

PROJECT DETAILS

Project Title

Development of ion selective membranes to be used in membrane based direct lithium extraction (DLE)

Project Summary: aims, significance, expected outcomes and potential research impact.

Using quantum mechanics and advanced computational chemistry, this project aims to design functional materials for use as the building blocks/adsorbents of lithium-selective membranes. The membranes, after scaling up, will be used in the ECU-DLE facility at School of Engineering (SENG). This project holds significance as the project will build research capability in advanced membrane manufacturing that will enable the adaptation of DLE technology to Australian deposits and resources, facilitating sustainable extraction, and refining of the critical minerals. The anticipated outcome of this project is to create a new generation of membranes and their fabrication methods.

Preferred applicant skill set, describe the capabilities of the HDR applicant.

We are looking for a highly self-motivated PhD candidate with a background in chemical, materials engineering, or related disciplines. Preferred candidates will possess strong materials synthesis skills and should be familiar with a variety of characterization techniques, including X-ray diffraction and electron microscopy, and spectroscopy techniques using Inductively Coupled Plasma (ICP), Fourier-Transform Infrared (FTIR), among others. Preferred candidates must have the ability to operate independently and demonstrate a strong willingness to collaborate. Preferred candidates are expected to participate in interdisciplinary studies and demonstrate an outstanding analytical mindset, along with excellent communication skills in English, both written and spoken.

Internship opportunity

The selected candidates will have opportunities to work with ECU lithium affiliated industry partners. This will be facilitated through Associate Professor Amir Razmjou's network and secured industry funds.

Contact person for the project:

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