

# DOCTORAL SCHOOL "MATERIALS, RADIATION AND ENVIRONMENTAL SCIENCES" (ED 104)

UNIVERSITY: LILLE , Faculty of Sciences and Technologies

Scientific field: Organic Chemistry, catalysis

Title of the thesis: **New methodological developments in organic photocatalysis. Application to the synthesis of natural and/or biologically active compounds.**

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Co-supervisor: Bousquet, Till, Assistant Professor, till.bousquet@univ-lille.fr

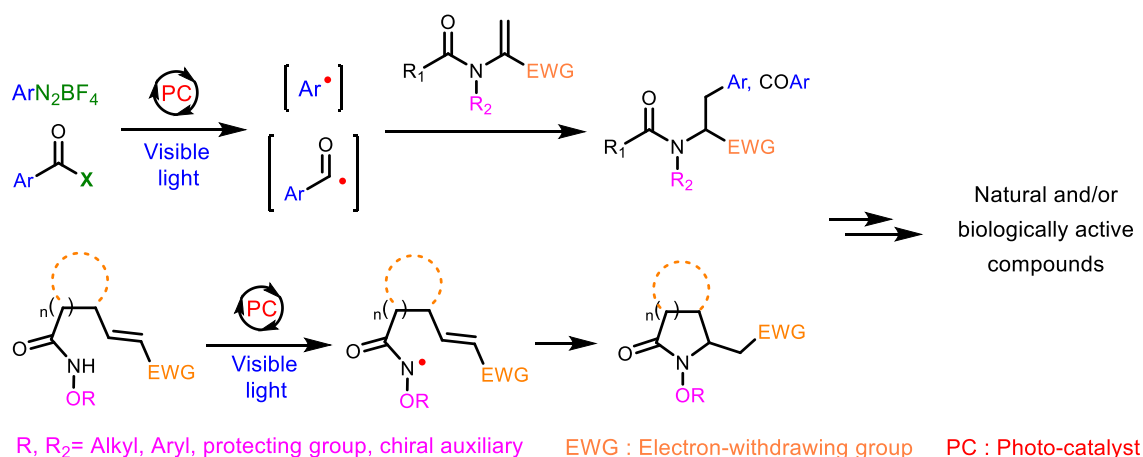
Laboratory: UCCS

Related research project (international/national/regional): U Lille

Expected/obtained funding:

## ABSTRACT

In the frame of this PhD, we propose to combine organic catalysis and photochemistry with the aim of developing a "green" radical chemistry applicable to many fields of activity such as the synthesis of biologically active molecules or the elaboration of new materials. In collaboration with L. Pelinski and T. Bousquet who have a recognized expertise in photocatalysis, we plan to generate aryl, aroyl or aminyl radicals from diazonium salts, carbonyl derivatives or *N*-acylhydroxylamines in the presence of an organic photocatalyst (Acridinium, Eosin Y....) activated by visible light (>380 nm). These radicals will then be engaged in various radical additions reactions (regio- and stereoselective) inter- or intramolecular on activated alkenes. This reaction sequence should allow us to quickly and efficiently access a wide range of highly and diversely functionalized amides or lactams. Preliminary results obtained in the laboratory on enamides and not published yet support the feasibility of this strategy. As a culmination, this new methodology will be valorized through the synthesis of natural products and/or molecules of pharmacological interest.



Planned recruitment date : October 2021

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Additional remarks/comments :