



Job Description

Research Fellow in Ultrafast Photochemical Dynamics

Department: Chemistry

Grade: 7

Location: UCL Bloomsbury Campus

Reports to: Professor Helen Fielding

Context

The Chemistry Department

The Chemistry Department at University College London is the oldest in England, and today is one of the best in the UK, being ranked 2nd in the UK for the world-class impact of its research in REF2014. We are located in Bloomsbury, at the heart of London, and offer an exciting and vibrant environment in which to study in one of the UK's top universities. The Department of Chemistry at UCL is committed to supporting excellence in both research and teaching. The department offers undergraduate BSc and MSci programmes in Chemistry and currently teaches 400 undergraduates registered in Chemistry as well as students who select Chemistry on the Natural Sciences programme and first year Chemistry for life scientists.

The Chemistry Department has over 50 members of academic staff carrying out world-leading research. We specialise in areas of organic synthesis, chemical biology, computational chemistry, nanotechnology, inorganic and materials chemistry, physical chemistry and chemical physics. The department has an annual research income of around £15 million, derived from many sources including the Research Councils (EPSRC, BBSRC, MRC, and NERC), European Commission and a wide range of charities and industrial partners in the UK, Europe and the USA.

Details about our research can be found on the departmental website <http://www.ucl.ac.uk/chemistry>.

Main purpose of the job

A Research Fellow position is available to work in Professor Helen Fielding's research group in the UCL Department of Chemistry, supported by the Engineering and Physical Sciences Research Council Grant EP/V026690/1, *Ultrafast Photochemical Dynamics in Complex Environments*. The project is a collaboration between Professors Helen Fielding and Graham Worth (UCL), Professor Andrew Orr-Ewing FRS and Dr Tom Oliver (University of Bristol), Professors Mark Brouard and Claire Vallance (University of Oxford), Professor Jon Marangos (Imperial College) and Dr Basile Curchod (Durham University) and the appointment will be for 36 months initially.

The objectives of the research are: (i) to deepen our understanding of the response of molecular chromophores to absorption of light, and the effects of interactions between the chromophores and their surroundings, on ultrafast (femtosecond – picosecond) timescales; (ii) to apply this new understanding to reveal the mechanisms of light-activated processes in two complex but important real-world contexts where photochemistry plays a key role. These chosen contexts address fundamental questions in plant biology (specifically, the regulation of photomorphogenesis) and atmospheric chemistry (the onset of growth of secondary organic aerosols).

The research fellow will undertake laboratory studies of the mechanisms of photochemical reactions of organic molecules on ultrafast timescales, with the objective of understanding how these photochemical dynamics are affected by interactions with a surrounding solvent or protein. The key technique to be employed will be femtosecond time-resolved photoelectron spectroscopy using both a molecular beam velocity map imaging photoelectron spectrometer and a liquid-microjet magnetic bottle photoelectron spectrometer. These experiments will be carried out at UCL. There will also be opportunities to participate in complementary experiments using the Artemis facility at the Rutherford Appleton Laboratory and at international facilities.

Further details of the Fielding Group can be found at <http://helenfieldinggroup.co.uk>

Duties and responsibilities:

- To record, analyse and interpret time-resolved photoelectron spectra of molecular systems in the gas-phase and solution phase, using a commercial laser facility at UCL capable of generating femtosecond pulses of light in the visible, UV and EUV, and existing molecular beam velocity map imaging and liquid-microjet magnetic bottle photoelectron spectrometers.
- To work closely with our spectroscopy, synthetic chemistry and computational chemistry collaborators on this multidisciplinary project.
- To contribute to the drafting and submitting of papers to peer reviewed journals.
- To contribute to the preparation of progress reports on research for the programme grant management committee.
- To contribute to the supervision of graduate students and undergraduate project students undertaking research in Professor Helen Fielding's group.
- To be responsible for ensuring that the photoelectron spectrometers are safe and maintained in good working order, working with technical support staff (e.g. mechanical and electronics workshops) to maintain and upgrade them if required.
- To conduct necessary administrative tasks relating to laboratory work (e.g. Health and Safety assessments and documentation), ensuring compliance with relevant bodies.
- To contribute to the outreach activities of the research team and UCL department as required.
- To contribute to the induction and direction of other research staff and students as requested.
- The job description reflects the present requirements of the post, and as duties and responsibilities change/develop, the job description will be reviewed and be subject to amendment in consultation with the postholder.

