

## Post-doctoral Research Assistant – Developing risk assessment models for bees

We are seeking programmers for a post-doctoral research assistant (PDRA) position to develop an agent-based model for bumble bees, to complement similar models for honey bees and solitary bees, contribute to integrative analysis of bee health and production of tools for risk assessment, and develop a multi-species Environmental Risk Assessment tool, as part of an EU Horizon 2020 research project. The successful applicant will be based in the [research group](#) of Professor [Jane Stout](#) in the [School of Natural Sciences, Trinity College Dublin](#), will work closely with Professor [Chris Topping](#) and his team in the [Department of Bioscience, Aarhus University](#), and will join the dynamic and interdisciplinary [PoshBee<sup>1</sup>](#) team. The PDRA is required to: **design** (create a formal model), **develop** (implement the formal model), and **test** an agent-based model for bumble bees (*Bombus*) within the ALMaSS framework<sup>2</sup>, utilising landscape simulation models for a large part of the EU. The final model should integrate multiple stressors, including explicit incorporation of pesticide-related effects to predict impacts of changed agricultural management on bumblebees. The model is to be developed in cooperation with ALMaSS researchers associated with PoshBee and EcoStack H2020 projects, to create a simulation modelling system to inform risk assessment procedures for bees in agricultural systems.

### Key skills

#### Essential:

- Proven programming ability in an object-oriented language, ideally C++.
- Experience in developing scientific programming and/or modelling projects.
- Good communication abilities will be important to be able actively engage the geographically distributed team.
- Structured approach to project planning and execution
- Languages skills – must be fluent in English.

#### Desirable:

- Ecological/behavioural knowledge of bees, particularly bumblebees.
- Programming in Python, GIS skills, experience with R, and application of mathematical and statistical analysis will all be helpful skills to have.
- Knowledge of pesticide environmental risk assessment, or toxicology.
- Flexibility to be able spend periods in Denmark.

**Salary:** This appointment will be made at point 1 of the PDRA scale from the [Irish Universities Association Researcher Salary Scales](#) i.e. €37,874 per annum (gross) for 18 months from 1<sup>st</sup> January 2020.

**To apply:** please send letter of application, outlining suitability for the post, and a CV, to Prof. Stout [stoutj@tcd.ie](mailto:stoutj@tcd.ie).

### Project description

Pollinators face multiple threats including agrochemicals, pathogens, habitat loss and climate change. A major project PoshBee (Pan-European Assessment, Monitoring and Mitigation of Stressors on the Health of Bees) aims to understand the impacts of these multiple pressures on a range of bee species and develop novel tools to help reduce risks and negative impacts. Our findings will help to ensure that pesticides can be used safely while protecting wildlife, health and the environment, both in Ireland and internationally.

The PDRA will contribute to a workpackage on systems and agent-based modelling approaches to assess the synergistic effects of multiple stressors on bee health.

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<sup>1</sup> This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773921

<sup>2</sup> [www.almass.dk](http://www.almass.dk)