

# OPPORTUNITY

## Research Associate

Reference: R220790

Grade: 8

Salary: £35,333 to £37,474 per annum, depending on experience

Contract Type: Fixed Term (12 months)

Basis: Full Time

# Job description

## Job Purpose:

This role involves the selection, preparation and testing of heterogeneous catalysts for the upgrading of pyrolysis bio-oil from into liquid hydrocarbons within the kerosene and diesel fuel range. This project is a major part of the IUK PyroPower Africa project, involving several academic and industrial partners and is funded by the InnovateUK. Applications are invited for a full-time Research Associate position in the Sustainable Fuels and Chemicals Research team within Energy and Bioproducts Research Institute (EBRI). EBRI is one of Aston University's flagship research institutes and is part of the College of Engineering and Physical Sciences. The applicant will join a research institute that boasts of a vibrant team of experienced and young researchers, exploring various aspects of bioenergy and sustainable chemicals research.

For this role, the researcher will carry out laboratory-based investigation on the preparation and testing of various heterogeneous catalysts for the upgrading of pyrolysis bio-oils produced by the lead partner from the pyrolysis of agricultural residues in Nigeria. Initial work will involve the assessment of literature to understand the current state of catalytic upgrading of bio-oil. Thereafter, the research will select promising catalysts for preparation and testing, initially in a batch reactor system. Considerable amount of work has been done within the research team based on noble metal catalysts, so the ideal candidate will focus on using cheaper non-noble metal catalysts. The quality of the liquid biofuels should enable its direct combustion and blending with kerosene or diesel for electricity production for industrial and domestic application; the kerosene component to meet Nigeria's household kerosene (HHK) specification. The role will involve detailed analytical characterisation of feedstock and reaction products as well as fresh and used catalysts.

Training opportunities will be provided to acquire appropriate research skills, where necessary.

## ***Main Duties and Responsibilities***

### **Research**

- ▶ Develop research objectives and taking a project leadership role including literature reviews, laboratory work and report - writing
- ▶ Conduct laboratory experiments preparing and testing a selection of heterogeneous catalysts for pyrolysis bio-oil upgrading
- ▶ Maintain detailed and accurate records of research work
- ▶ Acquire and interpret data from a range of applicable analytical techniques
- ▶ Analyse and present data in both a clear and concise manner that is visually appealing
- ▶ Work closely with staff within EBRI as well as external project partners
- ▶ Present results at conferences and partner meetings, seminars and conferences
- ▶ Prepare project reports and where applicable, peer-reviewed manuscripts for dissemination
- ▶ Build and develop links with industry and the professions and to secure research funds from external sources
- ▶ Supervise and manage research projects within the team and assisting in all aspects of research development within the team, including developing proposals for research programmes consistent with EBRI's research strategy and priorities.

**Additional responsibilities**

- ▶ Engage in continuous personal and professional development in line with the demands of the role, including undertaking relevant training and development activities to develop themselves and support the development of others.
- ▶ Ensure and promote the personal health, safety and wellbeing of staff and students.
- ▶ Carry out duties in a way which promotes fairness in all matters and which engenders trust.
- ▶ Promote equality of opportunity and support diversity and inclusion as well as working to support the University's environmental sustainability agenda and practices.

## Person specification

|                                     | Essential   | Method of assessment           |
|-------------------------------------|---|--------------------------------|
| <b>Education and qualifications</b> | <p>A 2.1 degree in Chemistry, Industrial Chemistry or Chemical Engineering.</p> <p>A PhD in Chemistry, Industrial Chemistry or Chemical Engineering.</p>  | Application form               |
| <b>Experience</b>                   | <p>Experience of initiating and conducting research up to doctoral level</p> <p>Experience in synthesis, characterisation, and application of heterogeneous catalysts</p> <p>Experience of laboratory-based research in advanced biofuels, bio-oil upgrading and heterogeneous catalysis</p> <p>Experience in analytical techniques related to pyrolysis bio-oils and reaction products of bio-oil upgrading</p> <p>Experience of writing up/contributing to the write up of research for high quality publications.</p> <p>Experience of producing presentations, posters, reports for seminars, symposia and conferences.</p> | Application form and interview |
| <b>Aptitude and skills</b>          | <p>Ability to present data in both a clear and concise manner that is visually appealing.</p> <p>Ability to prepare written communications to a high standard</p> <p>Ability to develop and maintain a research programme and to publish in high quality publications.</p> <p>Ability to harness IT as a research and teaching tool</p> <p>A willingness to undertake further training as appropriate and to adopt new procedures as and when required.</p>   | Application form and interview |

