

Applications are invited for the following a PhD studentship for the following project:

Bio-based synthesis and recycling of plastics

The position will be based with Dr. Paul Young (School of Biochemistry and Cell Biology) and Prof. Justin Holmes, of the Materials Chemistry and Analysis Group (School of Chemistry and the Environmental Research Institute) at University College Cork, Cork, Ireland. The project is part of the Engineered Functional Materials and Sustainable Materials themes within the Advanced Materials and Bioengineering Research Centre (AMBER) centre.

Summary of project

- Ongoing production of plastics from petrochemical sources is unsustainable and contributes to anthropogenic climate change, while the accumulation of plastic waste has potentially catastrophic environmental consequences. Current recycling methods produce recycled plastics of inferior quality to the virgin plastics from which they are produced, limiting their commercial viability.
- Biological synthesis of the monomers required for plastic production through fermentation and metabolic pathway engineering can potentially reduce our dependence on petrochemicals and represents a more environmentally friendly and sustainable process for plastic production.
- Conversely, biological approaches involving the identification and optimization of novel enzymatic activities should permit the efficient breakdown of waste plastics to recover their constituent monomers. This will allow the recycling of plastics without the loss of performance associated with current approaches.
- The PhD candidate will conduct a specified programme of research under the supervision of Dr. Young and Prof. Holmes.
- The successful candidate must be able to work at the interfaces between biology, chemistry and materials science. Significant interdisciplinary interactions with researchers using chemical approaches to address the same questions are anticipated.
- The research project will employ advanced protein engineering and other cutting-edge techniques in order to develop and optimize novel enzymes and metabolic pathways for the production and recycling of plastics.

For more information please contact Dr Paul Young | Email: p.young@ucc.ie |

The ideal applicants will have a 2:1 Class Honours Bachelor's degree in (or equivalent) in biology, biochemistry, chemistry, genetics, microbiology, biotechnology, materials or environmental science or a similar discipline.

How to apply:

Please send (1) your C.V. and (2) a one-page letter outlining any relevant experience and your reasons for wanting to participate in the project, by email to p.young@ucc.ie, on or before the closing date 31/4/2020. Please quote "PhD Studentship" on the subject line of your email.

Positions will remain opened until filled but the preferred start date is between *September and October 2020*. Only short-listed applications will be acknowledged.

This position is funded by AMBER, SFI Research Centre for Advanced Materials and BioEngineering Research & CRANN Institute. The AMBER research centre, as a community of researchers, welcomes its responsibility to provide equal opportunities for all. We are actively seeking diversity in our research teams and particularly encourage applications from underrepresented groups.