



PHD Studentship in Life Cycle Assessment

School of Biosystems & Food Engineering

<http://www.ucd.ie/biosystems/>

AgriChemWhey - An integrated biorefinery for the conversion of dairy side streams to high value bio-based chemicals

Whey Permeate (WP) and De-lactosed Whey Permeate (DLP) are major side-streams of dairy processing and represent a key challenge for the dairy industry due to a lack of reliability in current disposal routes and represent a sustainability bottleneck for the expansion of milk production in Europe in the “post-milk-quota era”. AgriChemWhey will build a first-of-a-kind, industrial-scale biorefinery with integrated symbiotic industrial and agricultural value chains that will valorise over 25,000 tonnes (100% dry matter) per annum of excess WP and DLP to several added value products for growing global markets including lactic acid, polylactic acid, minerals for human nutrition and bio-based fertilisers. A Flagship plant, representing the first major industrial venture to convert residues from food processing, as second generation feedstocks, to value added bio-based products will be used to evaluate the techno-economic viability of the innovative WP/DLP-to-lactic acid biorefinery technology. AgriChemWhey will develop a blueprint for an economic sustainability concept and replication plans for other regions across Europe.

This PhD project will focus on developing a consequential life cycle assessment model for the biorefinery products and their value chains, while enabling LCA to be used at design, implementation and testing phases of the overall project. There will be a specific focus on interacting with industry partners during all of these stages of the project to best understand the value chain and for on-site data collection.

The ideal candidate will have an excellent degree in a quantitative science-based discipline such as biosystems and food engineering, agricultural technology, environmental science, industrial ecology or similar. Some knowledge or experience of the dairy industry and life cycle assessment would be helpful.

Excellent scientific, organisational and project management skills, a commitment to research, excellent problem solving skills, the ability to work independently and as part of a multi-disciplinary team and excellent interpersonal and communications skills will all be necessary.

Stipend: €16,000 per annum (+ contribution of fees up to €6,900 per annum)

PhD Duration: 4 years

Informal requests for further details can be made to Dr Fionnuala Murphy and Professor Nicholas Holden (fionnuala.murphy@ucd.ie).

Closing date: 9th March 2018

To apply please send your CV and cover letter detailing motivation and career plan applications by email to fionnuala.murphy@ucd.ie for the attention of Dr Fionnuala Murphy and Prof Nicholas M. Holden.

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