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| Job Title: | Research Fellow A |
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| Responsible to: | Head of the research group or principal investigator |
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| Responsible for: | Not applicable |
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| Job Summary and Purpose: |
| To undertake research in accordance with the specified research project(s) under the supervision of Dr Bahman Horri. |

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| Main Responsibilities/Activities |
| <p>To undertake a range of research activities within a specified research area, assuming responsibility for specific areas of projects and making use of new research techniques and methods in consultation with the research award holder or supervisor. This may include fieldwork, interviews, laboratory experimentation, critical evaluation and interpretation, computer-based data analysis and evaluation or library research.</p> <p>Using initiative and creativity to identify areas for research, develop new research methods and extend the research portfolio. Analysing and interpreting results of own research. Write up results and prepare papers for submission to appropriate journals, conferences, and other outputs as required and/or appropriate. Attend relevant meetings and conferences for the purpose of disseminating research results on personal development. The post holder may also contribute to writing bids for research grants and contribute to collaborative decision-making with colleagues in research areas.</p> <p>Continually update knowledge, develop skills, and translate knowledge of advances in the area into research activity.</p> <p>To plan and manage own research activity in collaboration with others. To carry out administrative tasks associated with specified research funding, for example, risk assessment of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control.</p> <p>To contribute to teaching in the Faculty by carrying out student supervision and/or demonstrating within the post holder's area of expertise and under the direct guidance of a member of departmental academic staff, as appropriate.</p> <p>The post holder may occasionally be required to supervise more junior research staff.</p> |

Person Specification**The post holder must have:**

A doctoral degree in a relevant discipline (although individuals who have almost completed a doctoral degree may be appointed). Consideration may also be given to individuals who do not hold a doctoral degree but have required skills based on a number of years of experience in specified / relevant fields

The post holder will have authority over some aspects of project work and must be capable of providing academic judgement, offering original and creative thoughts and being able to interpret and analyse results.

Relationships and Contacts

Direct responsibility to the principal investigator or academic supervisor. The post holder may be asked to serve on a relevant Faculty committee. There may be additional reporting and liaison responsibilities to external funding bodies or sponsors. The post holder may work on original research tasks with colleagues in other institutions.

Special Requirements

To be available to participate in fieldwork as required by the specified research project

All staff are expected to:

- Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities policy.
- Help maintain a safe working environment by:
 - Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand
 - Following local codes of safe working practices and the University of Surrey Health and Safety Policy
- Undertake such other duties within the scope of the post as may be requested by your Manager.

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| Job Title: | Research Fellow (1A) |
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| <p>Job Summary and Purpose:</p> <p><u>This information sheet should be read in conjunction with the accompanying generic Research RA1A Role Profile and will be used for shortlisting processes. More specifically, the post holder will be expected to:</u></p> <p>Become a research team member in the Energy and Materials group in the Department of Chemical and Process Engineering. The project's focus is the development of a novel green hydrogen production system based on a hybrid water-splitting process developed at the University of Surrey with a combination of electrochemical and thermochemical processes and the application of advanced functional materials for efficient green hydrogen generation and energy storage.</p> <p>The team requires a dedicated researcher to develop a highly efficient thermochemical-electrochemical looping process for hydrogen production by designing an efficient thermochemical reactor and a modified alkaline electrolyser and integrating them into a lab-scale continuous rig along with synthesising efficient functional redox materials to test their performance and efficiency in the rig. This project is funded by an Innovate-UK Research Grant (Project number: 10028955) under the Smart Grants- October 2021 call: "CHROME – Clean Hydrogen Manufacture", which will be conducted in close collaboration with the industrial partners, Clean Hydrogen Ltd. and Fluor UK.</p> |
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| <p>Main Responsibilities/Activities</p> <p>The candidate will:</p> <ul style="list-style-type: none"> • Design and develop a thermoselectrochemical looping system for efficient water-splitting, including a thermochemical oxidation reactor and an alkaline reduction electrolyser and measure the figures of merit for the process and the performance of various redox pairs. • Synthesis and physicochemically characterise highly efficient redox pairs and functional metal oxide composites with multiple oxidation states and test their performance and efficiency for water splitting in the thermoelectrochemical looping rig (the characteristic analysis includes, but is not limited to, energy conversion efficiency measurement, water-splitting efficiency, reaction kinetics study, electrochemical impedance spectroscopy (EIS analysis), electrochemical cell performance measurement, etc.) • Be fully engaged with all consortium activities as required by the grant conditions and consortium agreement. This will involve collaborating with teams of researchers from diverse backgrounds (Clean Hydrogen Ltd, University of Surrey, and Fluor Ltd) for scientific exchanges and attending regular project meetings and outreach within the UK and national/international conferences. • Assist in the production of intellectual property and/or high-impact papers for the benefit of both team members and the University of Surrey; • Assist with the supervision of students in the group (postgraduate, undergraduate, and overseas visitors). |
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Person Specification**The post holder must have:****Essential**

- A PhD or EngD in Chemical Engineering, Chemistry, Material Science. We will also consider the graduates in Mechanical Engineering Science and PhD holders of the other relevant major degrees with Significant research experience in hydrogen generation (water splitting, thermochemical looping, water electrolysis, etc.)
- Direct research experience in redox material development for thermochemical looping and fabrication and testing the water splitting systems (thermochemical reactors, water electrolyzers and/or the other types of hydrogen generation systems)

Desirable

- Prior experience in design and testing the water-splitting systems, thermochemical reactor design, and chemical looping processes.
- Prior experience in developing novel redox pairs for thermochemical loops, functional nanocomposites with aliovalent dopants for water splitting and/or electrocatalysts for water electrolysis.

Relationships and Contacts

The post holder will be led by Dr Bahamn Horri and will be expected to work with the other internal/external team members at the University of Surrey and the other universities across the UK. The post holder is also required to be fully engaged with the project industrial partners (Clean Hydrogen Ltd. and Fluor UK) and the other relevant consortium members and collaborators.