PhD studentship in the SENSUS (Sensing Nutrients for Agronomic Advice and Sustainability Measures) project

At the DCU Water Institute

Funded by the Irish Department of Agriculture, Food and the Marine

Project title: Developing passive sampling and lab-on-a-chip devices to rapidly assess nutrients in soils, sediments and surface waters

We are seeking applicants with a Bachelors/Masters degree (2.1 or higher) in analytical science, environmental science, agricultural science, or similar, preferably with field and laboratory experience (*e.g.* in soil or water sampling, chemical analysis via GC-MS and HPLC-MS, etc.).

A studentship of €18,000 per annum, plus fees costs to a maximum of €6,000 per annum, is available for 4 years from 5th January 2021. The PhD student will be registered in Dublin City University, supervised by Dr. Blánaid White (DCU) and Dr. Karen Daly (Teagasc) and work as part of the DAFM-funded project, SENSUS - Sensing Nutrients for Agronomic Advice and Sustainability Measures. This project will be predominantly based in DCU (Dublin), but there will be research visits also to Teagasc Johnstown Castle (Wexford).

To apply: please send letter of application, outlining suitability for the post, and a CV including the names of 2-3 referees, to Blánaid White, Blanaid.white@dcu.ie, before 5th of December 2020, marking applications DAFM_SENSUS for ref.

Project description:

This position will form part of the SENSUS (Sensing Nutrients for Agronomic Advice and Sustainability Measures) project, funded by the Irish Department of Agriculture, Food and the Marine under their Research Funding programme. The successful candidate will join the dynamic and interdisciplinary PROTECTS team consisting of researchers from Dublin City University and Teagasc (Johnstown Castle). SENSUS will optimize a number of sensor technologies that can be deployed in Irish agricultural landscapes to provide rapid assessment and diagnostic tools for agricultural and sustainability advisors to help them make decisions on the ground. Applications in passive sampling, portable lab-on-a-disk and handheld spectroscopy will be deployed for in situ analysis of soils, sediments and surface waters, in fields and surface drainage networks.

In this PhD project, we will develop a sampling strategy which will be deployed in specific sites to evaluate the effectiveness of the nutrient mitigation measures developed elsewhere in the project. Specifically, we will optimise diffusive gradient in thin film (DGT) passive sampling devices (PSDs) for nutrient analysis in soils, sediments and surface water streams, develop and deploy novel lab-on-a-disk sensor devices with laboratory methods for monitoring the effectiveness of the mitigation strategies developed.