DPhil studentship in Ultrafast Imaging (Physical and Theoretical Chemistry)

Title: Electron dynamics and correlation in ultrafast x-ray scattering

Supervisor: Professor Adam Kirrander

Start date: 1st October 2024

Applications are invited for a DPhil in Chemistry position, available from 1st October 2024, to work with Professor Adam Kirrander in the Physical and Theoretical Chemistry Laboratory at the University of Oxford. The project, sponsored by the Department of Chemistry, will explore opportunities to image electron dynamics during photochemical reactions using attosecond ultrafast x-ray scattering experiments. The project links to current developments at x-ray free-electron lasers (XFELs) and exciting new directions in electronic structure theory.

The Kirrander group works on making the most of the opportunities provided by new light sources such as XFELs and to exploit these to advance our fundamental understanding of dynamics in matter. Longer term, the ability to determine structural dynamics and the interplay of nuclear and electronic motions will create methods for rational design of molecules with specific properties, guide the design of new catalysts, and the construction of innovative systems for energy harvesting and storage. Further information about our research can be found on our group web page (https://kirrander.web.ox.ac.uk) and Prof. Kirrander's staff page (https://www.chem.ox.ac.uk/people/adam-kirrander-0).

The candidate is expected to have demonstrated interest in chemical physics, ultrafast dynamics, and theory. The project involves the development of novel methods in electronic structure theory, meaning that an interest in computers and mathematics is highly beneficial. Our research is highly collaborative, both within the group and with world leading national and international collaborators, and requires a desire to engage deeply with theory as well as experiments. Applicants should have, or be expecting to obtain, a first or upper second-class Masters honours degree in chemistry, physics, or a related discipline.

The studentship will cover course fees at the Home rate and will provide a stipend of no less than the standard UK Research Council rate, currently set at £18,622 per year for three and a half years. Please note the eligibility criteria set out by the UKRI at: https://www.ukri.org/what-we-do/developing-people-and-skills/esrc/funding-for-postgraduate-training-and-development/eligibility-for-studentship-funding/

Candidates should submit a formal application for DPhil in Chemistry via the Oxford online application system:

https://www.ox.ac.uk/admissions/graduate/applying-to-oxford

https://www.ox.ac.uk/admissions/graduate/courses/dphil-chemistry

Application deadline: 12.00 noon UK time on Friday 19th January 2024

Please quote AK/Chem/2024 under ‘Departmental Studentship Applications’.

Queries relating to the application and admission process should be directed to graduate.admissions@chem.ox.ac.uk; tel.: +44 (0) 1865 272569.

For informal enquiries related to the project, please contact adam.kirrander@chem.ox.ac.uk

The Department of Chemistry is an Equal Opportunities Employer and holds the Athena SWAN Silver Award.