**Exciting** [**Faraday Undergraduate Summer Experience (FUSE)**](https://www.faraday.ac.uk/fuse-2022/) **paid internship opportunities for summer 2022.**

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 56 internships, for undergraduate students to spend 8 weeks working on battery related projects.

**Project title:**

Using molecular dynamics to probe solvent-salt reactions within li-ion battery thermal runaway

**Project description:**

* Ongoing work sets to develop a micro-kinetic model of the chemical reactions taking place during thermal runaway of Li-ion batteries (LIB). This is to enhance the predicative capabilities of TR models by being based on fundamental chemical theory.
* The aim of this work will be to develop the micro-kinetic model of the reactions between the LIB electrolyte and salts during thermal decomposition. The theoretical reactions of salt decomposition and interaction with solvents is first sort. From this theoretical reaction network, molecular dynamic simulations can be used to determine the reaction kinetics of each step to build the micro-kinetic model.

The incorporation of this work into the existing solvent model will allow the prediction of the catalytic effect of salt on solvent decomposition, and of the predication of toxic fluorinated species.

**Supervisor:** Prof. Solomon Brown

**University:** The University of Sheffield

**Location:** Optional (In-person/ online/hybrid)

**Start date:** The internship is a full-time role for 8 weeks [enter start /finish dates if fixed or during June – September 2022 if flexible].

**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 £9.90 / hour across the UK or £11.05 / 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](https://www.faraday.ac.uk/). *[Please amend if university has an agreed rate across all its internship programmes that is being matched – see grant letter for more details]*

**Additional activities:**

During the FUSE internship you will be able to attend Faraday Masterclasses and 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) 2022 internship, you need to:

* Have an interest in programming and modelling is beneficial as the work requires it, however past experience is not needed.
* Background in Chemistry, Chemical Engineering, Physics or similar discipline ideal.
* Application deadline xyz

**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 Sheffield “[Equality, Diversity and Inclusion Policy for students](https://www.sheffield.ac.uk/study/policies/equality-and-diversity-policy)” for ensuring that all prospective and current students are treated equally:

1. General statement

1.1 The University of Sheffield is committed to equality of opportunity and to fostering good relations, for students and prospective students.

It is the University's policy to treat all students with dignity and respect, irrespective of protected characteristics, as defined by the Equality Act 2010. The University aims to enact this in all its functions:

* Access and recruitment.
* Admissions and retention.
* Assessments and progression.
* Provision of student services and related facilities.
* Teaching, learning, examining, curriculum development and quality assurance.
* Research.
* Community links and partnerships.

1.2 The aim of the policy is to ensure that all students and prospective students are treated equally, irrespective of race, colour, nationality, ethnic origin, sex, gender reassignment, sexual orientation, marital (including civil partnerships) or parental status, pregnancy and maternity, age, disability, religion and belief or socio-economic class or spent criminal convictions.

1.3 The University's Equality, Diversity and Inclusion Policy for students is augmented by specific policies on personal harassment and the support of students with disabilities.

It reflects and complements the University's Equality and Diversity Policy and Code of Practice for Staff. It operates within the context of relevant equalities legislation.

2. Statement of commitment

2.1 Students will:

* respect the University's Equality, Diversity and Inclusion Policy in their dealings with members of the University community
* behave in a way that reflects and appreciates the diversity of the University community

The University is committed to a continuing programme of action to make these policies effective. Breaches of this policy by students or staff will be fairly investigated and appropriate action will be taken.

All disciplinary procedures will be fair, consistent and monitored.

2.2 Complaints, disciplinary and appeals procedure

Any student who alleges that they have been the subject of discrimination or harassment has recourse to the University's harassment or complaints procedures for students. Advice may be obtained from Student Support Services.

[See our complaints and appeals procedures](https://www.sheffield.ac.uk/study/policies/appeals-complaints-current-students)

2.3 Monitoring, assessment and review

The University will monitor, assess and review the effectiveness of the Equality, Diversity and Inclusion Policy and the impact of all other relevant policies and practices on students. The University Council will approve any revisions to the policy.

All of the University's functions relating to student equality, diversity and inclusion will continue to be monitored and reviewed. This work is overseen by the University Equality, Diversity and Inclusion Committee.