

# Invitation à la soutenance publique de thèse

Pour l'obtention du grade de Docteur en Sciences

**Monsieur Corentin RASSON**

Master en sciences chimiques

## Copper (I) Complexes: Design, Synthesis, Application and Development of a Copper-Catalyzed Coupling Reaction

The development of new catalytic methods as well as the identification of catalytic active species and reaction intermediates have been an area of intense research in the past decades. Our interest in this topic lead us to the establishment of this thesis.

The first objective was to develop a synthesis for the obtention of bench-stable well-defined copper(I) diphosphine bifluoride complexes. We were able to synthesize a wide library of complexes using achiral and chiral diphosphine ligands and use them as preactivated copper catalyst in various copper-catalyzed 1,2 and 1,4-addition reactions. We also used them for the identification of a copper-hydride species that was previously mistakenly identified in the literature.

In the second chapter we developed a one-pot copper-catalyzed domino borylation/aldolisation/elimination reaction leading to the formation of Morita-Baylis-Hillman (MBH) adducts. The optimization and study of the scope for this reaction lead us to the synthesis of a wide range of MBH adducts derived from aldehydes. The application of this method to ketones allowed us to access previously unattainable structures via the classical MBH reaction. We also demonstrate the applicability of this process to aldimines and acylsilanes to yield respectively aza-MBH adducts and quaternary  $\alpha$ -hydroxysilanes.

**Vendredi 20 avril 2018**  
à 16h00

Auditoire LAVO51  
Place Louis Pasteur, 1  
1348 Louvain-la-Neuve



### Membres du jury:

Prof. Olivier Riant (UCL), supervisor  
 Prof. Jean-François Gohy (UCL), chairperson  
 Prof. Benjamin Elias (UCL), secretary  
 Prof. Tom Leyssens (UCL)  
 Prof. Gwilherm Evano (ULB, Belgium)  
 Prof. Mariola Tortosa (Universidad Autónoma de Madrid, Spain)