

Research Associate/Fellow in Digital Twins for Sustainable Glass Manufacturing



OPPORTUNITY

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Reference: 0686-24

Grade: 8

Salary: £37,999 to £40,247 per annum, depending on experience

Contract Type: Fixed Term (Until 31 December 2026)

Basis: Full Time

Job description

Job Purpose:

Aston University has been awarded a 4 year (2023 -2027) collaborative Horizon Europe project, H2GLASS: Advancing Hydrogen (H₂) Technologies and Smart Production Systems to Decarbonize the Glass and Aluminium Sectors in consortium with 23 partners across UK and Europe. The H2GLASS project aims to accelerate decarbonization in the glass and aluminium industries by developing and applying the technology stack needed to achieve full hydrogen combustion in glass production facilities.

The project encompasses the following key components:

- ▶ Digital manufacturing solutions for sustainable glass production, including burners, furnaces, and downstream production processes.
- ▶ Cost and value chain evaluation and optimization of hydrogen supply for glass manufacturing.
- ▶ Validate H2GLASS technology through application in industrial context.

Aston University is involved in two main tasks within the project:

1. Modelling and cost evaluation of the hydrogen value chain: This task supports decision-making in hydrogen supply and related operations within the glass production process.
2. Digital twins of downstream glass production processes: This task evaluates the impact of adopting hydrogen in downstream glass production processes and develops adaptive control to the process to optimise outputs such as quality, productivity, and efficiency.

This is the second of two posts related to this project at Aston University. The role includes developing digital twins of downstream glass production processes, studying the impact of various process parameters on production outputs, and developing control strategies and algorithms to optimise the outputs, including quality, productivity, and efficiency etc. Close collaboration with the first post is expected to ensure synergy and alignment between the two tasks within the project.

Main Duties/Responsibilities

- ▶ Develop digital twins of downstream glass production processes in collaboration with team members and project partners.
- ▶ Lead related research, manage, perform and deliver project tasks on time and to a high standard.
- ▶ Produce high-quality research outputs and publications.
- ▶ Take responsibility for project planning, implementation, delivery, and overall project management.
- ▶ Attend project meetings, liaise, and collaborate with partners on cooperative tasks.
- ▶ Disseminate research through peer reviewed journal and conference publications, as well as presentations at seminars and media outlets.
- ▶ Maintain continuous progress and produce intermediate and final project reports.

Additional responsibilities

- ▶ Engage in continuous personal and professional development in line with the demands of the role, including undertaking relevant training and development activities.
- ▶ 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
Education and qualifications	<ul style="list-style-type: none"> ▶ PhD degree in Production Engineering, Industrial Engineering, Manufacturing, Operational Research, Chemical Engineering or other related subjects. 	Application form and interview
Experience	<ul style="list-style-type: none"> ▶ Experience or knowledge related to Digital twins, Production planning and control, Multi Objective Optimisation, Process control and simulation. ▶ Experience and track record of producing high quality research outputs and publications. ▶ Experience of project management and report writing. 	Application form and interview
Aptitude and skills	<ul style="list-style-type: none"> ▶ Good project planning and management skills. ▶ Professional and effective communication skills. ▶ Excellent team working skills. ▶ Enthusiastic, proactive and committed. 	Application form and interview

	Desirable	Method of assessment
Education and qualifications	<ul style="list-style-type: none"> ▶ Education and Qualification related to glass manufacturing process, particularly the downstream process. 	Application form

	Desirable	Method of assessment
Experience	<ul style="list-style-type: none"> ▶ Expertise and experience in Finite Element Analysis (FEA), and Computational Fluid Dynamics (CFD) that is applicable to glass manufacturing process. ▶ Experience or Knowledge in glass manufacturing process. ▶ Experience or knowledge in techno-economic evaluation of technology solutions. ▶ Experience of research planning for long-term vision. ▶ Experience of research grant application. ▶ Experience of research IP filing and grant application. 	Application form and interview
Aptitude and Skills	<p>Proactive in producing productive high quality research outputs contributing to research IP and income generation.</p> <p>Flexible and adaptable to the task scope and willing to learn new skills and knowledges to support the project delivery.</p> <p>Strong communication and interpersonal skills to work in a team and consortium.</p> <p>Commitment and results-oriented working attitude.</p>	Application form and interview

University values

All staff are expected to demonstrate/promote the University's values and expectations, which are an integral part of our strategy and underpin the culture of the University. In addition, our leaders are expected to be accountable, help to execute strategic visions of the University and share and set clear expectations that inspire those around them.

