

## Candidate Information

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|------------------------------------|----------------------------------------------|
| <b>Position:</b>                   | Research Fellow                              |
| <b>School/Department:</b>          | School of Chemistry and Chemical Engineering |
| <b>Reference:</b>                  | 26/113657                                    |
| <b>Closing Date:</b>               | Monday 12 October 2026                       |
| <b>Salary:</b>                     | £42,972 - £51,270 per annum                  |
| <b>Anticipated Interview Date:</b> | Monday 26 October 2026                       |
| <b>Duration:</b>                   | 24 months                                    |

### JOB PURPOSE:

Applications are sought for a two-year, fixed-term post on an EPSRC Materials Innovation Partnership project with industrial partner Ionic Technologies, developing innovative, HF-free routes to rare-earth fluorides from recycled oxide feedstocks. The successful candidate will lead synthesis and physico-chemical characterisation studies and contribute to work on calcination and powder engineering for metallisation.

The successful applicant will be an active member of an interdisciplinary research group, contributing to planning and delivery of the project objectives and working closely with R&D department of Ionic Technologies. Ideally, they will have an early track record of successful supervision of research students, reflected in high quality publications.

### MAJOR DUTIES:

1. Undertake research on HF-free rare-earth fluoride synthesis, developing expertise in inorganic fluoride chemistry and phase behaviour.
2. Design, develop and refine synthetic routes to rare-earth trifluorides as precursors to rare earth metals, alloys and ultimately permanent magnets.
3. Carry out analyses, critical evaluations and interpretations of experimental data and the literature using powder and single-crystal X-ray diffraction, SEM/EDS, STA-MS, SAXS and particle size analysis, together with synchrotron-based techniques (e.g. EXAFS) as access permits, appropriate to rare earth chemistry.
4. Produce multi-kg samples at industrial partner's site for onward metallisation.
5. Develop and plan an area of personal research and expertise, and/or undertake research under supervision within a specific research project.
6. Supervise and train research students on day-to-day basis.
7. Produce high-quality research outputs consistent with project aims, including peer-reviewed publications and conference presentations, as well as support IP development and protection.
8. Liaise with the project team at QUB and Ionic Technologies, maintaining regular communication and reporting schedule.
9. Assist the grant holder in the preparation of funding proposals and applications to external bodies, particularly in the critical raw materials and rare-earth processing domain.
10. Carry out occasional educational supervision, demonstrating or lecturing duties within inorganic and materials chemistry, under the direct guidance of a member of academic staff.

### ESSENTIAL CRITERIA:

1. Have or be \*about to obtain a PhD in chemistry, material science or a relevant subject (\*about to will be defined as thesis submission within 3 months of application date).
2. Specific, relevant research experience to include:
  - Experience in the use of multi-technique characterisation of inorganic materials, including at least some of the following: pXRD, single-crystal XRD, SEM/EDX, DSC/TGA/STA, EXAFS, laser diffraction (PSD), ICP-OES, XRF.
  - Working effectively as part of a research team in the development and promotion of the research theme.
3. Ability to carry out analyse, interpret and critically evaluate data.

4. Ability to prepare journal papers and/or contribute to patent preparation.
5. Ability to supervise research students.
6. Strong publication record commensurate with stage of career.
7. Willingness to carry out undergraduate and PhD student supervision.
8. Ability to contribute to broader management and administrative processes in the context of leadership in an industry-facing research project.
9. Practical problem solving skills, independence of thought and initiative.
10. Ability to assess and organise resources.
11. Ability to communicate complex information in English effectively in oral and written format, to academic and industrial audiences.
12. Ability to build relationships to develop internal and external networks.
13. Commitment to continuous professional development.

**DESIRABLE CRITERIA:**

1. PhD degree and several years of PDRA or equivalent research experience.
2. Lanthanide or fluoride chemistry background.
3. Occasional demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.

**ADDITIONAL INFORMATION:**

Informal enquiries may be directed to: Deborah Poland at [d.poland@qub.ac.uk](mailto:d.poland@qub.ac.uk).