

**Exciting** [**Faraday Undergraduate Summer Experience (FUSE)**](https://www.faraday.ac.uk/fuse-internships-2023/) **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 Bruce Group will be hosting a Faraday Undergraduate Summer Experience intern at our labs in Oxford this summer.

**Project title:** Quantification of lithium losses in anodeless solid-state batteries

**Project description:**

Solid-state batteries (SSBs) using a Li anode and an inorganic solid electrolyte are the subject of intense research interest as they promise to improve both the safety and energy density of batteries. However, SSBs that use a Li foil anode are less energy dense and more expensive than the alternative of forming the Li anode *in situ* during the first charge of the battery. This is commonly referred to as an “anodeless” SSB.

A key challenge of anodeless SSBs is that Li inventory is lost to side reactions with the solid electrolyte, or becomes inactive ‘dead Li’, cut off from the ionic or electronic circuit of the cell. This results in capacity fade of the battery. In this project, Li losses will be quantified using mass-spectrometry techniques. Having achieved this, modifications to the solid electrolyte/current collector interface will be made to reduce Li losses and improve anodeless SSB performance.

**Supervisors:** Prof Sir Peter Bruce and Dr Dominic Spencer-Jolly

**University:** University of Oxford

**Start date:** The internship is a full-time role for 8 weeks during June – September 2022

**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 £11.95/ hour will be provided. The funding is provided by the [Faraday Institution](https://www.faraday.ac.uk/).

**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:**

In order to apply for a Faraday Undergraduate Summer Experience (FUSE) 2023 internship, please send PDFs of (i) your CV and (ii) a short statement as to why you’d like to undertake this internship (max. 300 words) to Dr Paul Adamson ([paul.adamson@materials.ox.ac.uk](mailto:paul.adamson@materials.ox.ac.uk)) and Dr Dominic Spencer-Jolly ([dominic.spencerjolly@materials.ox.ac.uk](mailto:dominic.spencerjolly@materials.ox.ac.uk)) before 28/04/2023 at 18:00.

**Diversity**

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

[University of Oxford’s Equality Policy](https://edu.admin.ox.ac.uk/equality-policy#:~:text=University%20of%20Oxford's%20Equality%20Policy,staff%20and%20students%20are%20respected.)