

**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:** Adding a drive cycle library to the Faraday Institution Multiscale Modelling Framework

**Project description:**

PyBaMM (Python Battery Mathematical Modelling) is a flexible framework developed by Faraday researchers in the Multiscale Modelling project, which aims to enable modellers to add new models with a minimum of coding and to build up a library of battery models. PyBaMM includes the ability to simulate experiments on a cell, but it would be useful to be able to test a cell against a particular drive cycle, which defines how the cell is used in a series of steps. The drive cycle therefore defines a sequence of operation of the battery and this can impact how the battery behaves and degrades. There are a number of drive cycle standards used in both academia and industry, but the challenge is defining them in a consistent manner and making them compatible with PyBaMM. This project is for a student to develop a standard way to represent drive cycles and how to convert their units, research which drive cycle standards are in use and code them up, so as to develop a library of drive cycles in PyBaMM.

Learning objectives include:

* Understanding of how batteries are used in a range of applications
* Learning how to use PyBaMM
* Review of drive cycles currently in use to test batteries
* Development of a drive cycle standard

**Supervisor:** Dan Brett

**University:** University College London

**Location:** *In person with remote (home) working possible*

**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 £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/).

**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, please send a short cover letter and CV to Professor Dan Brett d.brett@ucl.ac.uk by May 6th 2022 with ‘MSM FUSE Application’ in the subject bar.

**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 Chemical Engineering Department is committed to an inclusive and supportive culture for all. In recruiting, we welcome the unique contributions that everyone can bring in terms of their education, opinions, culture, ethnicity, race, sex, gender identity and expression, nation of origin, age, languages spoken, religion, disability, sexual orientation and beliefs. We continually strive to have the systems in place to ensure that all members of the Department have equal access to opportunities, reach their full potential and maintain a work-life balance.