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THE DEPARTMENT OF CHEMISTRY, QUEEN’S UNIVERSITY & GREENCENTRE CANADA ARE HONOURED TO HOST THE 9TH ANNUAL GREEN CHEMISTRY LECTURE:

DR. WALTER LEITNER
MAX PLANCK INSTITUTE FOR CHEMICAL ENERGY CONVERSION

CATALYTIC TRANSFORMATIONS AT THE INTERFACE OF CHEMISTRY AND ENERGY: IS MANAGANESE THE BETTER RUTHENIUM?
FRIDAY, OCTOBER 2, 2020
11:30AM
MICROSOFT TEAMS

SELECTED PUBLICATIONS


ABSTRACT

The industrial transformation of carbon-based raw materials into valuable products forms the basis of today’s global economy and modern societies. With its products ranging from energy carriers through plastics and advanced materials to biologically active compounds, chemistry is essential to cope with the global challenges of our time. Moving towards a more sustainable future, there is an increasing need for broadening the raw material basis by developing and using non-fossil resources together with the deployment of carbon-free energy technologies.[1]

The present contribution will discuss the opportunities and challenges of this approach and present recent progress in the development of organometallic catalysts for selected transformations.

A special emphasis will be on catalytic hydrogenation of carbon dioxide to C1 building blocks and their use in further synthetic applications.[2] While Ruthenium has been one of the most versatile metals in organometallic catalysts for such reactions, earth abundant and cheap Manganese is emerging recently as a possible alternative.[3] The mechanisms of activation and transfer of the H2 molecule will be discussed as central molecular process in these applications highlighting similarities and differences between the two metals.


Walter Leitner is Director at the Max Planck Institute for Chemical Energy Conversion in Mülheim an der Ruhr and holds the Chair of Technische Chemie und Petrochemie at RWTH Aachen University. He is also Scientific Director of CAT, the joint Catalytic Center of RWTH Aachen and the company Covestro.

His research focusses on a molecular approach to catalysis motivated by the principles of Green Chemistry. From 2004 - 2016, he served first as Scientific Editor and later as Chairman of the Editorial Board of the Journal "Green Chemistry", published by the Royal Society of Chemistry (UK) and since 2018 he is a member of the Editorial Board of “Angewandte Chemie”.

The research efforts of his team have been recognized with several awards including most recently the bинаlational Georg Wittig-Victor Grignard Prize of the French and German Chemical Societies in 2020. In 2019 he has been nominated as team member among the finalists for the Deutsche Zukunftspreis (together with Dr. Christoph Gürtler and Dr. Berit Stange, Covestro AG).

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