Values + Behaviours



Innovation

We strive for excellence within ourselves and others, providing solutions to new and existing challenges.



Collaboration

We work best when we are collaborative, working together to contribute to the Aston community.



Ambition

We strive together for improvement and innovation looking ahead to see the bigger picture.



Inclusion

We treat everyone in our community equally and how they would like to be treated.



Integrity

We are open, honest and fair. We take ownership of the way we work and how we treat each other.

How to apply

You can apply for this role online via our website <https://www2.aston.ac.uk/staff-public/hr/jobs>.

Applications should be submitted by 23.59 on the advertised closing date.

All applicants must complete an application form, along with your CV.

Any CV sent direct to the Recruitment Team and Recruiting Manager will not be accepted.

If you require a manual application form, then please contact the Recruitment Team via recruitment@aston.ac.uk.

Contact information

Enquiries about the vacancy:

Name: Prof Yuchun Xu

Job Title: Chair in Manufacturing

Email: y.xu16@aston.ac.uk

Enquiries about the application process, shortlisting or interviews:

Recruitment Team via recruitment@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: [Benefits and Rewards | Aston University](#)

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: You should ensure that you meet the eligibility requirements, including meeting the [English language standards](#). If you do not meet the eligibility criteria, any application for a work visa would be unsuccessful. Please see UKVI guidance for further information on eligibility, knowledge of English requirements and approved test centres <https://www.gov.uk/tier-2-general>

With the end of free movement for EU/EEA/Swiss nationals from 1 January 2021, the UK's new immigration system applies to all non-UK/Irish nationals who require a visa.

Where an individual is subject to UK immigration control, they will require a visa to work in the UK.

The following individuals do not need a visa for the UK, but do still have to prove their right to work before employment can commence:

- **British Citizens or Irish Nationals**
- **EU/EEA/Swiss nationals with Settled or Pre-settled status under the EU Settlement Scheme**
- **Non-EEA nationals with Indefinite Leave to Remain/Settlement in the UK**

The main routes available for those who need a visa to work in the UK are **Skilled Worker**, **Global Talent** and the **Graduate Route**.

You can find further information about each of these visa routes on our candidate immigration page.

If you will conduct research in your role, you may need to apply for and obtain ATAS clearance before Aston can issue a Certificate of Sponsorship for your visa application. Please see below for further details.

Academic Technology Approval Scheme (ATAS):

If you will conduct research in your role and you apply for a Skilled Worker or Temporary

Worker GAE visa, you may need to apply for and obtain ATAS clearance before Aston can issue a Certificate of Sponsorship for your visa application.

This process can take at least 6 weeks to process, and Aston will consider this when confirming your expected start date. Processing times will increase between April and September and can longer to complete.

There is no fast-track option available. ATAS certificates will be processed in order of receipt.

You can find more information about ATAS on our candidate immigration page.

Before you start and Right to Work

90-day entry vignette

If you have applied for your visa outside of the UK, you will receive a vignette in your passport which is usually valid for 90 days. Please make sure to travel to the UK within the 'valid from' and 'valid to' dates on this visa. If you entered the UK before or after these dates, you would not 'activate' the visa and you would need to leave and re-enter the country.

You will also receive a decision letter confirming details about your immigration permission and where to collect your Biometric Residence Permit.

Cost of Living - Estate and Letting Agents

There are numerous Estate and Letting Agents in and around Birmingham that can help you find suitable accommodation. The Midland Landlord Accreditation Scheme provides a list of professional agencies and landlords who have applied with them for accreditation. Whilst accreditation is not a guarantee of quality, it provides some reassurance about the standard of the service they provide.

You can also use property search websites such as Rightmove or Zoopla.

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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