

**Job Description**

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| Job Title: | Postdoctoral Research Fellow |
| Faculty/Professional Directorate: | Faculty of Science and Engineering |
| Subject Group/Team: | School of Engineering/Advanced Materials and Manufacturing Centre |
| Reporting to: | Head of School |
| Duration: | Fixed Term – 27 months |
| Job Family:  | Academic |
| Pay Band: | 7 |
| Benchmark Profile: | Research Band 7 |
| DBS Disclosure requirement: | None |
| Vacancy Reference: | TBC |

**Details Specific to the Post**

**Background and Context**

This postdoctoral research fellow post is funded by a £1.7 million ESPRC collaborative project “*Development of next generation disruptive mega casting technologies for green and sustainable transportation vehicles*”. See the recent EPSRC announcement: [*https://www.ukri.org/news/new-research-hubs-to-cut-carbon-and-reshape-uk-manufacturing/?utm\_medium=email&utm\_source=govdelivery*](https://www.ukri.org/news/new-research-hubs-to-cut-carbon-and-reshape-uk-manufacturing/?utm_medium=email&utm_source=govdelivery)

This project was awarded to the Hull, Brunel and Edinburgh University and will start from 1st Oct 2025 with a duration of three years. The Hull University part of the research tasks needs to recruit a postdoctoral research fellow for 27 months to take a leading role in the day-to-day delivery of the project in the Advanced Materials and Manufacturing Centre, School of Engineering, while also help to coordinate research activities with other universities and industrial partners involved in this project.

The applicants should have obtained a PhD in materials, metallurgy, engineering or manufacturing subjects, or nearly completed the PhD study, e.g., has already submitted the PhD thesis.

The role will require extensive liaison with the Project Lead, Co-Leads and other researchers to be employed in this collaborative project. The candidate should be a confident communicator and be capable of conversing effectively with a range of stakeholders. We are looking for someone who is passionate about the research and skilled in helping others to achieve the ambitious scientific and technological goals defined in the project.

The School of Engineering is one of four Schools within the Faculty of Sciences and Engineering at the University of Hull. The Advanced Materials and Manufacturing Centre is one of the key research themes in the school, equipped with the state-of-the art equipment and facilities for in-situ and real-time studies of solidification dynamics of metal alloy and sonoprocessing of advanced structural and functional materials. Some PhDs and Postdocs who have studied or worked in the Centre have later developed excellent careers in the top universities in the UK (Oxford, Cambridge, UCL) and China.

### Specific Duties and Responsibilities of the post

We wish to appoint an excellent researcher with well-developed hands-on and communication skills who has the ability to work independently and collaboratively as one of the postdoctoral researchers in the collaborative project. You will have a PhD or be close to completion in materials, metallurgy, engineering or manufacturing subjects. In particular, the research tasks need to have hands-on experience of conducting in-situ and operando studies of the liquid metal fluid flow dynamics and solidification behaviours at the synchrotron X-ray laboratories, for example in the European Synchrotron Radiation Facility, Grenoble, France.

For an informal discussion about the post, please contact Professor Jiawei Mi, Email: j.mi@hull.ac.uk

**GENERIC JOB DESCRIPTION**

The job duties and responsibilities listed below are intended to describe the general nature of the role. The duties and responsibilities and the balance between the elements in the role may change or vary over time depending on the specific needs at a specific point in time or due to changing needs in the department. Candidates should note that there may not be an immediate requirement to carry out all the activities listed below.

### Overall Purpose of the Role

The researcher at this level will be:

* An experienced and professional researcher and will be a subject specialist, drawing upon knowledge gained from postgraduate research and/or working within a Research Band 6 role.
* Associated with a particular project (or projects) and will contribute ideas, and/or enhancement of techniques or methodologies and be expected to take significant initiatives in their work and consult with the Principal Investigator over the details of the project. They will work under supervision and receive academic, pastoral support and guidance which may include specific training, career opportunities and mentoring.

They may contribute to the Department’s teaching, through supervision of projects, overseeing practical classes, or taking small group tutorial classes.

The main focus of the work will involve conducting individual and collaborative research projects under the general guidance of a senior academic or Principal Investigator using new research techniques and methods, analysing and interpreting data and writing up research for publication.

**Main Work Activities**

1. Conduct individual and collaborative research projects to include:
* Using expertise to carry out projects they are working on.
* Contribute to the preparing proposals and applications for external bodies, e.g. for funding and contractual purposes with appropriate support or contribute to the writing of collective bids.
* Use new research techniques and methods.
* Analyse and interpret research data.
* Write up research work of the project and its dissemination through seminar and conferences presentations and publications.
1. Responsible for the management of projects to include:
* Plan and manage own research activity in collaboration with others.
* Manage administrative activities with guidance if required.
* Plan and monitor the work of the project or projects if applicable.
1. Assist with teaching and learning support in own area of study to include:
* Assist in the development of student research skills.
* Assess student knowledge and supervision of projects.
* Supervise and guide final year students.
1. Develop and initiate collaborative working internally and externally to include:
* Build internal contacts and participate in internal networks for exchange of information and to form relationships for future collaboration and to progress their research.
* Develop links and join external networks to share information and identify future potential sources of funding.
* Work with colleagues on joint projects as required.
* Attend and contribute to relevant meetings.
1. Demonstrate evidence of own personal and professional development to include:
* Continually update knowledge and understanding in field or specialism.
* Appraisal, induction and performance reviews.
* Participate in training and development activity.
* Maintain links with professional institutions and other related bodies.
* Collaborate with academic colleagues on areas of shared research interest.

### Additionally the post holder will be required to:

* Fulfil the employees’ duties described in the University’s health and safety policies and co-operate with the health and safety arrangements in place within the department. May be required to undertake specific health and safety roles on request e.g. Display screen equipment assessor, departmental safety officer, fire warden etc.
* Show a commitment to diversity, equal opportunities and anti-discriminatory practices this includes undertaking mandatory equality and diversity training.
* Comply with University regulations, policies and procedures.

**PERSON SPECIFICATION – Research Band 7**

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| **Specification** | **Essential**  | **Desirable** | **Examples Measured by** |
| **Education and Training**Formal qualifications and relevant training | * A PhD in materials, metallurgy, engineering or manufacturing subjects (or already submitted the PhD thesis) plus a good Bachelor’s degree or Master's level qualification in the above discipline.
 |  | ApplicationInterview Other |
| **Work Experience**Ability to undertake duties of the post | **Evidence of:*** An emerging track record in materials, metallurgy, engineering research field evidenced by high quality scientific journal publications, presentations at the renown international conferences and contributing to grant applications
 |  | ApplicationInterview Other |
| **Skills and Knowledge**Includes abilities and intellect | **Evidence of:*** In-depth knowledge of solidification science and technologies, in particular the theories and experimental techniques concerning the studies of metal flow, crystalline phase nucleation and growth dynamics,
* Skilful in using X-rays, electron and neutron-based imaging and diffraction techniques to analyze and characterize the nano/microstructure of metal alloys.
* Proficiency in using 3D CAD software to design and optimize bespoke laboratory-based equipment for carrying out real-time and operando liquid metal fluid flow and solidification experiments
 | * PhD or Postdoctoral level research experience of conducting real-time, in-situ and operando experiments in different synchrotron X-ray labs, for example, the Diamond Light Source, UK, the European Synchrotron X-ray Radiation Facility, France, etc.
 | ApplicationInterview Other |
| **Personal Qualities**Includes any specific physical requirements of the post – (subject to the provisions of the Equality Act 2010) | * Willingness to adapt working patterns if demanded by the project.
 |  | ApplicationInterview Other |