catalysis.[1] Important aspects of our work include designated ligand design and the use of non-noble metals.[2] Practical implications of the work are related to selective organic synthesis, chemical energy production, and element scarcity.

[1] Selected examples: a) J. Chen, M. de Liedekerke Beaufort, L. Gyurik, J. Dorresteijn, M. Otte, R.J.M. Klein Gebbink, *Green Chemistry,* **2019**, *21*, 2436–2447; b) J. Chen, R.J.M. Klein Gebbink, *ACS Catal.,* **2019**, *9*, 3564–3575; c) P. Ghosh, R. Naastepad, C.F. Riemersma, M. Lutz, M.-E. Moret, R.J.M. Klein Gebbink, *Chem. Eur. J.* **2017**, *23*, 10732 –10737; d) D. Font, M. Canta, M. Milan, O. Cussó, X. Ribas, R.J.M. Klein Gebbink, M. Costas *Angew. Chem. Int. Ed.* **2016**, *55*, 5776 –5779.

[2] www.nonomecat.eu