

Candidate Information

Position:	Research Fellow
School/Department:	School of Chemistry and Chemical Engineering
Reference:	24/111663
Closing Date:	Monday 4 March 2024
Salary:	£37,841 per annum
Anticipated Interview Date:	Wednesday 20 March 2024
Duration:	Fixed term for 12 months, or available until 31/03/2025, whichever is sooner.

JOB PURPOSE:

As a research fellow with expertise in chemistry or materials science, you will be an active member of an international research group focusing on the development of a prototype redox flow battery (RFB). Your responsibilities include:

- Contributing to the planning and delivery of project objectives
- Interacting and collaborating with industrial partners
- Supervising and mentoring research students
- Delivering high-quality reports, publications, and documentation

We welcome applications from experienced researchers in related fields.

MAJOR DUTIES:

1. Conduct semi-independent research as part of an international research team, following an established yet evolving technical program.
2. Specific research tasks may include:
 - Synthesising and formulating, optimising and characterising redox flow battery electrolytes
 - Electrochemical testing and characterisation of electrolyte formulations
 - Evaluating and establishing high-potential redox couples
 - Integrating electrolytes into flow test stands
 - Surface treatment and optimisation of electrodes
 - Scaling up of optimised electrolyte formulations
 - Critically analyse, interpret, and evaluate research findings using appropriate methodologies
 - Collaborate closely with industrial partners to steer ongoing research
 - Complete administrative tasks crucial to project success, such as organising meetings, documentation, budgets, and risk assessments
 - Participate in conferences, expos, and other venues to disseminate research results
 - Prepare presentations, reports, papers, and other scientific communications
 - Mentor graduate students in conducting research projects and academics
 - Maintain up-to-date expertise in field through reading literature and recent developments.

ESSENTIAL CRITERIA:

1. BSc (Hons): at least 2:1 or equivalent in Chemistry.
2. Have a PhD in Chemistry (or about to obtain) or related discipline such as chemical engineering with hands-on chemistry experience.
3. Research experience in designing, synthesising, and characterising advanced organic and inorganic electrolytes for electrochemical systems.
4. Expertise characterising the electrochemical performance of electrolyte formulations, including redox potentials, conductivity, viscosity, and stability.
5. Knowledge of surface treatments to optimise electrode/electrolyte interfaces for efficiency.

6. In-depth understanding of redox flow battery electrolyte design considerations, including active species solubility, voltage potential, stability, etc.
7. Ability to critically analyse complex experimental data and derive meaningful conclusions to guide ongoing research.
8. Ability to manage and prioritise time in a dynamic environment.
9. Able to work on own initiative and as part of a team with minimum supervision.
10. Managing timesheets and interaction with the funder and industrial consortium members.
11. Risk management.
12. A high regard for Health & Safety procedures and the need for good laboratory practice.
13. An excellent knowledge of written and spoken English is required for report writing and presentations.
14. Ability to prepare journal and conference papers.
15. Communicative, inspiring, good stakeholder management.
16. Ability to work effectively within a team.
17. Organised and attentive to detail.
18. Ability to meet deadlines.
19. Be prepared to supervise and interact with postgraduate students.
20. Willingness to travel for project meetings and site visits.
21. Willingness to work irregular hours as needed.

DESIRABLE CRITERIA:

1. Synthetic Chemistry or Electrochemistry.
2. Previous collaboration with industry partners in an R&D setting.
3. Record of generating intellectual property and securing patents related to new chemistries.
4. At least 3 first-author articles published in peer-reviewed journals, primarily focused on topics directly relevant to electrolytes, energy storage, electrochemistry, etc.
5. Knowledge of sustainability practices and life cycle analysis of new technologies, including technoeconomic evaluation and environmental impact assessment.