

Centro Singular de Investigación en **Química Biolóxica** e **Materiais Moleculares**

Conferencia: Phosphine-Stabilized Si(II) Complexes: Applications in Catalysis and Activation of Small Molecules

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FEDER - FONDO EUROPEO DE DESENVOLVEMENTO REXIONAL "Unha maneira de facer Europa"



XUNTA DE GALICIA CONSELLERÍA DE CULTURA, EDUCACIÓN E ORDENACIÓN UNIVERSITARIA

Phosphine-Stabilized Si(II) Complexes: Applications in **Catalysis and Activation of Small Molecules**

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Recently we have developed an efficient method for the preparation of stable phosphonium sila-ylides 1, the heavier analogues of Wittig Reagents. Even though these compounds can be involved in sila-Wittig type reactions with aldehydes, they are best represented as phosphine-stabilized silvlene complexes 1b. Indeed, they behave mainly as strong nucleophilic silylenoid derivatives reacting with a large variety of unsaturated compounds via a first [2+1] cycloaddition reaction leading to the corresponding hypervalent silyl-cycloadducts. Interestingly, these new class of derivatives have been involved in some important reactions such as the nonmetal mediated reduction of CO₂, and the catalyst-free hydrosilylation of olefins in mild conditions.



References:

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Dr. J. Antoine BACEIREDO Director of Research Exceptional Class – CNRS

J. Antoine Baceiredo was born in Cambre (Spain). He obtained his PhD at the University of Toulouse, in 1982, where he worked under the direction of Professor Guy Bertrand. In 1985 he joined the University of Southern California (Los Angeles) in the group of Professor W. P. Weber for a post-doc. In 1992 he was promoted to the rank of Directeur de Recherche CNRS at the Laboratoire de Chimie de Coordination (LCC) in Toulouse where he remained until 1999. In that year he joined the Laboratoire Heterochimie Fondamenatle et Appliquée (LHFA) where he has his research group. Currently he is the Director of the Institut de Chimie de Toulouse, and member of the Scientific Board of the CNRS. In 2011, he was awarded with the prize of the French Chemical Society, Organic Division.

*<u>Expertise</u>:

- -Main group elements chemistry (P, Si, B,...)
- -Electron deficient species (carbenes, cations,...)
- -New mixed bis-ylide systems as asymmetric carbon atom sources,
- -Development of new inorganic ylides such as phosphonium sila-ylides
- -Silicon polymers

*Scientific Production:

- -160 publications (3 Science, 29 J. Am. Chem. Soc., 32 Angew. Chem.,...)
- -14 patents 65 invited lectures Supervisor of 28 PhD Thesis and 31 Post-Docs