

Electrochemical Nucleophilic Fluorination

Lennox Lab

Project description

Applications are invited for a PhD studentship starting in October 2019 to work in the group of Dr Alastair Lennox. Over 25% of agrochemicals on the market contain at least one C–F bond. Fluorine can positively influence the potency and metabolism of bioactive compounds. Despite progress in the field of fluorination, it is still the 2nd lowest yielding reaction in the synthesis of agrochemicals. In this project we aim to develop the combination of electrochemical oxidation and nucleophilic fluorination to deliver a number of selective fluorination reactions that are useful to the agrochemical industry. The development of novel materials for their use as electrodes may also play an important part in this project.

The Lennox Lab has an interest in the invention of new synthetic organic electrochemical transformations. We apply a strong emphasis on mechanism, catalysis and sustainability during the development of these reactions. Electrochemistry promises to revolutionise redox reactions in organic synthesis, as the inherent tunability of the applied potential provides high selectivity, mild and safe conditions, and is the most sustainable way to conduct redox reactions. This enabling technology is also practical, as demonstrated by a number of industrial processes that are in operation. The project will be conducted in collaboration with Syngenta who are one of the world's leading agrochemical companies.

Candidate requirements

Applicants must have obtained, or be about to obtain, a First or high Upper Second Class UK first degree, or the equivalent qualifications gained outside the UK, in a chemistry or related degree. A strong undergraduate-level understanding of organic chemistry is a prerequisite. Prior experience of electrochemistry is not required, but an interest in learning and using the technique is necessary.

How to apply

To make a formal application, follow the 'Start a new application' link on this page: <http://www.bristol.ac.uk/study/postgraduate/apply/> and include "Alastair Lennox" in the "preferred supervisor" box. We encourage you to make an informal enquiry to Dr Lennox (a.lennox@bristol.ac.uk) if you have any queries or would like to discuss projects.

Funding Notes

An iCASE studentship will cover UK/EU tuition fees, a training support fee and a stipend (£14,777 p.a. for 2018/19, updated each year) for 4 years. Applicants who are classed as Overseas for tuition fee purposes may be considered if they can supply the difference between UK/EU and Overseas fees.