

## 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

Surface electrochemistry methods for a safer lithium-ion battery: understanding and preventing short circuits

### Project description

Lithium-ion batteries' safety and the possibility of fast charging are mainly limited by lithium plating on the graphite anode.

The proposed project aims to understand lithium metal plating and to realise more sustainable batteries with higher energy density and improved safety than the current lithium-ion batteries. A deeper understanding of lithium metal plating on a foreign substrate (e.g., lithium on the copper current collector, graphite anode) is needed to minimise dendrite-related safety issues. The charge and mass transfer across the metal-electrolyte interface dominate the electrodeposition mechanism; thus, in-situ measurement of the mass evolution of the metal, substrate and their interface will enable the comparison of electrolytes and charging procedures.

Electrochemical quartz crystal microbalance and Impedance Spectroscopy will be used for studying the early stages of plating via the measurement of the accumulated weight of the plated metal and electrochemical reactions on the interface (i.e., corrosion and passivation).

**Supervisor** Dr Svetlana Menkin, 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.