

Short Curriculum Vitae

Christopher John Howls

PhD, BSc, FIMA, CPhys, MInstP, FHEA

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Contact details

- **Work:** Mathematical Sciences, University of Southampton, Southampton, SO17 1BJ, UK.
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- More comprehensive CV available on request.

Employment

- **University of Southampton, UK (1999-Current):** Professor of Mathematics.
Posts held include:
- **Director of University Doctoral College, University of Southampton, UK, August 2017-Current**
University lead, directing and overseeing the policy governing and training of 3,000 doctoral students, spanning 5 Faculties and 20 Schools. Equivalent to (Associate) Pro-VC rank, reporting to Vice President Education & student experience and VP Research & Enterprise.
 - Chair of Doctoral College Board, reporting to directly to Senate.
 - Member *ex officio* of Senate and numerous University committees including, University Education Committee, Academic Quality and Standards Committee, Recruitment and Admissions Committee, Research Integrity Committee, Data Quality Group,
- **Head of Applied Mathematics and Theoretical Physics, University of Southampton, UK**
Head of 50 strong Applied Mathematics Group achieving internationally-rated research expertise and doctoral researcher training in mathematical areas spanning:
 - Acoustics, Analysis, Batteries, Bio-maths, Bose-Einstein Condensates, Continuum, General Relativity, Gravitational Waves, Industrial Maths, Liquid Crystals, Meta-materials, Neuro-Modelling, Neutron Stars, Optics, Optoelectronics, Geospatial Populations, Solar Technology, String Theory.

Overall responsibility for research strategy; teaching strategy, allocation and management; group HR and finance management.
- **Brunel University (1996-1999):** Lecturer in Applied Mathematics.
- **Isaac Newton Institute, Cambridge UK (1995):** Principal Programme organiser.
- **University of Manchester (1994-1996):** Lecturer in Applied Mathematics.
- **University of Bristol (1991-1993)** SERC Postdoctoral Fellowship.

Education

- **PhD**, University of Bristol (1991) *Exponential Asymptotics*, under Sir Michael Berry FRS
- **BSc**, University of Bristol, (1988) Mathematics and Physics, First Class
- **Educational Prizes**
 - Fry Prize (Best Finalist in Science Faculty 1988)
 - Project Prize (Best physics project 1988)
 - Mott Prize (Best Maths-Physics finals papers 1988)
 - Undergraduate Scholarship 1987-88

National or Notable appointments:

- External committee member for strategic review of mathematical degrees at University of Cambridge, 2018.
- External panel member for strategic review of mathematical doctoral degrees at Imperial College, 2018.
- External examiner for MMath exams at University of Oxford, 2016-2018
- Associate Editor of the *Digital Library of Mathematical Functions*, NIST, USA, 2016-.
- External examiner for BSc and MSc in applied mathematics, Imperial College London, 2009-2012.
- Editorial board member of *Proceedings of the Royal Society of London, A*, 2009-2015.
- 2008- Co-founder of “Meet the Mathematicians” outreach events run nationally at British Applied Mathematics Colloquium. PI on EPSRC grant that funded it.
- National Chair of British Applied Mathematics Colloquium National Standing Committee 2006-current, responsible for overseeing, promoting and awarding the annual BAMC events.
- Deputised as member of Scientific Committee of Isaac Newton Institute, 1995-2000.

Invited Talks and Visits

Over 75 invited international seminars and presentations on asymptotics, resurgence and related subjects in Europe, US and Asia. Extended invited visits toor visiting professorships at: Newton Institute, UK; R.I.M.S., Kyoto; Laboratoire J.A.-Dieudonne France; IPST, USA; OCIAM, UK; CWI, Amsterdam; PIMS, Canada; KITP US, Universities of Angers, Nottingham, TU Berlin, Macquarie University, Australia,

Grants:

SERC, Newton Institute, EPSRC, Leverhulme, Royal Society, Nuffield Foundation, EPSRC, The Royal Society/Japanese Society for the Promotion of Science, British Council Alliance Programme. *etc* Bids totalling \sim £10m.

In addition I have been the PI of EPSRC DTP grants totalling £18.5m (having written the University Statement of Expectations to secure each of the bids and chairing the steering and allocations panel). I am overseeing the work of an EPSRC Research Fellowship totalling £462k.

PhD Students & Postdocs

9 PhDs and postdocs supervised to successful completion in areas of asymptotics, resurgence, semiclassical mechanics, engineering.

