

Candidate Information

Position: Research Fellow
School/Department: School of Chemistry and Chemical Engineering
Reference: 25/112626
Closing Date: Monday 30 June 2025
Salary: £39,922 - £43,605 per annum
Anticipated Interview Date: Thursday 31 July 2025
Duration: Fixed Term - Full Time; available for approx. 30 months

JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of the innovative Recycling of E-waste for Critical Metals and Sustainable Economy in Malaysia (iRECYCLE-Malaysia) research project/team assisting in the development of research proposals and the planning and delivery of the research activity specifically focused on hydrometallurgy and separation techniques for developing efficient and sustainable methods for separating and purifying individual metal species from e-waste leachates, with emphasis on precious and critical metals.

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

MAJOR DUTIES:

1. Undertake research under supervision within the iRECYCLE-Malaysia research project as a member of an interdisciplinary research team developing efficient and sustainable methods for separating and purifying individual metal species from e-waste leachates.
2. Design and develop hydrometallurgical, solvometallurgical, and electrochemical separation methods for individual metal recovery and purification.
3. Establish robust quality assessment protocols for recovered metals using advanced analytical techniques.
4. Design purification protocols for the work-up of selected metals to maximise process valorisation.
5. Develop mass balances and bill of materials for selected metals to support techno-economic assessments.
6. Contribute to the development of ASPEN models for separation and purification processes.
7. Collaborate with other PDRAs and team members across QUB, Universiti Teknologi PETRONAS (UTP), and University of Malaya (UM).
8. Prepare high-quality academic publications and reports.
9. Present research findings at academic conferences and industry events.
10. 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 (as appropriate) on outputs.
11. In consultation with the project team, promote research milestones and outputs at national and international conferences and through social media.
12. Assist grant holder in the preparation of funding proposals and applications to external bodies.
13. 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.
14. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Have or be about to obtain a PhD in Chemical Engineering, Chemistry, Metallurgy, Materials Science, or a closely related field ((NB - 'About to obtain' is normally defined as within 3 months of application date).

2. Specific, relevant* research experience to include:
 - Demonstrable expertise in hydrometallurgy, and metal separation techniques;
 - Experience with analytical techniques (e.g., ICP, NMR, EPR);
 - Strong knowledge of coordination chemistry and complexing agents;
 - Experience with spectroscopic methods;
 - Ability to analyse and critically evaluate, and interpret of experimental data;
 - Proven track record of research publications in peer-reviewed journals;
 - Working effectively as part of a research team in the development and promotion of the research theme;
 - Excellent laboratory skills and awareness of laboratory safety protocols.
3. Ability to contribute to broader management and administrative processes
4. Strong communication skills and ability to work in an interdisciplinary, international team.
5. Practical problem-solving skills, independence of thought and initiative.
6. Ability to assess and organise resources.
7. Ability to communicate complex information in English effectively in oral and written format.
8. Commitment to continuous professional development.
9. Ability to build relationships to develop internal and external networks.
10. Ability to travel to Malaysia for research and collaboration purposes.
11. Willingness and ability to travel internationally for research collaboration.
12. Understanding of international research collaboration frameworks.

DESIRABLE CRITERIA:

1. Experience with metal recovery from waste streams, particularly e-waste.
2. Knowledge of ASPEN or other process simulation software.
3. Experience with functionalised ionic liquids and deep eutectic solvents.
4. Experience with process scale-up and pilot plant operations.
5. Familiarity with synchrotron techniques (e.g., EXAFS) for metal speciation studies.
6. Experience with selective electrochemical deposition processes.
7. Knowledge of circular economy principles applied to metals.
8. Previous experience in collaborative international research projects.
9. Experience of translating research findings into educational materials.
10. Experience working with industry partners on applied research.
11. Contribute to the School's outreach programme by links with industry, community groups etc.

ADDITIONAL INFORMATION:

Informal enquiries may be directed to Peter Nockemann at p.nockemann@qub.ac.uk