

## Candidate Information

<b>Position:</b>	Research Fellow
<b>School/Department:</b>	Chemistry and Chemical Engineering
<b>Reference:</b>	22/109962
<b>Closing Date:</b>	Thursday 4 August 2022
<b>Salary:</b>	£34,304 per annum
<b>Anticipated Interview Date:</b>	Monday 22 August 2022
<b>Duration:</b>	12 months - The successful candidate must be available to start by 1 November 2022.

### JOB PURPOSE:

The School of Chemistry and Chemical Engineering at Queen's University Belfast, is currently seeking to appoint a highly motivated and enthusiastic candidate to the post of Research Fellow in Sustainable Aviation Fuels. The consortium, recently funded by EPSRC and the UK Catalysis hub, aims to design new catalysts and chemical processes for direct capture and conversion of CO<sub>2</sub> and biomass derived feedstocks to liquid transportation fuels to facilitate decarbonisation and accelerate our ambition to Net zero emissions targets. This is a fantastic opportunity for the researcher to work within a vibrant multidisciplinary catalysis lab. The research fellow will liaise with colleagues from Chemistry, Chemical Engineering and Computational Simulations as well as interact on regular basis with our collaborators from refinery and renewable energy companies.

### MAJOR DUTIES:

1. To prepare heterogeneous catalysts and evaluate these systems for the upgradation of biomass to biofuels and chemicals under batch and continuous flow conditions.
2. To work with the consortium collaborators. Participate in the development of the research strategy within the research group.
3. Normal duties will apply, including the preparation of reports, presentations and research/journal papers and assisting in supervision of PhD/MEng students.
4. Develop and plan an area of personal research and expertise, and/or undertake research under supervision within a specific research project or as a member of a research team.
5. Design, develop and refine experimental apparatus, field research or experiments in order to obtain reliable data.
6. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to area of research.
7. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
8. Prepare, often in consultation with supervisor, material for publication in national and international journals and presentations at international conferences.
9. Assist grant holder in the preparation of funding proposals and applications to external bodies.
10. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget. These might include organisation of project meetings and documentation, financial control, risk assessment of research activities.
11. Carry out occasional undergraduate supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
12. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines

### ESSENTIAL CRITERIA:

1. Normally have obtained or be about to obtain a PhD in Chemistry or Chemical Engineering or a related subject.
2. BSc (Hons) or equivalent in Chemistry or Chemical Engineering or related subject.

3. At least 3 years relevant\* research experience to include:
  - Recent hands on experience in gas/vapour phase reactions using fixed-bed reactors at postgraduate or postdoctoral level is required.
  - Ability to design, construct and refine the experimental rig using pumps, mass flow controllers and back-pressure regulators.
  - Ability to work effectively within a team, particularly with a technology company.
  - Be prepared to supervise and interact with PhD and Master's students.
  - Organised and attentive to detail.
  - Ability to meet deadlines.
  - Dedicated to the completion of a project.
  - Willingness to work for periods in other laboratories including industrial laboratories.
  - Willingness to travel and work in other locations in the UK.
4. Strong publication record commensurate with stage of career.
5. Ability to contribute to broader management and administrative processes.
6. Contribute to the School's outreach programme by links with industry, community groups etc.
7. Practical problem solving skills, independence of thought and initiative.
8. Ability to assess and organise resources.
9. Ability to communicate complex information in English effectively in oral and written format.
10. Ability to build relationships to develop internal and external networks.
11. Commitment to continuous professional development.

**DESIRABLE CRITERIA:**

1. Experimental experience of catalytic production of biofuels using CO<sub>2</sub> and biomass derived feedstocks including process development, catalyst synthesis, characterisation and analytical methods.
2. Experience in use and operation of continuous flow reactors and in-line reaction monitoring techniques.

**ADDITIONAL INFORMATION:**

The project will be undertaken within the multi-disciplinary Catalysis lab at QUB.

This is a unique opportunity for a dynamic and ambitious catalytic researcher with experience in continuous flow reactors, heterogeneous catalysis and bio-refinery processes to work in a leading and reputed centre of catalysis. The successful candidate will develop continuous flow processes for upgradation of waste biomass feedstocks to advanced net zero biofuels and chemicals. In addition, the researcher will work with the collaborators to design and scale up the process. The successful candidate will have the opportunity to work within a highly driven multi-disciplinary team of scientists, engineers from academia and industry; and benefit from a strong research-intensive collaborative network.

We are offering generous terms and conditions of employment, a wide range of benefits and facilities, in a family friendly working environment. Belfast is one of Europe's most friendly and fashionable regional capitals. Referred to as a 'treasure with an incredible atmosphere' (National Geographic Traveller), Belfast is reported to be the second safest city in the world (United Nations). With the lowest cost of living in the UK (Mercer.com 2014), Belfast offers a variety of cultural, sporting, educational and social opportunities.

Our University has established itself as the leading university for promoting good employment practice for its female staff and has been involved with the Athena SWAN initiative from its inception. Queen's was one of the first of two universities to be recognised with an institutional Silver award in 2007, and all of our SET Schools currently hold SWAN awards at Silver level or above. We are an equal opportunities employer and welcome applications from all sections of society we particularly welcome applications from suitably qualified women as there is an under-representation of females in this subject area.