

Postdoctoral Research Fellow



Role Description

GRADE
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LOCATION
Merchiston, Edinburgh
LINE MANAGER
Lecturer in Mechanical Engineering – School of Computing Engineering and the Built Environment

Role Summary

Edinburgh Napier University's School of Computing, Engineering and the Built Environment (SCEBE) is seeking a **Postdoctoral Research Fellow** to support an **externally funded (Innovate UK) project** exploring a novel controlled release platform for agrochemical using electrospun fibers. In this position, you will be part of a dynamic team dedicated to advancing biodegradable polymer research and nanomaterial applications, contributing to cutting-edge innovations in sustainable agriculture.

You will primarily oversee the day-to-day operations of the **Polymer Engineering Laboratory** and the **Materials & Nano Materials Laboratories**, ensuring that facilities, equipment, and experimental procedures are maintained and continuously improved. This role is crucial to delivering the **SproutSmart** project, focused on developing a universal platform for agrochemical-controlled release through electrospinning techniques and extensive material characterization.

The successful candidate will work closely with our industrial collaborator **Impact Solutions**. Impact Solutions is a UKAS accredited laboratory and innovation centre - they have a long consistent thread of innovation and new technology development within the areas of waste valorisation, recycling and sustainability, spanning over 20 years.

Line Management Responsibility for:

This role does not have any line management responsibilities.

Main Duties and Responsibilities

1. Research & Development

- Conduct research on biodegradable polymer formulations for controlled release applications, contributing to the advancement of **electrospinning** techniques in agriculture.
- Develop and optimize protocols for electrospinning processes, including coaxial electrospinning, ensuring stable and tuneable nutrient release profiles.

2. Laboratory Management

- Implement and maintain inventory systems for raw materials, consumables, and specialised equipment to support the research activities effectively.

3. Health and Safety

- Ensure strict adherence to **Health and Safety** and **COSHH** regulations, developing and maintaining risk assessments and safe operating procedures in line with university policies.

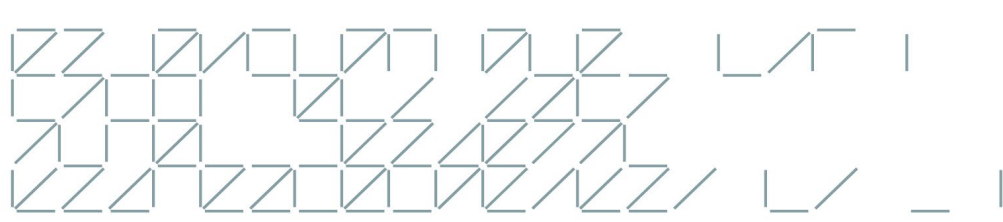
4. Data Collection & Characterisation

- Employ a range of analytical techniques, such as **DSC, FTIR, Tensile Testing, SEM, and biodegradation assays**, to characterize polymers, electrospun fibers, and final product performance.
- Analyse and interpret experimental data, maintaining accurate documentation and contributing to publications, reports, and presentations.

5. Collaboration & Communication

- Collaborate with internal and external partners, including academic colleagues, industry partners (e.g., Impact Laboratories Ltd), and fellow researchers, to ensure project milestones are met.
- Present research findings at project meetings, conferences, and in peer-reviewed journals.
- Provide guidance and training to students and staff on equipment usage, experimental methodologies, and best practices.
- Provide valuable contributions to quarterly updates with Innovate UK

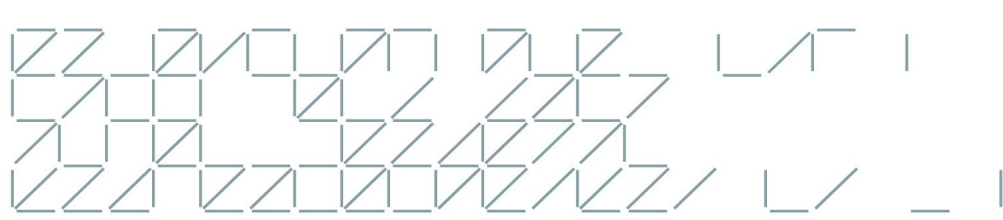
6. Continuous Improvement



- Keep abreast of recent advances in biodegradable polymers, electrospinning technologies, and agrochemical delivery systems.
- Identify opportunities for process enhancements and propose innovative solutions to improve laboratory operations and research outcomes.

PERSON SPECIFICATION

	ESSENTIAL	DESIRABLE
Education / Qualifications		
<ul style="list-style-type: none"> • A PhD in Materials Science, Polymer Science, Chemical Engineering, or a related discipline. 	✓	
Skills / Experience		
<ul style="list-style-type: none"> • Demonstrable expertise in polymers, particularly biodegradable polymers, and their processing. 	✓	
<ul style="list-style-type: none"> • Proven hands-on experience with electrospinning, including method development, optimization, and scale-up. 	✓	
<ul style="list-style-type: none"> • Strong working knowledge of analytical and characterization techniques such as DSC, FTIR, Tensile Testing, SEM, and biodegradation assays. 	✓	
<ul style="list-style-type: none"> • Experience managing laboratory facilities, including equipment maintenance, risk assessments, and compliance with Health and Safety regulations. 	✓	
<ul style="list-style-type: none"> • Experience in agrochemical delivery or related research areas. 		✓
<ul style="list-style-type: none"> • Knowledge of coaxial electrospinning and formulation-based approaches for controlled release. 		✓
<ul style="list-style-type: none"> • Excellent communication skills, both written and verbal, with the ability to engage effectively with academic, industrial, and student stakeholders. 		✓
<ul style="list-style-type: none"> • Strong organisational skills, with the ability to prioritize tasks, work independently, and meet strict deadlines. 		✓



- A proven track record of publishing in peer-reviewed journals or presenting at international conferences.
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