

Invitation à la soutenance publique de thèse

Pour l'obtention du grade de Docteur en Sciences

Monsieur Arnaud BOREUX

Master en sciences chimiques à finalité approfondie

Synthesis and Functionalization of Allenes and Enones Catalyzed by Gold and Copper Complexes

During the last decades, transition metal catalysis has become an essential tool in organic synthesis. Each year, thousands of publications report the development of new reactions mediated by metal complexes. This manuscript depicts our contribution to this field.

The first chapter presents a general comparison of the reactivity of coinage metals (Cu, Ag, Au) complexes in catalysis, with a special focus on their ability to perform electrophilic activation (Au) or nucleophilic transfer (Cu) reactions. Representative examples are given to illustrate these concepts.

In the second part of the manuscript, the synthesis of trifluoromethylated allenes and enones by gold(I) catalysis is reported. A general method for the preparation of CF₃-allenes has been developed based on a gold(I)-mediated 1,5-hydride shift. The scope and limitations of the method, as well as some subsequent transformations of the products are described.

Using similar substrates, a gold(I)-catalyzed [3,3]-acetate rearrangement was applied to the preparation of CF₃-enones. The employment of this method into a one-pot procedure involving a subsequent Diels-Alder reaction is also reported.

The third part focuses on the copper(I)-catalyzed borofunctionalization of allenes. The recent reports from the literature are reviewed, and our contributions to this area of research are described through the study of a new copper(I)-catalyzed allene boroacylation.

Finally, preliminary results on the elaboration of a copper(I)/gold(I) catalytic one-pot process are presented.

Jeudi 26 octobre 2017 à 16h00

Auditoire LAVO 51
Bâtiment Lavoisier
Place Louis Pasteur, 1
1348 Louvain-la-Neuve



Membres du jury :

Prof. Olivier Riant (UCL), promoteur
 Prof. Fabien Gagosz (Université Paris-Saclay, France), promoteur
 Prof. Yann Garcia (UCL), président
 Prof. Sophie Hermans (UCL), secrétaire
 Prof. Alexandre Alexakis (Université de Genève, Suisse)
 Dr. Raphaël Dumeunier (Syngenta, Suisse)
 Prof. Bastien Nay (Université Paris-Saclay, France)