- The postholder will carry out any other duties as are within the scope, spirit and purpose of the job as requested by the line manager.
- The postholder will actively follow UCL policies including Equal Opportunities and be expected to give consideration within their role as to how they can actively advance equality of opportunity and good relations between people who share a relevant protected characteristic and people who do not share it.
- The postholder will maintain an awareness and observation of Fire and Health & Safety Regulations.
- To be aware of and act upon:
 - Disciplinary procedure and disciplinary rules
 - Grievance procedure
 - Section 7 and 8 of the Health and Safety at Work Act

Person Specification

Criteria	Essential or Desirable	Assessment method (Application/Interview)
Qualifications, experience and knowledge		
PhD (or about to be awarded a PhD) in experimental laser spectroscopy	Essential	Application
GCSE English Grade C or above (or equivalent, e.g. IELTS)	Essential	Application
Experience of working in an experimental physical chemistry or chemical physics research environment	Essential	Application
Skills and abilities		
Research skills in laser spectroscopy studies of molecular photochemistry	Essential	Application
Practical laboratory skills in the use of some of: laser beamline alignment, femtosecond lasers, high harmonic generation, velocity-map imaging, high vacuum apparatus, electronics and data acquisition	Essential	Application
Experience of running and trouble-shooting sophisticated instrumentation	Essential	Application and interview
Experience in the acquisition, analysis and interpretation of spectroscopic data	Essential	Application and interview
Ability to communicate complex information clearly and accurately in English, both orally and in writing	Essential	Application and interview
Personal attributes		
Commitment to high quality research	Essential	Interview
Ability to work as part of a team and to collaborate with researchers from other groups with complementary expertise	Essential	Application and interview
Ability to lead in the preparation of manuscripts for publication and communicate the outcomes of the project to researchers from a broad range of disciplines	Essential	Application and interview
Ability to guide the research activities of postgraduate and undergraduate students.	Essential	Application and interview
Ability to organize own time and work effectively, to meet deadlines and manage competing priorities.	Essential	Application and interview

General Information

Terms & Conditions of Employment

The post is a UCL grade 7 post, the salary for which ranges from £36,028 to £43,533 per annum (including London Allowance of £3,211 p.a.). Starting salary is usually £36,028.

Please note, appointment at Grade 7 is dependent upon having been awarded a PhD; if this is not the case, initial appointment will be at Research Assistant Grade 6B (salary £31,542 to £33,257 per annum, including London Allowance of £3,211) with payment at Grade 7 being backdated to the date of final submission of the PhD thesis.

Progression through the salary scale is incremental. Cost of living pay awards are negotiated nationally and are normally effective from 1st August each year. UCL's non-clinical pay and grading structure is at http://www.ucl.ac.uk/hr/salary_scales/final_grades.php.

UCL's terms & conditions for research, teaching and professional services staff are at: <https://www.ucl.ac.uk/human-resources/conditions-service-research-teaching-and-professional-services-staff>

The full range of benefits is at http://www.ucl.ac.uk/hr/benefits/employee_benefits.php

General information for Overseas Applicants

<https://www.ucl.ac.uk/human-resources/working-ucl/employment-contract-administration-team/immigration>

<https://www.ucl.ac.uk/human-resources/working-ucl/relocating-uk-guide>

Equal Opportunities

www.ucl.ac.uk/hr/docs/equal_opportunity.pdf

The Department has been awarded a Silver Athena Swan Award and we support the Athena beliefs that:

- The advancement of science, engineering and technology (SET) is fundamental to quality of life across the globe.
- It is vitally important that women are adequately represented in what has traditionally been, and is still, a male-dominated area.
- Science cannot reach its full potential unless it can benefit from the talents of the whole population, and until women and men can benefit equally from the opportunities it affords.

Further information on Athena Swan is at <http://www.athenaswan.org.uk/>

Apply

If you choose to apply for this position, please include a cover letter explaining how you meet the criteria listed in the person specification.

To apply for this position visit:

ucl.ac.uk/jobs

Search under Ref no: 1877737