

## ITI HiFunMat Master Internship Proposal

M 1

M 2

Exploration of novel pathway for the synthesis of trifluoromethyldiazirine derivatives for photoaffinity labelling in target- and binding-site identification

### Internship supervisor

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Laboratory	LIMA
Collaboration with a HiFunMat member ( <i>please indicate their name</i> )	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes :

### Student profile looked for

Master program ( <i>more than one box can be ticked</i> )	<input type="checkbox"/> Material science and engineering <input checked="" type="checkbox"/> Chemistry <input type="checkbox"/> Physics
Other indications if necessary	

### Internship description

Photoaffinity labelling is one of the methods used to study the interactions between low molecular weight biological substrate compounds with their biomolecular targets or receptors. The trifluoromethyldiazirine moiety is one of the most used and preferred photoactivatable crosslinking groups due to its favorable physicochemical properties, improved chemical and thermal stability in the dark, short UV irradiation time to generate the reactive carbene intermediate in high yields, predictable carbene insertion reactivity, and the ability to be activated at a wavelength benign for biomolecules.

Although various protocols have been developed to introduce trifluoromethyldiazirine functionality into organic compounds, these methods suffer from time consuming route, use of volatile, and toxic reagents and maintenance of low temperature for prolonged period.

In this internship, we will explore novel synthetic pathway based on photoinduced methods to introduce trifluoromethyldiazirine into complex bioactive molecules.