Background: Photocatalysis allows light energy to be harnessed to drive catalytic reactions via single-electron transfer. However, many redox-catalytic processes, including those that involve oxygen atom transfer, require the transfer of more than one electron.¹

The aim of this project is to use photoinduced electron transfer to remove two electrons from a catalytic centre to enable the two-electron oxidation of a substrate. The key to this approach is the combination of a redox-active ligand, a so-called non-innocent ligand, with a redox-active metal centre to form the catalytic unit (Figure 1).

Training: The project is multi-disciplinary and involves a variety of techniques, ranging from organic ligand synthesis through to metal-complex formation and characterisation, photocatalysis and spectroscopy (NMR, IR, UV/vis and EPR). Full training for postgraduate students, tailored to their particular degree background, will be provided within each research group. The successful applicant will be part of the departmental iDTC, which offers a range of relevant training courses, including courses on scientific writing and presentation skills. In addition, the appointed candidate will participate in regular inorganic chemistry group meetings and will have the opportunity to attend at least two conferences.

Applicants should hold (or expect to be awarded) a first class or upper-second class Masters degree or equivalent in Chemistry and have a background that includes synthetic chemistry and catalysis.

References:

Application closing date: 17:00 on 11 January 2017
Interview date: 15 February 2017

Funding source: EPSRC Department of Chemistry
Funding scheme (if any): DTG/Teaching Studentship
Funding Types: Competition
Eligibility: UK

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The Department of Chemistry holds an Athena SWAN Gold Award and is committed to supporting equality and diversity for all staff and students.