UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Process Systems for Sustainable Packaging, Faculty of Engineering and Physical Sciences

Salary: Grade 7 (£39,355 – £46,735 p.a.) Due to funding restrictions, an appointment will not be made higher than £40,497 p.a.

Reference: EPSPE1122

Location: Leeds main campus (with scope for hybrid working)

Closing date: Sunday 13 April 2025

Fixed-term for up to 18 months

We are open to discussing flexible working arrangements

Research Fellow in Process Systems for Sustainable Packaging,
School of Chemical and Process Engineering.

Do you have a strong interest in eliminating single-use plastic packaging? Do you have experience in Process Systems Engineering and Sustainability? Are you keen to develop your career in optimising novel material supply chains?

Achieving a sustainable and net zero ambition for fast-moving consumer goods (FMCG) packaging is a massive industry-wide challenge. The biggest contributor to FMCG plastic waste footprint are products within single-use, single-dose flexible packaging. Today, there is no formal or informal collection infrastructure for these environmentally persistent formats, leading to very high levels of littering, with the rest ending up in landfills.

In this project, you will develop mathematical models and optimisation protocols to improve our understanding of machinability and viability during large-scale deployment of novel sustainable packaging. This will involve mapping the materials resource supply chain across geopolitical boundaries, integrating novel manufacturing methods into an intensified process flowsheet, developing life cycle sustainability assessments through multiple decision criteria and evaluating supply chain uncertainties aligned to FMCG packaging.

This project is funded via the UKRI EPSRC early-stage Prosperity Partnership across Imperial College, the University of Leeds, the University of Manchester and an international FMCG company, to address the critical issues of the lack of a truly sustainable packaging alternative.

What does the role entail?

As a Research Fellow, your main duties will include:

- Apply a self-led approach to developing an Optimal Decision-Making Toolbox for novel sustainable packaging;
- Develop and intensify the manufacturing flowsheet for the new packaging production line;


- Develop costing models using techno-economic assessments to judge the feasibility of novel sustainable packaging;
- Perform life cycle sustainability assessments to determine the environmental, economic and social impacts of sustainable packaging production;
- Assess the uncertainty of material supply chains as well as packaging production;
- Develop research objectives and proposals, collaborating with the Prosperity Partnership Team to set the direction of research activities and the project, while effectively communicating results through organised reports, journal publications and meeting presentations;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own research;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or have submitted your thesis before taking up the role) in Chemical Engineering;
- Experience in supply chain optimisation using General Algebraic Modelling System (GAMS);
- Experience in process design, simulation, intensification and process flowsheeting using Aspen Plus and Aspen Custom Modeler;
- Experience in stochastic optimisation protocols for uncertainty/sensitivity determination;
- Experience in developing techno-economic models and carrying out life cycle assessments using SimaPRO software and Ecoinvent databases;
- Experience with modelling biopolymer supply chains and with linear algebra and machine-learning tools;
- Experience in working with and collaborating with multiple partners/stakeholders;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- A developing track record of peer-reviewed publications in international journals;
- Excellent communication skills both written and verbal, and the ability to communicate your research at national and international conferences;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development;

You may also have:

- Experience of pursuing external funding to support research;
- A strong first degree in Chemical Engineering.

How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23:59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

Dr. Keeran Ward, Lecturer in Chemical Engineering
Email: K.R.Ward@leeds.ac.uk

Additional information

Faculty and School Information
Further information is available on the research and teaching activities of the Faculty of Engineering & Physical Sciences, and the School of Chemical and Process Engineering.

Working at Leeds
We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our Working at Leeds information page.

A diverse workforce
As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN Silver Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our equality and inclusion webpage provides more information.

Information for disabled candidates
Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our How to Apply information page or by getting in touch by emailing HR via hr@leeds.ac.uk.

Criminal Record Information
Rehabilitation of Offenders Act 1974
A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.

Salary Requirements of the Skilled Worker Visa Route
Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit the Government's Skilled Worker visa page.

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit the Government's page, Apply for the Global Talent visa.