

Exciting [Faraday Undergraduate Summer Experience \(FUSE\)](#) paid internship opportunities for summer 2023

Studying a STEM degree? Wondering what career to pursue? Interested in finding out more about the battery sector? Keen to spend time with a dynamic community of pioneering battery researchers seeking to find solutions to support a fully electric future?

The Faraday Institution is offering a total of 55 internships, for undergraduate students to spend 8-weeks working on battery related projects.

Project title

Thin film Ni-rich cathode material for Li metal battery

Project description

Currently Ni rich layered cathode material is the optimum choice for rechargeable Li-ion batteries. The higher capacity with increased Ni content comes at the cost of increased reactivity with conventionally used electrolytes and surface phase changes (reconstruction) over repeated cycling. The polycrystalline nature of cathode particles creates a challenge in structural characterisation and investigate its role in overall degradation of battery performance.

In this project we propose to develop thin films Ni rich cathode material using DC sputtering technique. Thin film deposition comes with the advantage that crystallographic orientation can be controlled by using differently oriented (100/110/111) substrate. The optimised thin films will be primarily characterised using thin film X-ray diffraction. The thin films will be made into pouch cells for electrochemical characterisation. The structural and electrochemical characteristic of different thin films will be weighed up against polycrystalline cathode material. After electrochemical cycling the surface of thin films will be characterised using thin film X-ray diffraction and other techniques.

Supervisor Dr Farheen N. Sayed, in the group of Prof Dame Clare Grey

University University of Cambridge

Location In-person, in Cambridge

Start date The internship is a full-time role for eight weeks during June – September 2023

Eligibility

- Be registered full-time undergraduate student from a UK university.
- Undertake the internship within the years of their undergraduate study (i.e., not in final year or during a subsequent Masters' programme).
- Not have been a FUSE intern in a previous year

Funding

A salary of £10.90/ hour across the UK or £11.95 / hour in London will be provided. This will be determined by the working address of the appointee, not the university's location. The funding is provided by the [Faraday Institution](#).

Additional activities

During the FUSE internship you will be able to attend Faraday Institution cohort events which will focus on a variety of topics to further develop your understanding of career opportunities in battery sector. At the end of the programme, you will be invited to share a poster about your work and prizes will be awarded.

Application

To apply, please complete this [survey](#) by 23.59 on 17 April 2023.

For project information, please visit <https://faraday.ac.uk/research/lithium-ion/extending-battery-life/>

Diversity

The Faraday Institution is committed to creating a dynamic and diverse pool of talent for the fields of battery technology and energy storage.

The University of Cambridge is committed in its pursuit of academic excellence to equality of opportunity and to a pro-active and inclusive approach to equality, which supports and encourages all under-represented groups, promotes an inclusive culture, and values diversity.