|  | Essential  | Method of assessment |
|--|--|----------------------|
|  | Willing to travel abroad to Nigeria, Africa and other countries as part of project delivery. |                      |

|                   | Desirable  | Method of assessment           |
|-------------------|--|--------------------------------|
| <b>Experience</b> | <p>Experience of positive collaboration within and outside of candidate's immediate research team</p> <p>Experience of collaboration with relevant industrial partners on a project</p> <p>Supervising other personnel involved in the project</p> | Application form and interview |



# Contact information

## Enquiries about the vacancy:

Name: Dr Jude Onwudili

Job Title: Senior Lecturer

Email: [j.onwudili@aston.ac.uk](mailto:j.onwudili@aston.ac.uk)

## Enquiries about the application process, shortlisting or interviews:

Recruitment Team via [jobs@aston.ac.uk](mailto:jobs@aston.ac.uk) or 0121 204 4500.

# Additional information

Visit our website <https://www2.aston.ac.uk/staff-public/hr> for full details of our salary scales and benefits Aston University staff enjoy

**Salary scales:** <https://www2.aston.ac.uk/staff-public/hr/payroll-and-pensions/salary-scales/index>

**Benefits:** <https://www2.aston.ac.uk/staff-public/hr/Benefits-and-Rewards/index>

**Working in Birmingham:** <https://www2.aston.ac.uk/birmingham>

**Employment of Ex-Offenders:** Under the Rehabilitation of Offenders Act 1974, a person with a criminal record is not required to disclose any spent convictions unless the positions they applying for is listed an exception under the act.

## Eligibility to work in the UK:

### New immigration system from 1 January 2021

A new immigration system has been introduced for people arriving in the UK from EEA countries with effect from 1 January 2021. In addition to those who have always required a visa, EU citizens who were not resident in the UK before 31 December 2021 will need to get a visa in advance.

You can find more information [here](#)

Candidates should check their eligibility to enter or remain in the UK in advance of making any job application via the [UKVI website](#). Before applying you should ensure that you meet the requirements, including meeting the English Language requirements. If you do not meet the eligibility criteria, any application for a work visa would be unsuccessful.

If you require a visa to work in the UK the most common types of visa are:

- Skilled Worker Visa <https://www.gov.uk/skilled-worker-visa>
- Global Talent Visa

If you are a leader or potential leader in one of the following fields you may be eligible to

apply for a Global Talent Visa:

- Academia or Research
- Arts and Culture
- Digital Technology

Please click the following link for further information and to check your eligibility for this visa. <https://www.gov.uk/global-talent>

**Equal Opportunities:** Aston University promotes equality and diversity in all aspects of its work. We aim to ensure, through our admissions policies for students, and our staff recruitment and selection processes that we encourage applications from all groups represented in the wider community at a local, national and international level.

The University will endeavour not to discriminate unfairly or illegally, directly or indirectly, against student or potential students, staff or potential staff. This commitment applies to all functions of the University and to any stage of an individual's career.

An Equal Opportunities Monitoring Form is included within the application form. Data you provide on the Equal Opportunities Monitoring Form will be included in a general database, for statistical monitoring purposes, enabling the University to monitor the effectiveness of its Policy, Codes of Practice and Guidelines on Equal Opportunities in Employment. Individuals will not be identified by name.

**Data Protection:** Your personal data will be processed in compliance with the Data Protection Act 2018 and the General Data Protection Regulation ((EU) 2016/679) ("GDPR"). The University's Data Protection Policy and Privacy Notices, including the Job Applicant Privacy Notice can be found at <https://www2.aston.ac.uk/data-protection>. Your application will only be used to inform the selection process, unless you are successful, in which case it will form the basis of your personal record with the University which will be stored in manual and/or electronic files. Information in statistical form on present and former employees is given to appropriate outside bodies.

Full details of our terms and conditions of service and associated policies and procedures are available online at <https://www2.aston.ac.uk/staff-public/hr/policies>

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**Where change  
gets real.**