

Candidate Information

Position:	Research Fellow
School/Department:	Atomistic Simulation Res Ctre
Reference:	21/109219
Closing Date:	Friday 5 November 2021
Salary:	£34,304 per annum
Anticipated Interview Date:	Thursday 25 or Friday 26 November 2021
Duration:	36 Months

JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of the EPSRC funded project "Un-particle superconductivity in low-dimensional materials" (Ref. EP/V029908/1 <https://gow.epsrc.ukri.org/NGBOViewGrant.aspx?GrantRef=EP/V029908/1>) undertaking theoretical research on microscopic mechanisms of superconductivity in low-dimensional materials through advanced first principle calculations.

The research project is a collaboration between the team at Queen's University Belfast lead by Dr Myrta Gruening and experimental groups from the University of Bristol working on high magnetic field transport measurements in novel high T_c superconductors. 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 the specific research project.
2. Design, develop and refine research using Density Functional Theory approaches and Many-body perturbation theory approaches based on Green's functions for the study of ground-and excited-state properties of the materials of interest.
3. Carry out analyses, critical evaluations, and interpretations of simulations data and the literature using methodologies and other techniques appropriate to area of research.
4. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team on outputs.
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.

Planning and Organising:

1. Plan own day-to day activity within framework of the agreed research programme.
2. Contribute to the planning of research project, reports and publications etc.
3. Assist PI and project team in organising relevant events.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Provide guidance, as required, to ensure a safe working environment.

Internal and External Relationships:

1. Liaise on a regular basis with members of the project team.
2. Liaise on a regular basis with project partners at the University of Bristol.

3. Build contacts with relevant stakeholders to form relationships for future collaboration and project dissemination.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a relevant PhD in Physics, Chemistry or closely related discipline.
2. At least 3 years relevant research experience to include:
 - A proven track record of using Density Functional Theory for electronic structure calculations.
 - Undertaking research in the area of Condensed Matter Physics.
3. Publication record commensurate with stage of career.
4. Ability to contribute to broader management and administrative processes.
5. Contribute to the School's outreach programme by links with industry, community groups etc.
6. Practical problem solving skills, independence of thought and initiative.
7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
8. Ability to communicate complex information in English effectively in oral and written format.
9. Commitment to continuous professional development.

DESIRABLE CRITERIA:

1. A proven track record of using Many-Body perturbation theory approaches based on Green's function theory (e.g. GW approximation) for the study of ground-and excited-state properties.
2. Undertaking research in the areas of superconductivity and/or low-dimensional materials.
3. A substantial number of high-quality publications in international peer-reviewed journals commensurate with stage of career.
4. Programming skills (e.g. for automating calculations through workflows).
5. Usage of high performance computing facilities for running numerical simulations.
6. Provide evidence of independence and the ability to manage a personal network of collaborations.