

CASPER BEENTJES

PERSONAL INFORMATION

<i>Address</i>	Mathematical Institute Woodstock Road Oxford, OX2 6GG United Kingdom	<i>E-mail</i>	beentjes@maths.ox.ac.uk
		<i>Website</i>	https://cbeentjes.github.io/
		<i>Citizenship</i>	Dutch

EDUCATION

<i>Doctor of Philosophy</i>	2015-2020	University of Oxford, New College, DPhil in Applied Mathematics Thesis: <i>Variance reduction techniques for chemical reaction network simulation</i> Supervisors: Prof. Ruth BAKER, Prof. Radek ERBAN
<i>Master of Science</i>	2014-2015	University of Oxford, St. Catherine's College, Mathematical Modelling & Scientific Computing · <i>Distinction</i> (average 82/100) Thesis: <i>Computing Bifurcation Diagrams with Deflation</i> Supervisor: Prof. Patrick FARRELL
<i>Bachelor of Science</i>	2010-2014	Leiden University, Mathematics & Physics · <i>Cum Laude</i> (average 9.0/10) Thesis: <i>Symmetry-Breaking in Patterned Elastic Sheets</i> Supervisors Physics: Prof. Martin VAN HECKE, Dr. Corentin COULAIS Supervisor Mathematics: Dr. Vivi ROTTSCHÄFER

WORK EXPERIENCE

<i>Professional</i>	2020 - current	· Postdoctoral researcher, University of Oxford
<i>Internships</i>	Summer 2019	· Quantitative research, OxFORD Asset Management

PUBLICATIONS

Effects of cell cycle variability on lineage and population measurements of messenger RNA abundance. (R. PEREZ-CARRASCO, C.H.L. BEENTJES, R. GRIMA), 2020. *J. R. Soc. Interface* 17, 20200360.

Exact solution of stochastic gene expression models with bursting, cell cycle and replication dynamics. (C.H.L. BEENTJES, R. PEREZ-CARRASCO, R. GRIMA), 2020. *Phys. Rev. E* 101, 032403.

Uniformisation techniques for stochastic simulation of chemical reaction networks. (C.H.L. BEENTJES, R.E. BAKER), 2019. *J. Chem. Phys.* 150, 154107.

Quasi-Monte Carlo methods applied to tau-leaping in stochastic biological systems. (C.H.L. BEENTJES, R.E. BAKER), 2019. *Bull. Math. Biol.* 81, 2931.

Defining Vitamin D Status Using Multi-Metabolite Mathematical Modelling: A Pregnancy Perspective. (C.H.L. BEENTJES et al.), 2019. *J. Steroid Biochem. Mol. Biol.* 190, 152-160.

<i>Submitted</i>	Computing disconnected bifurcation diagrams. (P.E. FARRELL, C.H.L. BEENTJES, Å. BIRKISSON), 2016.
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Conference
Proceedings

Accurate particle-based reaction algorithms for fixed timestep simulators. (S.T. JOHNSTON et al.) 2018. *2018 MATRIX Annals*.

Equalizing the Cost of Health Insurance. (C.H.L. BEENTJES et al.), 2017. *Scientific Proceedings of the 126th European Study Group with Industry*, pp 29-50.

Single Molecule DNA Mapping. (D. SMITH et al.), 2017. *Proceedings of the Multi-Scale Biology Study Group 2017*.

GRANTS, AWARDS AND SCHOLARSHIPS

Grants

2017 · UK MultiScale Biology network collaborative support award (£1000)
Project title: *Defining vitamin D status: a multiscale mathematical approach*

Awards

2015 · MSc Prize for excellence (Mathematical Institute, University of Oxford)
Awarded to the top student in the MSc in Mathematical Modelling and Scientific Computing.

2018 · Landahl travel grant (Society for Mathematical Biology)
Recognises excellence in mathematical biology and promotes greater interaction among mathematical biologists throughout the world.

Scholarships

2015-2019 · Clarendon Scholarship

2015-2018 · New College Graduate Scholarship

2015-2019 · EPSRC Studentship (Declined in favour of Clarendon Scholarship)

2014-2015 · VSB Fonds Scholarship

2014-2015 · Stichting dr. Hendrik Muller's Vaderlandsch Fonds Scholarship

2014-2015 · Genootschap van Noorthey Scholarship

TEACHING EXPERIENCE

2019-2020 Fixed-term Stipendiary Lecturer

Trinity College,
Oxford

Level: Undergraduate (1st and 2nd year).

Multivariable Calculus, Differential Equations 2, Integral Transforms.

2016-2019 Tutor

Mathematical
Institute, Oxford

Level: Undergraduate (3rd year).

Stochastic Modelling of Biological Processes (2017-2019).

Both departmental classes and consultation sessions for exams.

New College,
Oxford

Level: Undergraduate (2nd year).

Mathematical Modelling in Biology (2017-2018), Numerical Analysis (2016).

Lincoln College,
Oxford

Level: Undergraduate (3rd year).

Various Collections tutorials for 3rd year applied mathematics (2016-2017).

2012-2019 Teaching Assistant

Balliol College,
Oxford

Level: Undergraduate (1st year).

Introductory Calculus, Probability, Multivariable Calculus, Statistics & Data Analysis (2018-2019).

Mathematical
Institute, Oxford

Level: Postgraduate.

Mathematical Modelling module for the MSc Mathematical Modelling and Scientific Computing (2016-2018).

Level: Undergraduate (1st year).

Computational Mathematics (2017-2019),

Level: Undergraduate (3rd year).

Further Mathematical Biology, Stochastic Modelling of Biological Processes,

Waves and Compressible Flow, Numerical Solutions of Differential Equations 1 (2015-2016).

*Mathematical
Institute, Leiden*

Level: Undergraduate (1st and 2nd year).

Analysis 3 for Physicists, Analysis 2 for Physicists (2013), Analysis 1 for Physicists (2012-2013), Linear Algebra and Image Processing (2014) .

*Leiden Institute Of
Physics*

Level: Undergraduate (2nd year).

Quantum Mechanics I (2012-2013), Classical Mechanics B (2014).

TALKS

- 2016 *Position reconstruction from chemical signals.*
- ECMTB/SMB annual meeting, mini-symposium Stochastic Modelling in Biological Systems, Nottingham, July 11 until 15.
- 2018 *Efficient adaptive uniformisation for the analysis of biochemical reaction networks.*
- SMB annual meeting, reaction networks & stochasticity session, Sydney, July 8 until 12.

POSTER PRESENTATIONS

- 2016 *Position determination by a single cell using chemical sensing.*
- Multiscale methods for stochastic dynamical systems in biology, Edinburgh, February 29 until March 4.
 - SIAM Student Conference, Oxford, April 27.

PROFESSIONAL MEMBERSHIP

Mathematics Society for Industrial and Applied Mathematics (SIAM),
Koninklijk Wiskundig Genootschap (KWG),
Institute of Mathematics & its Applications (IMA).

EXTRACURRICULAR ACTIVITIES

- 2016-2019 · Treasurer *New College Middle Common Room*
- 2015-2016 · Administrative & IT secretary *Clarendon Scholars' Association*

PROGRAMMING LANGUAGES & SOFTWARE

Advanced MATLAB, PYTHON, L^AT_EX

Intermediate MATHEMATICA, GIT

Basic C

OTHER INFORMATION

Languages DUTCH · Mother-tongue

 ENGLISH · Fluent

 GERMAN · Basic (simple words and phrases only)