

Oliver Dunbar - Short Curriculum Vitae

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Born: June 14, 1991 – Aston Clinton, United Kingdom

Nationality: British

Current Status

2014 - PhD student under Dr. Björn Stinner, MASDOC Centre for Doctoral Training, Warwick Mathematics Institute

Previous Education

2009 - 2013 **MMath** in Mathematics, First class (with honours), University of Bath

2013 - 2015 **MSc** in Mathematics and Statistics, First class (with honours), University of Warwick

Grants, Scholarships & awards

2013 David Powell prize for applied mathematics, University of Bath

2013 - 2017 EPSRC full scholarship grant for MASDOC CDT programme (reference: EP/H023364/1)

Interests & Current Research

My main interests in mathematics lie within applied analysis, numerical analysis, modelling and simulation. My current research area reflects this, concerning the study of the effects of surfactants on multiphase fluid flows. The key method involved is that of diffuse interface modelling. These lead to the construction of multiphase Cahn-Hilliard-Navier-Stokes type systems, which have complex behaviour and hold interest regarding the convergence of the diffuse model with surfactant influence as one considers asymptotic sharp limits. The models also present challenges in numerical stability and convergence

of numerical schemes, and in implementation of the simulations (where I work with Dr. Andreas Dedner in the DUNE toolbox).

Past Projects

- 2013 “*Optimal transport and its applications*”, MMath final year project - Supervised by Prof. Chris Budd, University of Bath
- 2013 - 2014 “*Model coupling and applications*”, MASDOC MSc Group research project with Yulong Lu, Luke Williams - Supervised by Prof. Christoph Ortner & Dr. Andreas Dedner, University of Warwick
- 2014 “*Knot energies in the numerical detection and prevention of self-intersecting moving membranes*”, MASDOC MSc Thesis - Supervised by Dr. Björn Stinner & Dr. Andreas Dedner, University of Warwick.

Talks

- 2014 “*Knot energies in the numerical detection of self-intersecting moving membranes*”, Applied PDEs Seminar (18th November) & Postgraduate Seminar (26th November) , University of Warwick.
- 2015 “*A diffuse interface model of a multi phase fluid with surfactant*”, MASDOC-CCA joint conference (17th April), University of Warwick
- 2015 “*A diffuse interface model of a multi phase fluid with surfactant*”, MASDOC retreat (20th May) & Young Researcher’s in Mathematics Conference (19th August), University of Oxford.
- 2015 “*From Soap to Simulation: Surfactant Flow in a Multi-fluid*”, SIAM Student conference (25th November), University of Warwick
- 2016 “*From Soap to Simulation: A Diffuse Model of Surfactant Flow in a Multi-fluid*”, MASDOC retreat (20th May) & SIAM National Student Chapter Conference (27th May), Cardiff University
- 2016 “*From Soap to Simulation: A Phase Field Story*”, Postgraduate seminar (30th November), University of Warwick
- 2016 “*Phase Field Modelling for Surfactant in a Multi-fluid*”, Micro and Nano flows workshop (15th December), University of Warwick

Teaching

- 2011-2013 First year undergraduate module tutor , University of Bath
- 2014 - First and second year undergraduate supervisor, teaching assistant and class teacher, University of Warwick

Last updated: January 10, 2017