



Job Description

Research Fellow in/on Experimental particle physics

Grade: 7

Department: Physics and Astronomy

Location: UCL Bloomsbury Campus

Reports to

Dr. Robert Flack

Context

- An atomic beam has been constructed for the purpose of exploring weak measurement in atomic systems. The project is cross-disciplinary between the High Energy Physics and the Atomic and Molecular physics groups. The method utilises several magnets of the Stern-Gerlach type and others. In addition, the HEP group hosts a state-of-the-art mass-spectrometry facility (ICP-MS) to measure isotope traces for applications in dark matter research and neutrino physics.
- We are seeking a candidate with a full working knowledge of the methods used to produce atomic beams for a variety of atoms and how they may be controlled, as well as someone who can operate the ICP-MS facility. This project is co-funded by the Franklin Fetzner Memorial Trust and the HEP Consolidated Grant for 2.5 years.

Main purpose of the job

- To run and maintain the existing atomic beam setup.
- To extend the weak measurement experiment to explore new physical phenomena.
- To use the ICP-MS facility to measure isotope traces in materials for the LZ, LEGEND and SuperNEMO experiments.
- To analyze the results obtained and prepare publications in a peer reviewed journal.

Duties and responsibilities

- To run the existing atomic beam setup.
- To design new experiments with atomic beams.
- To run and maintain the ICP-MS facility
- To perform measurements of isotope traces for samples from low-background experiments looking for dark matter and neutrinoless double beta decay (LZ, LEGEND, SuperNEMO).
- To analyse data from ICP-MS and present them to internal and external users.
- Drafting and submitting publications.
- To contribute to the overall activities of the research team and department as required.
- To actively follow UCL policies including Equal Opportunities and Race Equality policies.
- To maintain awareness and observation of Fire and Health & Safety Regulations.

Person Specification

Criteria	Essential or Desirable
Qualifications, experience and knowledge	
To have a PhD or to have submitted a PhD thesis	Essential
The candidate also has to have a full working knowledge of the COMSOL software package for magnet design.	Essential
To have a hands-on experience with modern analysis methods used in particle physics.	Essential
Experience of working collaboratively in a research environment.	Essential
Familiarity with techniques used for generating molecular beams.	Essential
Use of a variety of detectors and detection methods.	Essential
Skills and abilities	
Ability to analyse and write up data and to present complex information effectively to a range of audiences.	Essential
Software packages for data analysis and design such, CAD, Mathematica and MatLab.	Essential
Effective written and verbal communication skills.	Essential
Personal attributes	
Commitment to high quality research	Essential
Commitment to UCL's policy of equal opportunity and the ability to work harmoniously with colleagues and students of all cultures and backgrounds	Essential
Flexibility, ability to prioritise workloads	Desirable

General Information

Terms & Conditions of Employment

This project is funded by the EC for 9 months in the first instance. The salary ranges from £35,965 to £43,470 per annum (including London Allowance of £3,148 p.a.). Starting salary is usually £35,965.

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 £31,479 to £33,194 per annum, including London Allowance of £3,148) 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 TERMS AND CONDITIONS

Full conditions can be found at

<https://www.ucl.ac.uk/human-resources/conditions-service-research-teaching-and-professional-services-staff>

Equal Opportunities

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