

PhD Studentship

Design, manufacturing and characterisation of sustainable flexible packaging films

Application deadline: until filled
Start date: October 2022 (flexible)

Applications are invited for a fully funded EPSRC-iCASE PhD studentship in the development of sustainable lignocellulosic biomass-derived flexible packaging within the Future Materials Group of Imperial College London under the supervision of Dr Koon-Yang Lee and Unilever under the supervision of Dr Maria Jimenez-Solomon.

This PhD project will tackle the urgent need to produce truly sustainable recyclable and biodegradable flexible packaging such that our economy could be decoupled from fossil-derived resources. Whilst more plastic recovery facilities (PRFs) can be built to increase the recycling rate of rigid plastic packaging in the UK, one challenge still remains – the recycling of flexible plastic packaging. This is because PRFs cannot sort flexible plastics efficiently. Furthermore, many flexible plastics manufactured today are composites made of distinct polymer layers and the separation of these layers into their individual constituents for recycling is still an unresolved challenge. It is estimated that >0.4 Mt of flexible plastic packaging leaks into the environment every year. We therefore need a novel approach to reduce the environmental footprint of flexible plastic packaging, which is based on a linear “take-make-dispose” model. The main objective of this PhD project is to design and manufacture truly green, economy viable and intrinsically scalable flexible paper-based lignin films that not only can compete with commercial fossil-derived (multi-layer) flexible plastic packaging but also be compatible with existing supply chain and manufacturing processes without the need of a fossil-derived polymer coating.

Applicants should have, or expect to obtain, a strong Master’s degree in a quantitative STEM discipline, e.g., a 1st class degree in Chemistry, Materials, Chemical Engineering or any other relevant STEM subjects. We also expect the applicants to have a demonstrable interest in research, innovation and inter-disciplinary research. It is desirable for the successful applicant to demonstrate experience, knowledge, and/or interest of relevance to the project, e.g., basic chemistry, principles of chemical engineering, polymeric materials and lignocellulosic materials, and teamworking skills.

Funding is available for 4 years and will provide full coverage of tuition fees and an annual tax-free stipend of approximately £19,668.

This studentship is available for students eligible for home fees (home fees may be demonstrated by being a UK national, having settled or pre-settled status, or indefinite leave to remain or enter). For full information on fee status eligibility, please visit <https://www.imperial.ac.uk/students/fees-and-funding/tuition-fees/fee-status/>

Interested applicants should send an up-to-date curriculum vitae to Dr Koon-Yang Lee (koonyang.lee@imperial.ac.uk) citing “PhD Studentship, ICL-Unilever” in the email title. Suitable candidates will be required to complete an electronic application form, following the standard Imperial College application procedure. For queries regarding the application process, please contact Lisa Kelly (l.kelly@imperial.ac.uk).

Imperial College is committed to equality and valuing diversity. We are an Athena Silver SWAN Award winner and a Stonewall Diversity Champion.