

# DR. MARIYA PTASHNYK

## Lecturer in Mathematics

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### Education

June 2001 – June 2004 PhD studies in Mathematics, University of Heidelberg, Germany,  
September 1993 – June 1998 Study of Mathematics, Lviv University, Ukraine.

### Employment history (selected)

since October 2011 Lecturer at the Division of Mathematics, University of Dundee,  
October 2009 – September 2011 Scientific assistant, RWTH Aachen University, Germany  
November 2008 – September 2009 Postdoctoral research assistant at the Centre for Modelling,  
Simulation in Biosciences, University of Heidelberg, Germany,  
August 2007 – October 2008 BBSRC postdoctoral research assistant, University of Oxford, UK

**Awards (selected)** 2013 – 2016 EPSRC DTA PhD studentship, 2014 – 2015 EPSRC First Grant,  
2008 – 2009 Postdoctoral research fellowship at University of Heidelberg.

### Supervision

2010 – 2011 Co-supervisor of Bachelors Thesis, RWTH Aachen University, Germany  
2012 – 2014 Supervisor of 7 undergraduate Honours projects, University of Dundee, UK  
2012 – Present Co-supervisor of 2 PhD students, The James Hutton Institute & University of Dundee  
2014 – Present Co-supervisor of 1 PhD students, University of Heidelberg & University of Dundee  
2013 – Present Post-Doctoral Research Fellow: Dr Brian Seguin is working on my EPSRC project  
“Multiscale modelling and analysis of mechanical properties of plant cells and tissues”

**PhD external examiner:** 2012 Harriot-Watt University, Edinburgh, 2014 Nottingham University.

**Refereeing and external evaluation:** Regular referee for scientific journals (recently SIAM Mathematical Analysis, Journal of Theoretical Biology, Bulletin of Mathematical Biology, Mathematical Methods in the Applied Sciences)

### Publications (selected)

1. Claus, J., **Ptashnyk, M.**, Bohmann, A., Chavarría-Krauser, A., Global Hopf Bifurcation in the ZIP regulatory system, *accepted, J Mathematical Biology*, 2014.
2. Chavarría-Krauser, A., **Ptashnyk, M.** Homogenization approach to water transport in plant tissues with periodic microstructures. *Mathem. Modelling Natural Phenom.*, 8, 80-111, 2013
3. Capdeboscq, Y., **Ptashnyk, M.** Root growth: Homogenization in domain with time dependent partial perforation, *ESAIM: Control, Optimis., Calculus of Variations*, 18, 856-876, 2012.
4. **Ptashnyk, M.**, Roose, T., Jones, D. L., Kirk, G. J. D. Enhanced zinc uptake by rice by phytosiderophore secretion: a modelling study, *Plant, Cell & Environ.*, 34, 2038-2046, 2011.
5. **Ptashnyk, M.**, Roose, T. Derivation of a macroscopic model for transport of strongly sorbed solutes in the soil using homogenization theory, *SIAM J Appl Math*, 70, 2097-2118, 2010.
6. **Ptashnyk, M.**, Roose, T., Kirk, G. Model of diffusion of strongly-sorbed solutes through soil allowing for slow access to and from sorption sites and time-dependent sorption reactions, *European Journal of Soil Science*, 61, 108-119, 2010.
7. **Ptashnyk, M.** Derivation of a macroscopic model for nutrient uptake by hairy-roots, *Nonlinear Analysis: Real World Applications*, 11, 4586-4596, 2010.
8. Chavarría-Krauser, A., **Ptashnyk, M.** Homogenization of long-range auxin transport in plant tissues, *Nonlinear Analysis: Real World Applications*, 11, 4524-4532, 2010.
9. Bastian, P., Chavarría-Krauser, A., Engwer, C., Jäger, W., Marnach, S., **Ptashnyk, M.** Modeling in vitro growth of dense root network, *JTB*, 254, 99-109, 2008.