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Unifying Concepts in Catalysis

UniCat Colloquium

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Magnesium(I) dimers 10 years on: Universal reductants for synthesis/catalysis?

The renaissance that has occurred in main group chemistry over the last several decades has been largely driven by the realization that very low oxidation state p-block compounds can be stable species at ambient temperature, given the right ligand environment. Increasingly, such compounds are being shown to possess "transition metal-like" reactivity patterns in small molecule activations, and associated catalytic synthetic transformations. In late 2007 we extended this field to the s-block with the preparation of the first room temperature stable molecular compounds containing magnesium-magnesium covalent bonds, viz. LMgMgL (L = bulky guanidinate or -diketiminate, e.g. 1). We have subsequently shown that the unique properties these species possess lend them to use as versatile reducing agents in both organic and inorganic synthetic protocols. The products of such reactions are often inaccessible using more classical reducing agents. In this lecture an overview of what has been achieved with these remarkable reagents will be given, with an emphasis placed on the preparation of unprecedented examples of low oxidation state/low coordination number metal-metal bonded complexes involving metals from the s-, p- and d-blocks, e.g. 2 and 3. The further chemistry of these highly reactive systems will also be discussed, as will our efforts to incorporate magnesium(I) dimers into catalytic cycles.

Wednesday, October 24, 2018 at 5:15 PM
TU Berlin, Institute of Chemistry
Straße des 17. Juni 115, 10623 Berlin

Building C, Lecture Hall **C 264**

Prof. Dr. Driess (TUB)
Organizer

Coffee and cake will be served 30 minutes before the lecture. Guests are cordially invited to attend!
Prof. Dr. Matthias Driess - Chair of the Cluster of Excellence UniCat - www.unicat.tu-berlin.de