

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

The effect of interface reactions on lithium plating in “anode-free” batteries

Project description

“Anode-free” batteries are composed of a lithium-ion cathode and a copper current collector, the cathode comprising the lithium source. Anode-free batteries present a significant advantage due to their substantially higher energy density and ease of production. However, issues involving low efficiencies and rapid degradation remain to be solved.

The intern will join an ongoing collaborative project developing copper surface treatments, coatings, and electrolytes to realise anode-free batteries.

This project will study the effect of copper surface chemistry on anode-free batteries’ efficiency and longevity. A series of copper surface treatments and electrolytes will be characterised using battery cycling and impedance spectroscopy. The plated lithium will be studied by scanning electron microscopy, solid-state nuclear magnetic resonance (NMR), and dynamic nuclear polarization (DNP) to identify lithium morphologies and chemical species deposited on the surface of lithium. DNP is a state-of-the-art technique that allows increasing the NMR signal by several orders of magnitude to enable the detection of chemical species present in electrode-electrolyte interphases.

Supervisor Dr Svetlana Menkin and Dr Marie Juramy, 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.