



School of Management

Title of the Project: **Ammonia cycling and emerging particulate matter pollutants under arable land-use management: A modelling approach**

Subject Area: Ammonia, Land-use, Water, Agriculture & Soils

Supervisor name & contact details:

Name: **Dr Alan Gilmer**

Tel : 01402-3000

Email: Alan.Gilmer@dit.ie

Weblink: <http://www.dit.ie/eshi/> or <http://www.dit.ie/eshi/water/>

Project Description

Air quality monitoring in Ireland is undertaken by the EPA in compliance with the Gothenburg Protocol, EU/national legislation and the National Clean Air Strategy. Fine Particulate Matter $\leq 2.5\mu\text{m}$ (PM_{2.5}) has been acknowledged as an important atmospheric pollutant with serious public health impacts and no safe threshold. Ammonia (NH₃) emissions are closely linked with the secondary production of PM_{2.5}. This study seeks to advance knowledge and understanding of the role of arable agricultural practices in NH₃ generation and map the sources of PM_{2.5} production. The nature and chemical speciation of PM_{2.5} in defined arable settings will be examined to provide greater insight into system dynamics and facilitate emission control. This will be achieved through a review of existing systems knowledge and database assessment combined with the application of a localised and systematic field monitoring network in an arable agricultural setting. The output of this research will build on existing theories of system function, and combine these with field data, including agricultural practices, NH₃ source production and PM_{2.5} generation, to synthesise a new mechanistic paradigm. This new understanding will be operationalised through the development of a localised geo-spatial and temporal forecasting model of Ammonia-PM_{2.5} atmospheric agri-ecological interactions.

Scholarship Details:

The stipend is €16,000 per annum. The cost of academic fee will be covered for the duration of the scholarship. This work will be based in ESHI labs (DIT–Grangegorman) and involves joint funding between DIT and the Environmental Protection Agency of Ireland. Computer and desk space facilities will be provided. A bursary of €2000 will also be provided for travel and conference attendance along with some limited materials.

Eligibility to apply:

Minimum Required: Primary Degree, 2.1 / Upper Second Class Honours or higher in; Life Science, Biochemistry, Natural Sciences, Agricultural Science, Environmental Science, Biological Science, Soil Science or equivalent.

Desirable: Masters Degree (MSc, MPhil, etc.) in: Environmental Science, Atmospheric Science, Biochemistry, Soil Science, or equivalent - Field and laboratory skills in air / water quality monitoring & analysis.

Application and Deadline:

The deadline for submissions is **Monday, 23rd October, 2017**. Interested applicants should submit a **CV & Cover Letter** together with their [online application here](#)