

Research Associate in Mechanical Design of Polymer Recycling Processes

Job Ref: REQ260601

School/Department summary:

We are seeking a talented and motivated Researcher to join an EPSRC and Defra-funded multi-institution project addressing one of the UK's most pressing polymer waste challenges, the recycling of synthetic sports turf. The PDRA should have a background in mechanical / manufacturing engineering, recycling processes, and ideally lifecycle analysis. The role presents an excellent opportunity to actively work across academic disciplines, industry and governing body partners, gain hands-on industrial experience and engage in cross-disciplinary training in engineering, materials and sustainability.

Loughborough University is internationally recognised for the impact and relevance of its research, with strong links to industry, government and the public sector. Engineering at Loughborough is one of the largest in the UK, bringing together expertise across mechanical engineering, materials science and manufacturing within a highly collaborative, interdisciplinary environment.

This role is embedded within the Centre for Sustainable Manufacturing and Recycling Technologies (SMART), a leading UK centre for research in sustainable design, lifecycle analysis and recycling processes. The Centre was first established within the Wolfson School of Mechanical, Electrical and Manufacturing Engineering in 2004, and its mission is to develop the new strategies, methodologies and supportive technologies required to implement a sustainable approach to the design, production, consumption and disposal of manufactured products thereby helping to safeguard the future of the planet. The Centre has core expertise and knowledge in life cycle analysis, sustainable design, resource and energy efficient manufacturing, end of life processing of products, and sustainable consumption and business models that are key enablers for achieving transformational change. Our industrially focused research enables us to work with some of the world's most renowned engineering and commercial companies. The project also utilises: the Sports Technology Institute, a global leader in applied sports engineering, working closely with industry and governing bodies to translate research into innovation; and the Department of Materials providing internationally recognised expertise in polymer science, materials characterisation and processing, supported by advanced analytical and testing facilities. Together, these centres offer a unique environment for delivering interdisciplinary research with clear pathways to industrial application and real-world impact, particularly in support of circular economy solutions.

Project Description:

ReSurface: Solving the UK's Polymeric Waste Crisis from Synthetic Sports Turf Fields is an EPSRC and Defra-funded interdisciplinary project led by Loughborough University, in collaboration with the University of the West of Scotland and a network of industry and policy partners. It addresses the major environmental challenge of end-of-life synthetic sports turf, of which only ~10% is currently recycled, by developing advanced separation and recycling technologies alongside a UK-wide environmental and economic model for sustainable infrastructure. The project brings together expertise in engineering, materials, circular economy and environmental assessment, working with partners including Sport England and the Football Foundation to ensure real-world impact. The Researcher will play a central role in delivering the research, working closely with academic and industry partners to translate outcomes into scalable, practical solutions. This role offers an excellent opportunity to work at the interface of engineering, materials and sustainability, and to directly engage with industry and policy stakeholders to influence future recycling practice and infrastructure.

Job Description

Job Family and Grade: Specialist and Supporting Academic Research Grade 6

Job Purpose

The Research Associate will undertake experimental research to develop, test and optimise mechanical recycling and separation processes for end-of-life synthetic sports turf. Working within a multidisciplinary project team, the role will generate process data to support scale-up, lifecycle assessment and system-level modelling, collaborating with academic and industry partners to deliver practical, scalable circular economy solutions.

Job Duties

Research

- To design, develop and optimise laboratory-scale recycling and separation processes for end-of-life synthetic sports turf systems with a focus on infill-carpet separation, carpet fragmentation and post-fragmentation separation
- To plan and conduct experimental programmes to evaluate process efficiency, separation performance, energy use and material yields
- To work directly with project partners to align experimental outcomes with industrial requirements and scale-up considerations
- To support the development of higher-value output products informed by process optimisation
- To provide process data and insights to support lifecycle and system-level modelling
- To contribute to the translation of research outcomes into industrially relevant processes, materials and products
- To write research papers suitable for publication in peer-reviewed academic journals

General, Technical

- To actively work with industrial and other non-academic stakeholders to determine system requirements and identify and address potential barriers for implementation
- To present project findings to academic, industrial and non-academic audiences at meetings, workshops and conferences
- To travel to attend project meetings, engagement events and conferences and to feed back to the project team on progress, to make recommendations for next steps
- To contribute to the development of future research ideas and funding proposals where appropriate
- To prepare and maintain risk assessments, method statements and safe working practices for laboratory equipment and processes
- To manage technical equipment and provide training to other users as required
- To engage in general laboratory organisation tasks

General, Administrative

- To engage in University training programmes consistent with the PDRA's ongoing professional development, the needs of the project team and those of the University
- To maintain confidentiality where relevant and ensure compliance with NDA's and intellectual property agreements
- To work collaboratively with relevant administrative, technical and academic staff across the University
- To support the academic staff in the project team with the co-supervision of undergraduate / MSc work and day-to-day supervision and support of other researchers
- To support relevant teaching delivery as required
- To carry out specific other duties as may be reasonably requested by the project leaders and that are commensurate with the nature and grade of the post

Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility outlined in the document.

