

Candidate Information

Position:	Research Fellow
School/Department:	School of Mathematics and Physics
Reference:	24/111534
Closing Date:	Monday 12 February 2024
Salary:	£37,841 - £40,134 per annum
Anticipated Interview Date:	Thursday 29 February 2024
Duration:	24 Months

JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of "Ultrafast Nanodosimetry" (EP/W017245/1) research project, assisting in the development of the planning and delivery of the research activity. Specifically, the successful candidate will model the dielectric and transport properties of highly excited insulators and water, from first principles.

The post is a critical role, and as such, successful applicants will have responsibilities in independent research, planning, collaborations and outreach.

MAJOR DUTIES:

1. Undertake research under supervision within a specific research project or as a member of a research team.
2. Design, develop and refine research using a range of modelling approaches, including density functional theory and molecular dynamics.
3. Carry out analyses, critical evaluations, and interpretations of modelling data and the literature using methodologies and other techniques appropriate to area of research, including scripting in Python or equivalent computer languages.
4. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with the other members of the "Ultrafast Nanodosimetry" project team.
5. In consultation with the project team, promote research milestones and outputs at national and international conferences.
6. Assist grant holder in the preparation of funding proposals and applications to external bodies.
7. Carry out occasional educational supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
8. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a PhD in Physics, Chemistry, Material Science, or closely related discipline. (NB 'about to obtain' is normally defined as within 3 months of application date.)
2. Specific relevant research experience to include:
 - Working knowledge of condensed matter physics.
 - Working knowledge of transport properties of materials.
 - A proven track record of performing first principles modelling of condensed matter, e.g., using density functional theory (DFT).
 - Experience performing original research, demonstrated through a record of original publications in top-tier journals and conference papers and presentations commensurate with stage of career.
3. Ability to contribute to the management and administrative processes of the project.
4. Demonstrable experience in using high-performance computing facilities for numerical simulations.
5. Ability to communicate complex information in English effectively in both oral and written format
6. Commitment to continuous professional development.
7. Willingness to travel to disseminate the finding of the research to national and international conferences and workshops.

DESIRABLE CRITERIA:

1. Demonstrated capability to perform ab initio molecular dynamics calculations of materials at finite temperature.
2. Demonstrated capability to perform time-dependent density functional theory (TDDFT) calculations of electronic excitations.
3. Demonstrated capability to compute transport properties of materials.
4. A proven track record of research in close connection with the experimental partners.
5. Ability to contribute to the School's outreach programme.
6. Capability to use scripting languages (e.g., Python) to analyse modelling results.
7. Programming skills (e.g., for automating calculations through workflows).
8. Provide evidence of independence and the ability to manage a personal network of collaborations.
9. Ability to build relationships to develop internal and external networks.