Curriculum Vitæ

Peter Ashcroft

Institute for Integrative Biology
ETH Zürich
Universitätstrasse 16, Zürich, 8092
☎ +41 (0)44 633 60 34
✉ peter.ashcroft@env.ethz.ch
ashcroftp.github.io

Personal details

Nationality	British
Date of birth	13th October 1989
PhD since	8th September 2015

Research experience

Sep 2015 – Present **Postdoctoral researcher** ETH Zürich, Switzerland
Supervisor: Prof. Sebastian Bonhoeffer
Group: Theoretical Biology, Institute for Integrative Biology
Interests: Evolutionary dynamics, cancer initiation & progression, hematopoiesis, population structure, quantitative biology, stochastic processes, multi-scale modelling, data analysis.

Education

Sep 2012 – Sep 2015 **PhD in Theoretical Physics** The University of Manchester, UK
Supervisor: Dr. Tobias Galla
Group: Complex Systems and Statistical Physics, School of Physics and Astronomy
Thesis: The statistical physics of fixation and equilibration in individual-based models.

Sep 2008 – Jun 2012 **Undergraduate degree: Maths and Physics** The University of Manchester, UK
Degree: First Class M.Math and Phys (hons). Overall grade: 84%.

Awards

2018 Travel award from systemsX.ch to attend a workshop at ICMS, Edinburgh, UK.
2017 Travel award to attend a workshop at the Moffitt Cancer Centre, FL, USA.
2016 Springer Thesis Award.
2015 Humboldt Research Fellowship for Postdoctoral Researchers (Gratefully declined).
2011 Nuffield Foundation funding for a summer research project.

Publications and preprints

8. *Evolutionary exploitation of PD-L1 expression in hormone receptor positive breast cancer.* J. West, D. Park, C. Harmon, D. Williamson, P. Ashcroft, D. Maestrini, A. Ardaseva, R. Bravo, P. Sahoo, H. Khong, K. Luddy, M. Robertson-Tessi, bioRxiv 10.1101/454447 (2018).
7. *Clonal dominance and transplantation dynamics in hematopoietic stem cell compartments.* P. Ashcroft, M.G. Manz, and S. Bonhoeffer, PLoS Comput. Biol. **13**, e1005803 (2017).
6. *Effects of population growth on the success of invading mutants.* P. Ashcroft, C.E.R. Smith, M. Garrod, and T. Galla, J. Theor. Biol. **420**, 232 (2017).
5. *The statistical physics of fixation and equilibration in individual-based models.* P. Ashcroft, Springer Theses: Recognizing Outstanding Ph.D. Research, Springer International Publishing, Switzerland (2016).
4. *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).

3. *Stochastic tunneling and metastable states during the somatic evolution of cancer.* P. Ashcroft, F. Michor, and T. Galla, Genetics **199**, 1213 (2015).
2. *Fixation in finite populations evolving in fluctuating environments.* P. Ashcroft, P.M. Altrock, and T. Galla, J. R. Soc. Interface **11**, 20140663 (2014).
1. *Pattern formation in individual-based systems with time-varying parameters.* P. Ashcroft and T. Galla, Phys. Rev. E **88**, 062104 (2013).

Invited talks

- Division of Theoretical Systems Biology (Höfer), Universität Heidelberg, July 2017
- Department for Evolutionary Theory (Traulsen), MPI for Evolutionary Biology, April 2017
- Hematology seminar series, University Hospital Zürich, June 2016
- Cancer Research UK Society Workshop (Outreach event), The University of Manchester, December 2014
- Dana-Farber Cancer Institute (Michor), Harvard School of Public Health, January 2014 & August 2014

Teaching and supervision

Oct 2018 – Present **Masters thesis supervision** ETH Zürich, Switzerland
Student: Juan Gabriel Kostelec

Mar 2017 – Present **PhD project supervision** ETH Zürich, Switzerland
Student: Lei Sun

Oct 2017 – May 2018 **MSc term paper supervision** ETH Zürich, Switzerland
Student: Deborah Zani

Mah 2016 – Apr 2016 **MSc lab rotation supervision** ETH Zürich, Switzerland
Student: Inna Grijnevitch

Feb 2016 – Jun 2018 **Lecturing and tutorials** ETH Zürich, Switzerland
Course: Infectious Disease Dynamics;
Student level: Masters;
Activity: Lectures on the spread of epidemics on networks; tutorials; oral exams.

Sep 2014 – May 2015 **M.Phys project co-supervision** The University of Manchester, UK
Students: Matthew Garrod and Casandra Smith

Sep 2014 – May 2015 **Undergraduate tutorials** The University of Manchester, UK
Courses: Maths 1&2, Introduction to Astrophysics & Cosmology, and Properties of Matter;
Student level: First year undergraduate;
Activity: Tutorials.

Sep 2013 – May 2014 **M.Phys project co-supervision** The University of Manchester, UK
Students: Michael Dowhyj and Ammamraj Sohi

Administrative duties

- Reviewer for journals covering quantitative biology, including: Journal of Theoretical Biology, PLoS Biology, PLoS Computational Biology, and Scientific Reports

Skills and interests

- Mathematical and graphing packages including Mathematica and Matlab
- Linux OS, including scripting and high-throughput computing
- Programming in C++
- LaTeX typesetting
- Statistical analysis in R.
- Version control using Git
- Scientific writing.
- Beginner in German (A2)
- Machine learning including regression, classification, and neural networks