

PhD studentship in: “Visible-Light Photoredox Catalysis for the Functionalisation of Complex Organic Molecules”

About the Project

Application deadline: Open until filled
Supervisor: Dr Mattia Silvi (<https://silviresearch.com/>)
Institution: University of Nottingham
Start date: Oct 2022

Project description

A 3.5-year PhD studentship is currently available in the Silvi research group and the recruitment process is officially opened to fill the vacant position as soon as possible.

The student will be based in the University of Nottingham (GSK Carbon Neutral Laboratories for Sustainable Chemistry, Jubilee Campus) and will be involved in a research project fully focused on synthetic organic chemistry. More information about the project below.

Synthetic organic chemistry lays at the heart of Science and Technology and has greatly enabled the development of important life-changing discoveries. Conventional approaches for the synthesis of complex organic molecules usually rely on sequences of chemical reactions from early intermediates, often requiring the use of protecting groups and functional group oxidation state modulation. The time and resources required to complete the complex synthetic routes greatly reduce the number of structures accessible, defining strict boundaries to chemists' imagination for the invention of the molecules of tomorrow.

In contrast to the conventional synthetic approaches mentioned above, we are working on the development of novel photoredox visible-light driven processes which allow the functional group-tolerant chemical modification of complex organic molecules under remarkably mild conditions (visible light irradiation). The processes are based on the photoredox generation of highly reactive radical species, which can undergo versatile reactivity and generally show high levels of tolerance to protic and moderately Lewis basic functionalities. Our previous work for more details: <https://www.nature.com/articles/s41557-021-00807-x>

The successful candidate will explore new avenues in the field of photoredox catalysis, working on the discovery, the study and the optimisation of novel organic radical reactions. The student will work at the GSK Carbon Neutral Laboratories for Sustainable Chemistry, University of Nottingham, taking advantage of state-of-the-art research facilities. The student will develop extensive skills in organic chemical synthesis and spectroscopy and receive substantial training in radical chemistry, asymmetric catalysis and photochemistry: all fields which are increasingly popular in both academia and industry.

The ideal candidate will hold a degree in Chemistry, or related, and have developed a strong interest in the field of synthetic organic chemistry. The start date for this project will be Oct 2022 (please see eligibility below). The studentship will be filled as soon as a suitable candidate has been found, hence candidates are encouraged to apply as soon as possible. Prospective applicants are encouraged to visit our research group website (<https://silviresearch.com>) and can contact Dr Mattia Silvi (mattia.silvi@nottingham.ac.uk) for more details or enquires about the project.

Entry requirements

The position is available only for UK Home Students. Applicants should have, or expected to achieve, a 1st class or 2:1 Honours degree in Chemistry, Nat. Sci., Chemical Engineering or a related subject. A MSc-4-year integrated Master's, a BSc + MSc or a BSc with substantial research experience will be highly advantageous.

Funding Notes

Fully funded studentship to commence in Oct 2022. UK students – tuition fees paid and full stipend, tax-free, for 3.5 years at the RCUK rate (currently £ 15,285 per annum).

How to apply

Please send a cover letter and CV to mattia.silvi@nottingham.ac.uk detailing your previous research experience and current research interests.