Peter Ashcroft

Curriculum Vitæ

Institute for Integrative Biology
ETH Zürich
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Personal details

Nationality British

Date of birth 13th October 1989

Education

Sept 2012 – Sept 2015 **PhD in Theoretical Physics**
The University of Manchester, UK

- *The statistical physics of fixation and equilibration in individual-based models.*
- Supervisor: Dr. Tobias Galla.
- Research group: *Complex Systems and Statistical Physics*, School of Physics and Astronomy, The University of Manchester.

2008 – 2012 **Undergraduate masters degree: Maths and Physics**
The University of Manchester, UK.

- First Class M.Math and Phys (hons).
- Overall grade: 84%.

2006 – 2008 **A-levels** *Carmel College, St Helens,* UK

- A-levels: Maths(A), Further Maths(A), Physics(A), Geography(A);
- AS-levels: Computing(A).

Research experience

Sept 2015 – Present **Postdoctoral researcher**
ETH Zürich, Switzerland

- Supervisor: Prof. Sebastian Bonhoeffer.

Research interests

- Population dynamics, mathematical modelling of cancer, stochastic processes, evolutionary game theory, first-passage problems, quantitative biology.

Publications

- *When the mean is not enough: Calculating fixation time distributions in birth-death processes.* P. Ashcroft, A. Traulsen, and T. Galla, Phys. Rev. E **92**, 042154 (2015).
- *Stochastic tunneling and metastable states during the somatic evolution of cancer.* P. Ashcroft, F. Michor, and T. Galla, Genetics **199**, 1213 (2015).
- *Fixation in finite populations evolving in fluctuating environments.* P. Ashcroft, P.M. Altrock, and T. Galla, J. R. Soc. Interface **11**, 20140663 (2014).
- *Pattern formation in individual-based systems with time-varying parameters.* P. Ashcroft and T. Galla, Phys. Rev. E **88**, 062104 (2013).

Talks

- Modelling Biological Evolution 2015, University of Leicester, April 2015.
- Cancer Research UK Society Workshop (Outreach event), The University of Manchester, December 2014.
- Michor Laboratory group meeting, Dana-Farber Cancer Institute, Harvard School of Public Health, August 2014.
- W.E. Heraeus seminar: The versatile action of noise: applications from genetic to neural circuits, Jacobs University, Bremen, June 2014.
- DPG Spring meeting, TU Dresden, April 2014.
- Michor Laboratory group meeting, Dana-Farber Cancer Institute, Harvard School of Public Health, January 2014.

Summer schools

- III Summer School on Statistical Physics of Complex and Small Systems, IFISC, Palma de Mallorca, September 2013.
- Complexity Summer School, Warwick University, May 2013.

Teaching and supervision

Sept 2014 – May 2015 **Undergraduate tutorials**
The University of Manchester, UK
I tutor two groups of first year undergraduate physics students in Maths 1 & 2, Introduction to Astrophysics & Cosmology, and Properties of Matter.

Sept 2013 – May 2014 **M.Phys project supervision**
The University of Manchester, UK
I have joint supervised groups of fourth year MPhys students in projects based on the emergence of cancer.

Skills and interests

- Mathematical and graphing packages including Mathematica and Matlab.
- Linux OS, including scripting and high-throughput computing (CONDOR).
- Programming in C++.
- LaTeX typesetting.
- Statistical analysis in R.
- Version control using Git.
- Scientific writing.
- Fluent in English; beginner in German.

References

Prof. Sebastian Bonhoeffer
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Dr. Tobias Galla
School of Physics and Astronomy, The University of Manchester, UK
✉ tobias.galla@manchester.ac.uk ☎ +44 (0)161 275 4264

Prof. Franziska Michor
Dana-Farber Cancer Institute, Harvard School of Public Health, USA
✉ michor@jimmy.harvard.edu

Prof. Arne Traulsen
Max-Planck-Institute for Evolutionary Biology, Germany
✉ traulsen@evolbio.mpg.de