



THE FARADAY
INSTITUTION

CATMAT

NEXT GENERATION LI-ION CATHODE MATERIALS

Exciting [Faraday Undergraduate Summer Experience \(FUSE\)](#) paid internship opportunities for summer 2024.

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

Project title: High energy density Li-rich spinel cathodes

Project description: Next generation cathode materials are critical to increasing the energy density of Li-ion batteries. In efforts to boost the amount of lithium and electrons that cathode materials can store, Li-rich compositions with a Li:TM > 1 are being explored. Examples of Li-rich cathodes being investigated include $\text{Li}_{1.2}\text{Ni}_{0.2}\text{Mn}_{0.6}\text{O}_2$, which exhibits a layered structure, and $\text{Li}_{1.2}\text{Ti}_{0.4}\text{Mn}_{0.4}\text{O}_2$, with a disordered rocksalt structure both of which are promising candidates for next generation Li-ion batteries. This project aims to investigate a new class of Li-rich materials – Li-rich spinels. Spinel cathodes typically exhibit very fast ion diffusion by virtue of the 3-dimensional network of Li pathways. The project will involve synthesis and characterization of new cathode compounds to explore part of this phase space and cell testing to examine the electrochemical performance of these cathodes.

Supervisor: Dr Robert House

University: University of Oxford

Location: In person

Start date: The internship is a full-time role for 8 weeks between June-September 2024.

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 £12.00/ hour will be provided.

The funding is provided by the [Faraday Institution](#).

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 to share a poster about your work and prizes will be awarded.



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Application:

In order to apply for a Faraday Undergraduate Summer Experience (FUSE) 2024 internship, you will need to submit a 1-page CV and 400 word covering letter explaining why you are interested in this research project. Please send this to robert.house@materials.ox.ac.uk by **12pm** on **30th April 2024**. Interviews will be held in the week beginning 6th May 2024.

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 Oxford is committed to fostering an inclusive culture which promotes equality, values diversity and maintains a working, learning and social environment in which the rights and dignity of all its staff and students are respected. We recognise that the broad range of experiences that a diverse staff and student body brings strengthens our research and enhances our teaching, and that in order for Oxford to remain a world-leading institution we must continue to provide a diverse, inclusive, fair and open environment that allows everyone to grow and flourish. The University of Oxford's complete diversity statement can be found [here](#).