



INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS

INTERNSHIP SUBJECT FORM

Name of the Host Laboratory	Laboratoire de Chimie Moléculaire
Website of the Host Laboratory	https://portail.polytechnique.edu/lcm/fr
Research Group	Danoun Group
Internship Supervisor	Grégory Danoun (gregory.danoun@polytechnique.edu)
Internship Subject	Original Cross-Coupling of Biosourced Chemicals
Student's level	<input checked="" type="checkbox"/> Advanced Undergraduate Students (3 rd or 4 th year) <input checked="" type="checkbox"/> Master's students (1 st or 2 nd year) <input checked="" type="checkbox"/> PhD students
Proposed Duration	<input checked="" type="checkbox"/> 3 months <input checked="" type="checkbox"/> 4 months <input checked="" type="checkbox"/> 5 months <input checked="" type="checkbox"/> 6 months
Prerequisites	Interested in organic chemistry and catalysis
Internship description (max. 15 lines)	<p>Our civilisation has been built on the use of fuel and non-renewable sources and we have become reliant on these. However, these resources are approaching scarceness in the near future. An important issue for society today is the search for alternative, eco-compatible and renewable sources, requiring major efforts from the scientific community. Organic chemistry and catalysis are also dependent upon these non-renewable feedstocks because coupling reactions often involve halogenated derivatives that are prepared from fossil-based resources using hazardous reagents; alternative processes comprising of chemical derivatives from biomass feedstocks are therefore required. The proposed internship aims to develop original cross-coupling reactions from abundant and biosourced carboxylic acid, amide, amine and alcohol derivatives as coupling partners. The use of known and original redox-active platforms is proposed to trigger the key single-electron transfer which will be conducted by photo-redox catalysts or reductive divalent lanthanides.</p>