

DPHil studentship in Plasma Chemistry

Title: ECLIPSE - *Engineering Control of Electronegativity in Hydrogen Plasmas through Surface and Magnetic-Field Design*

Supervisor: Professor Grant Ritchie

Start date: 1st October 2027

Applications are invited for a **DPHil studentship** in the area of Plasma Chemistry, available from October 2027, to work under the supervision of Professor Grant Ritchie in the Department of Chemistry at the University of Oxford.

The studentship will cover course fees at a Home rate and provide a stipend of no less than the standard UK Research Council rate (currently set at £21,805 p.a.) for 3.5 years. Please see: <https://www.ox.ac.uk/students/fees-funding/fees/status> for more information.

Research in the Ritchie group develops new technologies for detecting and measuring chemical processes, with applications ranging from healthcare to plasma science.

This project focuses on better understanding hydrogen plasmas and improving the production of negatively charged hydrogen ions (H^-). These ions are important for major scientific technologies, including particle accelerators, neutron sources and future fusion-energy systems.

At present, producing H^- ions efficiently is challenging because their formation depends on several complex and interconnected processes within the plasma and at the surfaces surrounding it. As a result, existing sources are often improved through trial and error rather than through a detailed understanding of the underlying science.

The project will combine advanced measurements, computer modelling and experiments to understand how magnetic fields and different materials affect H^- production. The ultimate goal is to establish clear scientific principles for designing more efficient and reliable negative-ion sources for future research and energy technologies. The studentship is a collaboration between the Oxford Chemistry and STFC ISIS Neutron and Muon Source – see <https://www.isis.stfc.ac.uk> - and the successful candidate will conduct experimental work both at Oxford University and at ISIS.

Candidates with a **first-class undergraduate degree in Chemistry or Physics** are encouraged to apply. The candidate is expected to have a strong commitment to research and should have demonstrated the ability to independently learn new skills. The successful applicant will be based in the Physical and Theoretical Chemistry Laboratory (PTCL), Oxford.

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

<https://www.ox.ac.uk/admissions/graduate/application-guide>

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

Please quote **GR/Chem/2027** under 'Departmental Studentship Applications'.

Application deadline: **12.00 noon UK time on Wednesday, 6th January 2027.**

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

The Department of Chemistry holds the Athena SWAN Silver Award and the Ritchie group is dedicated to promoting diversity, equality and inclusion.