Conferences Organised

- Exponential Asymptotics, Principal Organiser of programme and organiser of the half-dozen sub-conferences, Newton Institute, UK, January-June 1995
- Gerry Wickham Memorial Meeting, Manchester University, July 1996 (with D Abrahams and Paul Martin)
- British Applied Mathematics Colloquium 1998: Brunel University, Treasurer and one of only three main principal organisers for this annual national meeting which attracted 320 delegates.
- Asymptotic Analysis, International meeting of French-, UK- and Japanese-based researchers, Brunel University, July 1998
- British Applied Mathematics Colloquium 2003: Southampton University, Treasurer and principal organiser
- Co-organiser (with A Olde Daalhuis) of Asymptotics and Modelling workshop at ICMS, Edinburgh, June 2006
- Meet the Mathematicians 08 outreach event (with D Abrahams and M Simon) for 70 year-13 students at the 50th BAMC at University of Manchester, March 2008. Chaired organising committees of 2009, 2010, 2011 events.
- “Bridging-the-Gaps” workshops (with S. Lewis, C. Please, B. MacArthur) for collaboration between mathematics and bio- and nano-engineers, University of Southampton, June-July 2008
- Co-organiser (with A Olde Daalhuis) of Asymptotics workshop at ICMS, Edinburgh, December 2009
- Kavli Institute for the Physics and Mathematics of the Universe, Japan: grant for 10 day workshop, on String Theory and Resurgence December 2016.

- Kavli Institute for Theoretical Physics, Santa Barbara, USA: grant for 2 month workshop, on *Resurgent Asymptotics in Physics and Mathematics* October-December 2017.
- Isaac Newton Institute for Mathematical Sciences, *Resurgence*, 6 month research programme, 2020/2021.

Doctoral External Examining

PhD external examiner, or served on Habilitation committees relating to theses in asymptotics and related areas on over a dozen theses including at Bristol, Cambridge, Dublin City, Edinburgh, Imperial, Manchester, Nottingham, Nice, Oxford, Santiago de Compostella.

Refereeing and other academic activities

- Member of editorial board of Proceedings of the Royal Society of London, A (2009-2015).
- Chair of the National Standing Committee of the British Applied Mathematics Colloquium (2006-Current).
- Invited Fellowship of the Institute of Mathematics and its Applications (FIMA).
- Fellow of the Higher Education Academy, UK (FHEA).
- Member of the London Mathematical Society
- Member of the Institute of Physics: Chartered Physicist status (CPhys, MInstP)
- Member of EPSRC Panels in Mathematics.
- Grant proposal refereeing for EPSRC, LMS (UK), NSERC (Canada), NWO (The Netherlands), Irish Research Council.
- Regular refereeing work for journals including: Proceedings of the Royal Society, Journal of Physics A, Nonlinearity, Methods and Applications of Analysis, European Journal of Applied Mathematics, IMA Journal of Applied Mathematics, Journal of Fluid Mechanics etc. and others whose titles would compromise my refereeing anonymity!
- Book and proposal reviewing work for: CUP, Hodder & Stoughton, World Scientific, John Wiley, Springer, The Times Higher Education Supplement.
- Associate Editor and Chapter co-author, NIST Digital Library of Mathematical Functions (which received 9.1 million hits in its first two weeks of publication, May 2010).
- Deputised as Member of Isaac Newton Institute Scientific Steering Committee. University of Southampton “correspondent” of the INI with the University of Southampton.

Administrative Budgets Managed

In addition to research grants, I have managed administrative budgets totalling over £15m on projects ranging from research programmes to annual allocations, scholarships and procurement. All managed with no overruns.

Co-Supervision of non-Academic Staff

- Doctoral College (2017-): 5.0 FTE (academic), 4.0 FTE (non-academic)
- Faculty Graduate School (2010-2015): 9.3 FTE

Recent Teaching

- 2018-19 MATH1060 Multivariable Calculus. 1st Year course ~200 mathematics students. Module Survey Scores: Overall 4.9/5.0; Personal 4.93/5.0.
- 2017-18 MATH1060 Multivariable Calculus. 1st Year course ~200 mathematics students. Module Survey Scores: Overall 4.9/5.0; Personal 4.9/5.0.
- 2016-17 MATH1052 Differential Equations. 1st Year course ~200 mathematics students. Module Survey Scores: Overall 4.6/5.0; Personal 4.8/5.0.

Inspired by my daughter when she was learning her Maths A-level, I completely changed my teaching style. In each module (before COVID), I pioneered the use of recording technology on an iPad with ExplainEverything. In addition to fully recorded skeletal lecture notes, each year I record around 50 worked examples, posted to Blackboard for 24/7 use by students.

Publications

See main web page for a representative (but not comprehensive) list.