Exciting Faraday Undergraduate Summer Experience (FUSE) paid internship opportunities for summer 2025.

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 48 internships, for undergraduate students working on battery related projects.

The Advanced Propulsion Lab at UCL based in UCL's new Marshgate building will host three FUSE internships this year with this project being related to the LiSTAR programme.

Project title: Exploring the safety profile of lithium sulfur batteries

Project description:
Lithium sulfur batteries are widely considered to be a promising next generation chemistry offering benefits in gravimetric energy density and material sustainability compared to Li-ion batteries. It is often asserted that the safety of the technology is inherently higher due to the conversion mechanism and self-passivating nature under nail penetration testing. These assertions however do not consider broader thermal failure modes, including combustion and the reactivity of electrolyte additives with the electrodes which may result in hazardous conditions upon catastrophic failure.

The FUSE student will work alongside PDRAs at the Advanced Propulsion Lab to establish a systematic approach to explore the safety profile of the Li-S cell chemistry. This will require the student to manufacture cells with specific electrode and electrolyte formulations and subject them to thermal and mechanical abuse scenarios to identify characteristic failure metrics including failure onset temperatures, peak temperatures and the total heat released during failure. Following this the student will undertake a range of post-mortem characterisation of the cells to identify potential hazards which may result from the cells failure.

By conducting this systematic study, the student will identify key aggravating components in the failure of Li-S cells supporting the development of this next generation technology.

During this project you will gain experience:

- Practical experience manufacturing Li-S electrodes and experience in working in a dry room.
- Expertise in conducting battery failure experiments including nail penetration, thermal failure and accelerated rate calorimetry.
- Establishing aggravating factors in the failure of Li-S cells, highlighting opportunities for future cell development

Supervisor: Huw Parks, Hamish Reid and James Robinson

University: University College London

Location: In-person at the Advanced Propulsion Lab, Marshgate, London E20 2AE

Start date: The internship is a full-time (36.5 hours per week) role for 7 weeks during June – September 2025. Start date is flexible, to be agreed with the project lead.

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 £12.60/ hour across the UK or £13.85 / 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.
You will be paid via the UCL recruitment agency UniTemps.

Additional activities:

During the FUSE internship you will be expected 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 to share a poster about your work and prizes will be awarded.

Application:

In order to apply for a Faraday Undergraduate Summer Experience (FUSE) 2025 internship, you need to send your CV to James Robinson (j.b.robinson@ucl.ac.uk) with 'FUSE – LiSTAR' as the subject and fill in the survey found here: https://forms.office.com/e/4wHFy4kJLN. The deadline for applications is April 25th, 2025.

Diversity:

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

As London's Global University, we know diversity fosters creativity and innovation, and we want our community to represent the diversity of the world's talent. We are committed to equality of opportunity, to being fair and inclusive, and to being a place where we all belong. We therefore particularly encourage applications from candidates who are likely to be underrepresented in UCL's workforce.

You can read more about our commitment to Equality, Diversity and Inclusion here : https://www.ucl.ac.uk/equality-diversity-inclusion/