THE FARADAY INSTITUTION Modelling
MULTI-SCALE MODELLING

Exciting PhD opportunity with the [Faraday Institution](#).

Looking for a battery related career that contributes to creating a sustainable future? Keen to join a dynamic community of pioneering battery researchers seeking to find solutions to support a fully electric future?

The Faraday Institution Cluster PhD researchers receive an enhanced stipend over and above the standard EPSRC offer. The total annual stipend is approximately £20,000 (plus London weighting) plus an additional training package worth £7,000. Recipients will have access to multiple networking opportunities, industry visits, mentorship, internships, as well as quality experiences that will further develop knowledge, skills, and aspirations. [Read more](#).

Take a look at the bespoke [training programme](#) on offer.

Project: Cell designs and testing methods for battery parameterisation

This 4 year PhD project is based in the school of Metallurgy and Materials at the University of Birmingham. It is aimed at developing new and novel methodologies for the parameterisation of interfaces and ageing of cells in conjunction with the National Physical Laboratory (NPL). Very little is known about the electrochemistry of the interfaces in a battery, particular the thermodynamics and kinetics of the formation and growth of these interfaces during the manufacturing processes, or during the ageing processes. This project aims to develop monitoring and analytical tools for the interface formation and growth in a battery. This information would provide parameterisation details to ageing models that will be developed as part of the Faraday Institution - Multi-scale modelling project, and has a direct impact for predictive models and industrial application.

This project is multi-disciplinary with a focus upon electrochemistry and electrochemical techniques for analysis of electrodes and cells. Further characterisation will using a suite of microscopy, electrochemical and materials characterisation tools. This PhD project will suit someone who has an enthusiasm and drive for research and is interested in electrochemistry, battery and energy storage technologies. Some electrochemical testing, 3- electrode and cell characterisation experience would be useful but not essential as training and guidance in these techniques will be given.

Eligibility:

Applications are welcome from home and international students (although places for international students are limited. Please see [UKRI guidance](#) for more details). The candidate will have or expect at least a II(i) Undergraduate honours degree or Masters degree (or equivalent) in Materials Science, Chemistry, Physics or related discipline. A background in electrochemistry or materials would be advantageous.

Application:

In order to apply for a Faraday Institution PhD position, you need to do <u>both</u> of the following:

1. Informal inquiries may be made to Prof Emma Kendrick (e.kendrick@bham.ac.uk) Applications must be made through the university's on-line application system [https://www.birmingham.ac.uk/schools/metallurgy-materials/phd/apply.aspx], please provide a cover letter summarising your research interests and suitability for the position;

the contact details of two people able to provide a letter of reference; and a full curriculum vitae. Please also send a copy of your full application to Prof Kendrick directly.

2. Complete a Faraday Institution expression of interest form
https://www.surveymonkey.co.uk/r/2K76M6V

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 Birmingham is *committed to creating and maintaining an inclusive learning and working environment where discrimination is not tolerated, where all members of the University can flourish and reach their full potential; where we engage with and learn from our community and where we affect positive change within the University, our city and wider society. We see this as integral to our mission and vision as a global university.*