



Master 2 Research Fellow at LRCS, Amiens, FRANCE Synthesis of macromolecules for Organic Batteries	
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Deadline for application	December 10 th , 2022
Date of start of the Project	February 1 st , 2023
Description of the Topic	<p>Over the last decade, Li-ion batteries caught a lot of attention from the public especially due to the increased of portative and connected devices. The rapid development of secondary battery came with the risk of supply for inorganic raw materials. Organic materials and organic chemistry are good alternatives for making organic electrode for batteries for few reasons: (i) they are cheap and low-cost energy to produce; (ii) Organic chemistry offer a wide range of versatile reaction to produce the desired organic materials. Despite this tremendous advantage, Organic materials are facing few issues like solubility in electrolyte and low conductivity inducing the use of a large part of black Carbone in the electrode. The synthesis of macromolecular scaffolds holding electroactive functions can be an answer to overcome those drawbacks.</p> <p>The objective of the master thesis will be to follow each step in this highly innovative project from synthesis to the final battery characterization. The Master student will be in charge of studying and fully characterize the new organic macromolecules as electroactive materials for energy storage.</p> <p>For this project, the master student should have good knowledge in organic chemistry (polymer synthesis would be a plus) and electrochemistry. Applicant should show strong motivation and good ability to communicate results clearly and succinctly. Working as team member and independently will be required. good level in English (written and spoken).</p>
Techniques to be used	<p>The new organic materials will be characterized in-depth by NMR, MS and TG-DCS and X-ray scattering.</p> <p>The electrochemistry will be performed with Cyclic voltammetry and Galvanostatic cycling to evaluate the ability of the materials to be used as reversible electrochemical redox compound vs Li/Li+.</p>
Skills of the Applicant	The student has to be in Master II in organic chemistry or organic materials chemistry and should show a strong motivation.
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List of documents to provide	CV + motivation letter + list of references Marks and ranking during your master degree