

Job Description and Person Specification

Last updated: March 2025

**JOB DESCRIPTION**

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| Post title: | **Research Fellow in Anaerobic Fermentation** | | |
| School/Department: | School of Engineering / Department of Civil, Maritime and Environmental Engineering | | |
| Faculty: | Faculty of Engineering and Physical Sciences | | |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Dr Yue Zhang | | |
| Posts responsible for: | n/a | | |
| Post base: | Non Office-based (see job hazard analysis) | | |

To conduct fundamental research in mixed-culture anaerobic fermentation, in line with the research programme of Environmental Biotechnology Innovation Hub (https://ebicentre.co.uk/). The candidate should demonstrate strong expertise and skills in the application of engineering biology and bioprocess engineering tools for optimising microbial consortia of mixed culture systems for improving the production using diverse waste streams. This includes manipulating or modifying specific microbes in a consortium to increase interactions and enhance metabolic output by redirecting metabolic fluxes to maximise efficiency; and/or designing robust consortia with high tolerance for different types of environmental stress through adaptive laboratory evolution, along with knowledge of high-throughput analysis to understand community dynamics. S/he should also have a keen interest in exploring the upscaling of this as a viable industrial biotechnology route.

To enhance the research profile of the University by publishing leading research in these areas and disseminating work at prestigious international meetings.

Job purpose

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| --- | --- |
| Key accountabilities/primary responsibilities | % Time |
| 1. Develop and carry out research on mixed-culture anaerobic fermentation as specified above, including: investigate approaches and models to test and develop them; collaborate with project researchers in other institutions; carry out administrative tasks associated with specified research funding, for example risk assessment of research activities, organisation of project meetings and documentation; supervise the work of junior research staff; and implementation of procedures required to ensure accurate and timely formal reporting and financial control. | 85 % |

|  |  |
| --- | --- |
| Key accountabilities/primary responsibilities | % Time |
| 2. Contribute to the writing of bids for research funding. Regularly disseminate findings by taking the lead in preparing publication materials for referred journals, presenting results at conferences, or exhibiting work at other appropriate events. | 10 % |
| 3. Any other duties as allocated by the line manager following consultation with the post holder. | 5 % |

Direct responsibility to holder of research award or academic supervisor.

May have additional reporting and liaison responsibilities to external funding bodies or sponsors.

Establish meaningful connections both internally and externally within the international scientific community to foster collaborations and facilitate the widespread dissemination of our research outcomes. Collaborators/colleagues in other work areas and institutions.

Internal and external relationships

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

To attend national and international conferences for the purpose of disseminating research results.

*Applications for Research Fellow positions will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon successful completion of the PhD. Prior to the qualification being awarded the title of* ***Senior Research Assistant*** *will be given.*

Special Requirements

**PERSON SPECIFICATION**

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| --- | --- | --- | --- |
| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | PhD or equivalent professional qualifications and experience in industrial biotechnology, engineering biology, biomolecular engineering, biochemical engineering, environmental biotechnology, microbial electrochemical engineering or a related field  Detailed understanding and knowledge of engineering biology, bioprocess engineering, microbial fermentation and bioreactor operation, and excellent experimental research sills in the relevant areas | Knowledge of electro-fermentation  Experience of electrochemical control of microbial fermentative metabolism | Application, CV, cover letter and Interview |
| Planning and organising | Able to organise own research activities to deadline and quality standards |  | Application, CV, cover letter and Interview |
| Problem solving and initiative | Able to develop understanding of complex problems and apply in- depth knowledge to address them  Able to develop original techniques/methods |  | Application, CV, cover letter, reference and Interview |
| Management and teamwork | Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development |  | Application, CV, cover letter and Interview |
| Communicating and influencing | Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience  Able to present research results at group meetings and conferences  Able to write up research results for publication in leading peer-viewed journals  Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes |  | Application, CV, cover letter and Interview |
| Other skills and behaviours | Understanding of relevant Health & Safety issues  Positive attitude to colleagues and students |  | Interview |
| Special requirements | Able to attend national and international conferences to present research results |  | Interview |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| --- | --- |
| * Yes | If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| ☒ No | If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work |  |  |  |
| Extremes of temperature (eg: fridge/ furnace) | x |  |  |
| ## Potential for exposure to body fluids |  |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) |  |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: | x |  |  |
| Frequent hand washing |  |  |  |
| Ionising radiation |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling |  |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) |  |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) |  |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) |  |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling |  |  |  |
| Repetitive crouching/kneeling/stooping |  |  |  |
| Repetitive pulling/pushing |  |  |  |
| Repetitive lifting |  |  |  |
| Standing for prolonged periods |  |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) |  |  |  |
| Fine motor grips (eg: pipetting) | x |  |  |
| Gross motor grips |  |  |  |
| Repetitive reaching below shoulder height |  |  |  |
| Repetitive reaching at shoulder height |  |  |  |
| Repetitive reaching above shoulder height |  |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public |  |  |  |
| Lone working |  |  |  |
| ## Shift work/night work/on call duties |  |  |  |