

Dr. Simon Cotter

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EDUCATION

2006-2010 **PhD, Mathematics**
WMI, University of Warwick
2002-2006 **MMath (1st Class)**
WMI, University of Warwick

ACADEMIC POSITIONS

2016- **Senior Lecturer**
Department of Mathematics
University of Manchester
2012-2016 **Lecturer**
Department of Mathematics
University of Manchester
2010-2012 **PDRA**
OCCAM, Math. Institute
University of Oxford

VISITING POSITIONS

2018-2020 **Turing Fellow**
Alan Turing Institute (ATI), London
JAN 2018 **Programme participant**
Isaac Newton Institute, Cambridge
MAR-MAY 2016 **Programme participant**
Isaac Newton Institute, Cambridge

PROFESSIONAL AFFILIATIONS

2019- Member of London Mathematical Society
2015- Fellow of Higher Education Academy

GRANTS AWARDED

2018-2020 Turing Fellowship, 5% salary, 2 years.
2018-2021 KTP with Arrow Global Ltd, 3 years,
(£281,965), PI (50%)
2015-2019 iCASE award sponsored by Na-
tional Physical Laboratory, 3.5 years,
(£107,670) Co-I (50%)
2014-2015 Faculty of Life Sciences Quantita-
tive Biology Pump-Priming, 6 months
(£37,957), Co-I (33%).
2014-2016 EPSRC First Grant, 2 years,
(£117,564), PI.

RESEARCH SUPERVISION

PDRA Dr Edmund Ryan, 2018-2021
PHD 5 Emma Rowlinson, 2020-2024
PHD 4 Jessica Forsyth, 2018-2021
PHD 3 Filippo Pagani, 2016-2020
PHD 2 James Rynn, 2015-2019
PHD 1 Paul Russell, 2013-2017

INVITED RESEARCH VISITS

2021 University of Alberta, Dr Jay Newby
2017 École polytechnique fédérale de Lau-
sanne (EPFL), Prof. Assyr Abdulle
2012, 2015 Princeton, Prof. Ioannis Kevrekidis
2010, 2012 Czech Academy of Sciences, Dr Tomáš
Vejchodski

RECENT INVITED TALKS

2020 SIAM Conference on UQ, TUM, Germany
(cancelled due to Covid-19).
2019 Workshop on Statistical Perspectives on UQ,
SAMSI, University of North Carolina, USA.
2018 BIRS workshop on mathematical challenges
in the biological sciences, Banff, Canada.
2018 12th AIMS Conference, Taipei, Taiwan.
2017 Applied Maths seminar, University of
Durham.
2017 Numerical Analysis seminar, EPFL, Lau-
sanne, Switzerland.
2016 Applied and Computational Mathematics
seminar, University of Edinburgh.
2016 ICERM workshop on stochastic numerical al-
gorithms, Brown University, USA.
2016 Stochastic numerics in biology workshop,
Newton Institute, Cambridge.
2016 SIAM Conference on UQ, EPFL, Lausanne,
Switzerland.

PHD EXAMINATIONS

2020 Paul Smith, University of Leeds
2018 Mads Christian Hansen, University of Copen-
hagen
2017 Henry Tregidgo, University of Manchester

WORKSHOPS ORGANISED

2016 Computational Challenges in Biochemical
Networks: Multiscale Modelling and Inverse
Problems, University of Manchester

- 2016 Opening Workshop: Stochastic Dynamical Systems in Biology: Numerical Methods and Applications, Newton Institute, Cambridge
- 2011 Mathematics-in-Medicine Study Group '10 follow up meeting: Placental Growth Modelling, Oxford

SESSIONS CHAIRED AND ORGANISED

- 2016 Opening Workshop: Stochastic Dynamical Systems in Biology, Newton Institute Cambridge, chaired first two days of five.
- 2015 The Role of Inverse Problems and Optimisation in Uncertainty Quantification, Turing Gateway workshop, chaired session.
- 2015 Numerical Methods in Stochastic Problems in Biology, Biennial Numerical Analysis Conference, Strathclyde University, organised session.
- 2012 Stochastic modelling of gene expression, SIAM Life Sciences '12, San Diego, organised session.
- 2011 Multiscale modelling of reaction kinetics, ECMTB '11, Krakow, organised session.

TEACHING AND LEARNING

- 2018-PRESENT Introduction to UQ, MSc
- 2017-PRESENT Numerical Analysis, 2nd year
- 2013-2018 PDEs and Vector Calculus, 2nd year
- 2013-2015 Transferrable skills, MSc
- 2012-2014 2M2, service course for engineers

CURRICULUM DEVELOPMENT

- 2018 Introduction to UQ, MSc, new course
- 2013 PDEs and V. Calc., 2nd year, rewritten
- 2012 2M2, service course, rewritten.

NOMINATIONS & AWARDS

- 2018 Nomination for Best Lecturer award, Manchester Teaching Awards
- 2017 Nomination for Better World Showcase 2017, for outreach activity
- 2010 Peter Carpenter Memorial Graduate Student Travel Fund (£500)

ADMINISTRATION AND SERVICE

- 2018- Athena SWAN committee Chair, Department of Mathematics

Significant achievements: founded female and minority gender mentoring scheme; extension of Bronze Athena SWAN award until 2021; consulted and lobbied on format of Athena SWAN accreditations within the new School of Natural Sciences from 2020; lobbying for and supporting members of the department who have caring responsibilities, in the wake of the Covid-19 crisis.

- 2015-2018 Athena SWAN committee member.
- 2018- Statistics, Quantification of Uncertainty, Inverse problems and Data Science (SQUIDS) seminar co-founder and organiser
- 2019 Selection committee member, interviews for Lecturer/Senior Lecturer/Reader in Applied Mathematics
- 2017 Selection committee member, interviews for Lecturer/Senior Lecturer/Reader in Statistics/Applied Mathematics
- 2017-2018 International Admissions Tutor
- 2015-2018 Senior UG Admissions Tutor

EXTERNAL ACADEMIC SERVICE

- EPSRC grant application reviewer 2016, 2020
- Peer-reviewer for books (Springer and SIAM) and journal articles (including SIAM UQ, SIAM journal on scientific computing, statistical science, Royal Society interface, inverse problems)
- London Mathematical Society Good Practice Scheme representative for the Department of Mathematics

KNOWLEDGE TRANSFER

- *Arrow Global Ltd*: Instigated contact with Arrow Global through personal contact in 2017. Former PhD student Dr Paul Russell now works in modelling team. KTP awarded 2018-2021 to fund KTP associate Dr Edmund Ryan.
- *National Physical Laboratories*: iCASE studentship funded Dr James Rynn's PhD, working with Louise Wright (NPL), and Prof. Catherine Powell
- *Scoping workshops contributor*: Unilever, Ultra Air-port Systems, and VYPR

OUTREACH

- 2017 Making Maths at Manchester: 2 day residential workshop for strong sixth form students. Supervised groups on "The Maths of Poker: Probabilities, Expectations and Very Big Numbers"

RESEARCH SUMMARY

I am a mathematician whose diverse research interests reside in the interface between applied mathematics, statistics, probability and numerical analysis. I am particularly interested in two main areas: designing efficient numerical methods for sampling from complex probability distributions arising in applications, in particular Bayesian inverse problems; and the design and efficient simulation of stochastic models in biology. Increasingly, I am working with people outside of mathematics, including biologists, metrologists, obstetricians and financial modellers. These interactions require a significant investment of time, but provide interesting problems resulting in more impactful research.