PhD studentship in Mathematics / Applied Mathematics / Mathematical Biology

A PhD studentship (3.5 years) is available at the Division of Mathematics, the University of Dundee. Apply before 25th of March 2015

**Multiscale modelling and analysis of biomechanics of plants**

The modelling and analysis of the various interrelated processes involved in plant development and growth is a fascinating and challenging area of research in Mathematical Biology.

Plant cells and tissues have a very interesting and complex microstructure that facilitates control of their biomechanics and anisotropic growth, in addition highly developed regulatory signalling mechanisms allow immobile plants to adapt to changing environmental conditions.

The main focus of the research project will be on the development and mathematical analysis of multiscale models for the interactions between intra-cellular signalling processes and biomechanical properties of plant tissues. The theoretical research will be conducted in collaboration with experimental biologists at the James Hutton Institute, Dundee, UK and the University of Heidelberg, Germany. The project will involve the development of new models, analysis of nonlinear ODEs and PDEs (deterministic and stochastic), multiscale analysis, and numerical simulations.

Training opportunities:

The successful applicant will receive a broad training in several modern aspects of mathematics. In relation to the project, he/she will be trained in mathematical modelling and analysis (ODEs, PDEs and stochastic processes). Additionally, he/she will have the opportunity to attend courses on Pure and Applied Mathematics provided by the Scottish Mathematical Sciences Training Centre (http://www.smstc.ac.uk) and receive specialised Postgraduate Skills Training via the University’s Organisational & Professional Development unit (http://www.dundee.ac.uk/opd/). He/she will be part of an active research group, and will be offered a range of regular seminars in Mathematical and Numerical Analysis and Modelling. Attention will be paid to make sure that he/she will be integrated in an international research network and grow as an independent researcher. There are active collaborations with the Universities of Heidelberg and Muenster (Germany), Autonomous University of Madrid (Spain), Narvik University College (Norway).

Because of EPSRC restrictions, the full studentships will be available only to UK residents. (For complete information on students eligibility, please consult the EPSRC website http://www.epsrc.ac.uk/skills/students/help/Pages/eligibility.aspx).

If you are interested in this PhD position please contact

*Dr Mariya Ptashnyk, Division of Mathematics, University of Dundee, mptashnyk@maths.dundee.ac.uk.*

Please include a cover letter, a full CV detailing the taken undergraduate courses and corresponding grades, as well as contact information of two referees.