

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF SCIENCE & ENGINEERING
SCHOOL OF NATURAL SCIENCES
HENRY ROYCE INSTITUTE
RESEARCH FELLOW – SUSTAINABLE MATERIALS INNOVATION HUB (2 POSTS)
VACANCY REF: SAE-015929

Salary: Grade 7, £41,526 to £51,034 per annum
Hours: Full-time
Duration: Fixed term of up to 3 years
Location: Oxford Road, Manchester (with some travel required)

Enquiries about the vacancy, shortlisting and interviews:

Name: Professor Michael Shaver

Email: Michael.shaver@manchester.ac.uk

Background

The Henry Royce Institute (Royce) is the UK's national institute for advanced materials research and innovation. With its hub at The University of Manchester, the Institute is a partnership of nine leading institutions – the universities of Cambridge, Imperial College London, Liverpool, Leeds, Oxford, Sheffield, the UK Atomic Energy Authority and National Nuclear Laboratory. Royce supports world-recognised excellence in UK materials research, accelerating the commercial exploitation of innovations and delivering positive economic and societal impact for the UK.

The Sustainable Materials Innovation Hub (SMIH) supports small to medium businesses from across the Greater Manchester to find sustainable innovations to their material needs. The SMIH will bring together material science expertise and business intelligence to offer a defined workflow of 'Advice', 'Assess' and 'Innovate' to understand where businesses can make efficiencies, realise opportunities and avoid unintended consequences in their plastics and materials management. This may be through adopting new sustainable materials, innovating in waste management, or promoting material circularity. The Henry Royce Institute Hub Building will be the home for the SMIH, with three interlinking laboratories equipped with capability to characterise, synthesise and process polymers. This will facilitate innovation in new sustainable polymers, improved methods of recycling, and validation of emerging sustainable materials that appear on the market. This is

underpinned by an understanding of the behaviours of individuals and businesses that may inhibit innovation adoption.

The SMIH is led by Director Michael Shaver, Professor of Polymer Science at The University of Manchester and Sustainable Materials Challenge Lead for the Henry Royce Institute.

The SMIH and this post are part-funded by the European Regional Development Fund (ERDF).

Overall Purpose of the Role:

Under the leadership of the SMIH Director, the Research Fellows will work predominantly under the 'Innovate' strand on next generation sustainable materials. Their research will span the supply chain from the development of new degradable films, adhesives and heat seals to the future of waste management systems, with the four areas of focus (1) Biodegradable Polymers and Invisible Plastic Waste; (2) Standardising Recyclability and Degradation; (3) Modern Waste Management; and (4) Compatibilisers. Whilst pursuing the underpinning, lower-TRL research, they will be brought into SME projects as appropriate, building on the initial scientific foundations to enable new technologies to reach the TRLs needed to secure substantial follow-on funding. They will be embedded with the other researchers from the Green Materials Laboratory, allowing innovations and industry engagements to percolate through the structure and for each of the strands to iterate and optimise. The Research Fellows will be expected to both develop core innovations and translate these innovations into practice through engaging in a portfolio of projects co-developed with SMEs.

Key Responsibilities, Accountabilities or Duties:

The Research Fellows will be expected to:

- Develop research objectives, projects and proposals in sustainable materials innovation.
- Conduct individual or collaborative research projects, particularly in the translation and development of innovation with SMEs in Greater Manchester.
- Identify sources of follow-on funding and contribute to the process of securing funds.
- Extend, transform and apply knowledge acquired from scholarship to research, innovation and industry engagement.
- Write or contribute to white papers, publications or industry reports.
- Make presentations at conferences, trade shows or industry events.
- Routinely communicate complex and conceptual ideas to those with limited knowledge and understanding as well as to peers using high level skills and a range of media.
- Collaborate actively within and outwith the University to complete research projects and advance thinking across the broad interdisciplinary area of sustainable materials, including through participation in and building of internal and external networks.
- Mentor colleagues with less experience and advise on personal development.
- Coach and support colleagues in developing and translating their research outputs.
- Take lead responsibility for a suite of small research projects and industry engagements.
- Develop productive working relationships with other members of staff.
- Assess, interpret and evaluate outcomes of research.
- Develop new concepts and ideas to improve our development and understanding of material sustainability.

- Resolve problems of meeting research objectives and deadlines.
- Develop ideas for funding, promoting and translating sustainable materials innovations.
- Prioritise research programmes, commercial and consultancy activities, often in collaboration with colleagues and sometimes subject to the approval of the Director of the SMIH.
- Plan, co-ordinate and implement research programmes.
- Manage the use of research resources, including research budgets, to ensure that effective use is made of them.
- Conduct risk assessments and take responsibility for the health and safety of others.
- Balance the pressures of research and administrative demands and competing deadlines.
- Work with other ERDF projects in the region to help promote innovation and research investment.

Essential Knowledge, Skills and Experience:

- Have, or be about to obtain, a relevant PhD (or equivalent) in polymer chemistry, sustainable materials or a cognate field
- Specialist knowledge in either sustainable polymer chemistry, processing, waste management or other relevant discipline
- Specialist knowledge in sustainability and/or circular economy principles
- Experience in research methods and techniques to work within the Sustainable Materials Innovation Hub, including one or more of polymer synthesis, characterisation, degradation or extrusion
- Excellent written and oral communication and interpersonal skills
- Excellent time management and organisational skills
- Ability to work independently and as part of a team
- Ability to liaise confidently and effectively with a range of individuals
- Flexible approach to dealing with research problems as they arise
- Willingness to learn and develop
- Ability to meet deadlines
- Strong publication record, either through journal publications, patents or translational research papers
- Demonstrated ability to work collaboratively across disciplines, including through industrial collaboration
- Ability to assess and organise both time and resources
- Understand equal opportunity issues as they may impact on areas of research content