Bis(Silylene) Pincer Type Ligands: A Silicon System to Explore in the Universe of Catalysis

Daniel Gallego*

*Group of Metalorganics and Inorganic Materials, Chemistry Department, Technische Universität Berlin, Cluster of Excellence "Unifying Concepts in Catalysis", Straße des 17. Juni 135, D-10623 Berlin, Germany. Email: dgallego@mailbox.tu-berlin.de

Known σ-donor systems in pincer ligands

Activation of NH
- Hartwig, Science 2005

Activation of CH
- Brookhart, Science 2009

Activation of CO

Activation of CN

Hydrogenation of allenes
- Chirk, ACS Catalysis 2012

Sonogashira Cross Coupling

Cyclically hydrolysed phase COMES

Cross coupling

Hydroisilylation of alkenes

N-H activation

Isolation of reaction intermediate!

[Ph=\equiv-CO]

Exploring new frontiers in σ-donor systems

Novel highly electron rich Iron (0) species

Borylation of arenes

σ-donor strength: Si > Ge > P

Multicultural transition states: Uni. Lille1, France & Uni. Leipzig, Germany

Learning from the roots of chemistry: Ostwald (Uni. Leipzig): Nobel Prize in Chemistry 1909

German Beer as rate determining step

Prof. Dr. D. Gallego Mahecha
TU Berlin PhD Studies

Divalent Si compounds as σ-donors for catalysis

Unified Concepts of Catalysis “UniCat” Cluster of Excellence & BIG-NSE Graduated School

Different chemistry backgrounds: Multicultural group

German Beer as energy sink

ASC Erasmus Mundus Master

Prof. Dr. M. Diers

Colombian Chemist

Contact info

Personal motivations:
- Love chemistry
- Contribute to society
- entsprechender

Work with and for the Colombian society
- Favor the low social class
- Do science to solve national problems
- Keep attracting new students for the chemistry world

Economical

Human (students and relatives)

Networking

Prof. Dr. D. Gallego Mahecha

"The beauty of a living thing is not the atoms that go into it, but the way those atoms are put together."
Carl Sagan, Cosmos

"The nitrogen in our DNA, the calcium in our teeth, the iron in our blood, the carbon in our apple pies were made in the interiors of collapsing stars. We are made of starstuff."
Carl Sagan, Cosmos

The beauty of a living thing is not the atoms that go into it, but the way those atoms are put together. Carl Sagan, Cosmos