




CiQUS Lecture



Prof. Vincent Gandon
Calcium in Organic Synthesis

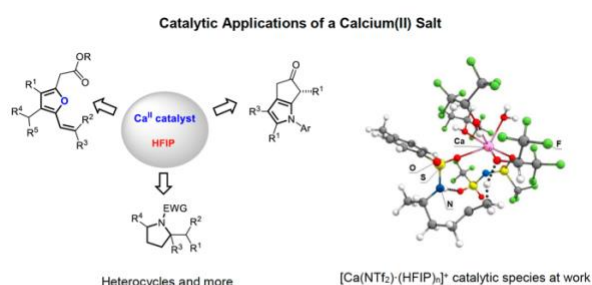
FONDO EUROPEO DE DESENVOLVIMENTO REGIONAL
PO FEDER Galicia 2014-202 - *Unha maneira de facer Europa*

Friday, July 14, 2023
09:30 am - CiQUS Seminar Room

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Abstract:

Over the past 8 years, our group has developed a variety of calcium-catalyzed transformations that lead to useful building blocks in a straightforward manner. In particular, oxygen- and nitrogen-based heterocycles can be rapidly constructed by condensation reactions relying on σ C(sp³)-O bond activation, or cycloisomerization reactions triggered by C-C π -bond activation. These σ - and π -activations can be achieved in the presence of a catalytic amount of the calcium ion [Ca(NTf₂)]⁺, which confers high levels of chemo-, regio-, and stereoselectivity. Hexafluoroisopropanol (HFIP) is often used as solvent or co-solvent. This presentation will summarize our findings in the development of novel synthetic methodologies based on calcium catalysis and discuss their mechanism.



Key References:

ACS Catal. 2018, 8, 1734; Angew. Chem. Int. Ed. 2018, 57, 14245; Angew. Chem. Int. Ed. 2020, 59, 1134; ACS Catal. 2020, 10, 10794; Angew. Chem. Int. Ed. 2021, 60, 946.

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Biosketch:

Vincent Gandon received his Ph.D. in 2002 from the University of Reims Champagne Ardennes (group of Prof. Jan Szymoniak). After a postdoctoral stay at the University of California, Riverside, in the group of Prof. Guy Bertrand, he joined the faculty of the Pierre et Marie Curie University in Paris in 2003, as Assistant Professor, in the laboratory of Prof. Max Malacria. In 2009, he was appointed full Professor at the Paris-Saclay University with a research excellence chair.

He is co-author of more than 230 publications

In 2013, he received the Jean Normant award of the Organic Chemistry Division of the French Chemical Society. He was elected junior distinguished member of the French Chemical Society in 2015. In 2018, he received the Jean-Marie Lehn prize of the Organic Chemistry Division of the French Chemical Society.

Main research interest: our group focuses on the development of synthetic methodologies based on homogeneous catalysis. One aspect of our work aims at circumventing the limitations of late transition metal catalysis by devising new activation protocols that allow to control the decomposition of the complex and therefore significantly diminish its loading. The second aspect is to replace noble metals by more abundant elements from the first row transition metal series, or by main group metals.

Keywords: Calcium Catalysis, Lithium Catalysis, Gallium Catalysis, Gold Catalysis