

## PhD topic in:

### *Polymer-based solid-state lithium battery*

#### **General context**

The biggest challenges to the global success of electric vehicles are safety, energy density and cost of battery technologies. Solid polymer electrolytes and lithium metal anode address these challenges by replacing flammable and unstable liquid electrolytes and enabling dendrite-free cycling of high-energy lithium metal cells manufactured by sustainable and cost-effective processes. Within the framework of the PSIONIC project (Horizon Europe), involving international companies and academic laboratories specialized in energy storage, this PhD project aims at improving the technology of fully solid-state batteries by integrating new POE-based polymer electrolytes into a complete battery and optimizing its performance.

#### **Objective of the PhD project**

In this context, we are looking for a highly motivated candidate for a thesis dedicated to the characterization of polymer electrolytes with a view to integrating them into complete systems. The thesis project consists of two parts: the synthesis and characterization (notably electrochemical but also thermal, mechanical...) of ionic conducting polymers, and the formulation and electrochemical testing of composite electrodes obtained by extrusion.

#### **Skills of the applicant**

For this project, you should have a strong experience in polymer characterization and electrochemistry. Prior experience in polymer electrolyte engineering, electrode formulation and cell assembly would be highly beneficial. You should also be able to communicate results clearly and succinctly, and work as a team member and independently. An excellent level in English (written and spoken) is requested.

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**List of documents to provide:** Detailed CV, motivation letter specific to this project, names and contact details of 2 references persons (ideally from 2 different institutions).

**Deadline for application Offer:** open until end of July.

**Date of start of the Project:** October 1<sup>st</sup> 2022. The position is for 3 years

For more information about the hosting laboratory: <https://www.lrcs.u-picardie.fr/>