Organisational Responsibility

Reports to the: Shahin Rahimifard, Professor of Sustainable Engineering and Steph Forrester, Professor of Sports Engineering and Biomechanics

Person Specification

Your application will be assessed based on the essential and desirable criteria listed below.

Applicants are strongly encouraged to explicitly demonstrate how they meet each essential (and desirable) criteria at the application stage. The criteria that you need to demonstrate in your application will be listed as Stage 1 in the table below.

Stages of assessment are as follows:

- 1 – Criteria measured at Application
- 2 – Criteria measured at Test/Assessment Centre/Presentation
- 3 – Criteria measured at Interview

Essential Criteria:

Area	Criteria	Stage
Experience	Experience in mechanical engineering, process design and sustainable manufacturing	1,2,3
	Experience designing and running laboratory-based experimental rigs	1,2,3
	Experience of practical problem-solving in experimental processes	1,2,3
	Experience of analysing and interpreting experimental data	1,2,3
	Experience of authoring original work in the refereed academic journals	1,2,3
	Experience of generating project reports and presenting project findings to specific audiences, ranging from academic experts to industry partners	1,2,3
Skills and abilities	Knowledge of mechanical recycling processes	1,3
	Ability to manage multiple tasks, prioritise work and meet project deadlines with minimal supervision	3
	Excellent written, oral communication, interpersonal, and organisational skills	3
	Ability to work collaboratively with multidisciplinary academic and industrial teams	3
	Knowledge of relevant technical software for data analysis and engineering design, and familiarity with lifecycle assessment (LCA/LCC) approaches	3
	Skills in finding information in the scientific literature and proposing original ideas	3
	Willingness to support the running of industrial and stakeholder engagement meetings, seminars and workshops	3
	Knowledge of relevant health and safety requirements for laboratory-based mechanical processing	3
Training	A willingness to engage in further training as appropriate and to adopt new procedures as and when required	3
Qualifications	PhD (or near completion) in Mechanical or Manufacturing Engineering, or a closely related discipline	1
Other	Uphold and actively contribute to the University's commitment to Equity, Diversity and Inclusion	3

	Ability and willingness to travel to national and international partners, and to do occasional short secondments to project partners	3
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Desirable Criteria:

Area	Criteria	Stage
Experience	Experience of polymer processing methods	1,3
	Experience of scaling lab-scale processes towards industrial application	1,3
	Experience working with industrial partners on applied research projects	1,3
	Experience supervising undergraduate or MSc research projects	1,3

Conditions of Service

The appointment will be subject to the [University's Terms and Conditions of Employment](#) relevant to the job grade.

Shared University Responsibilities

As a member of the Loughborough community, you are expected to:

- Take reasonable care of yourself, others and the environment, and to prevent harm by your acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Sustainability Policies & Procedures.
- Support and contribute to the University's commitment to principles of equity, diversity and inclusion (EDI) while carrying out all duties, behaving in a manner that treats others with dignity and respect and upholds every person's right to lawful freedom of expression, freedom of speech and academic freedom. Further information about EDI at Loughborough and our strategic aims is available on our website.

Our Purpose, Vision, and Values

Our purpose, Vision and Values underpin all that we do and shape how we work together at Loughborough. We're proud to promote our values: **Adventurous, Collaborative, Creative, Authentic and Responsible**. Our people bring these values to life every day, and they are central to the positive and supportive culture that makes Loughborough unique.

If you join us, you'll be encouraged to bring these values to life in your own work and contribute to the positive, supportive culture that makes Loughborough unique.

Read more about our [vision and values](#).

Our Accreditations



We strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a [Bronze Athena SWAN award](#) which recognises the importance of support for women at all stages of their academic career.



We are proud to be a [Race Equality Charter Member](#). The Charter aims to improve the representation, progression and success of all minority ethnic staff and students within higher education and address issues of racism within higher education institutions (HEIs).



We are proud to be a Disability Confident Employer and have adopted a proactive approach to employing disabled people and to creating a more diverse workforce. We ensure that our recruitment processes are inclusive and accessible. We guarantee to offer an interview to all applicants who have declared themselves with a disability, provided they meet the essential criteria for a role. We proactively anticipate and provide reasonable adjustments and support existing employees who acquire a disability or long-term condition to thrive in the workplace.



We are a real living wage employer, and our Living Wage Employer Mark shows our commitment to paying our staff according to the cost of living.



We are proud supporters of the [City of Sanctuary movement](#) and delighted to be recognised as a University of Sanctuary. This national network brings together, university staff, lecturers, academics and students, who together work to make Higher Education institutions place of safety, solidarity and empowerment for people seeking sanctuary.

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.