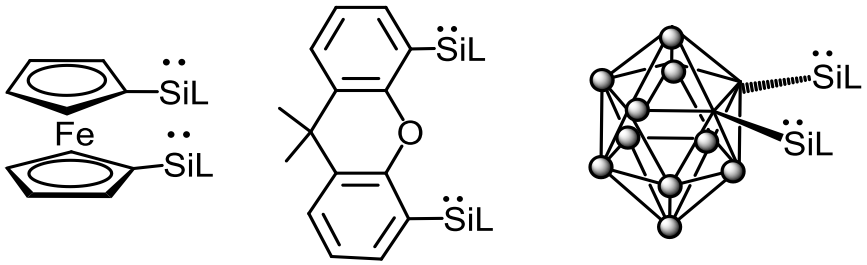
The Rise of Silylenes for Cooperative Chemical Transformations

Matthias Driess, Yuwen Wang, Arseni Kostenko, Terrance Hedlington, Zhenbo Mo, and Shenglai Yao

Technische Universität Berlin, Department of Chemistry: Metalorganics and Inorganic Materials, Germany, E-Mail: Matthias.driess@tu-berlin.de

Selective activation of small molecules by using non- and semi-metals instead of expensive and toxic precious metals is a contemporary challenge in molecular chemistry and catalysis in particular. Recently, a variety of isolable N-heterocyclic silylenes were realized, which show versatile reactivity pattern with respect to selective carbon-heteroatom bond activation of organic substrates based on divalent silicon. Now we learned that the reactivity of silylenes can be boosted if two silylene moieties are placed in close proximity, giving rise to cooperative bond activation. This new features will be demonstrated with the bis(silylene)-based compounds **1-3** which enable cooperative and selective coupling reactions, including the deoxygenative homocoupling of CO to give C=C=O (ketene) and related heterocoupling of CO with isocyanide to ketenimines (C=C=NR).

The paper is dedicated to Professor Bob West for many reasons, which will be explained in the talk.



1: L = amidinate **2** **3** ● = BH

Acknowlegment: We thank the Deutsche Forschungsgemeinschaft (Cluster of Excellence UniCat) and the Einstein Foundation Berlin for financial support.