THE FARADAY INSTITUTION FutureCat

NEXT GENERATION LI-ION CATHODE MATERIALS

Exciting Faraday Undergraduate Summer Experience (FUSE) 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 Faraday Institution is offering a total of 55 internships, for undergraduate students to spend 8-weeks working on battery related projects.

Project title: Synthetic design and optimization of Co-free cathode materials with gradient composition for lithium-ion batteries

Project description:

Global efforts are being devoted to exploring solutions to improve the electrochemical performance of commercial cathode materials for Li-ion batteries for these to be competitive in the transportation market. Layered transition metal oxides, $LiNi_xMn_yCo_zO_2$ (NMCO) have become thoroughly studied for decades and are commercially available but their widespread use is still challenged by their poor specific capacity, cycling and thermal stability, where these properties are strongly related to the transition metal stoichiometry used- e.g., large Ni amounts in NMC, usually provide with large specific capacities albeit poor structural and thermal stabilities. Thus, adequate structural control of these materials is required to achieve their full potential in terms of performance and safety. In this project, the study will synthesise and characterise new materials with core-shell structures, focusing on Ni-rich compositions at the bulk and Mn-rich compositions at the surface to maximise the structural and electrochemical properties of these materials.
Supervisor: Nuria Tapia-Ruiz/ Li Zhang

University: Imperial College London – Chemistry Department

Location: In person - Molecular Sciences Research Hub, White City Campus

Start date: The internship is a full-time role for 8 weeks from 3rd July to 25th August.

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 £10.90/ hour across the UK or £11.95 / 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.

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) 2023 internship, you need to send your CV and one-page covering letter to laura.parker@imperial.ac.uk by Tuesday 4th April (EOD).

Diversity

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

Imperial College is committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment. We are an Athena SWAN Silver award winner, a Stonewall Diversity Champion, a Disability Confident Employer and work in partnership with GIRES to promote respect for trans people.