

Curriculum Vitae
Jonathan Adam Sherratt

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Date of Birth: 2 February 1967

Citizenship: British

Education

Sept 1978–Oct 1984 Tiffin School, Kingston-upon-Thames
Oct 1985–June 1988 University of Cambridge (Queens' College)
Sept 1988–Aug 1989 Department of Applied Mathematics, University of Washington
Oct 1989–July 1991 University of Oxford (Lincoln College)

Academic Career

Oct 1991–Dec 1993 Merton College, Oxford
Junior Research Fellow
Jan 1994–Sept 1997 Department of Mathematics, University of Warwick
Lecturer in Mathematics
Oct 1997–Dec 1997 Department of Mathematics, University of Warwick
Senior Lecturer in Mathematics
Jan 1998– Department of Mathematics, Heriot-Watt University
Professor of Mathematics

Degrees

B.A. (hons) in mathematics, University of Cambridge, triple first class (June 1988)
D.Phil. in mathematics, University of Oxford (June 1991)
Thesis: "Mathematical models of wound healing", supervised by Professor J.D. Murray FRS

Fellowships and Prizes

I received various undergraduate and postgraduate prizes which are not listed.

- Sixth Bellman Prize, for the best paper published in *Mathematical Biosciences* during 1994 and 1995. Awarded to co-authors Paul Dale, Philip Maini and myself in October 1997.
- EPSRC Advanced Research Fellowship, October 2000–September 2005.
- Elected to a Fellowship of the Royal Society of Edinburgh, March 2001.
- Sir Edward Whittaker Memorial Prize, awarded in October 2001 by the Edinburgh Mathematical Society.
- Akira Okubo Prize, awarded in August 2003 by the Society for Mathematical Biology.
- Adams' Prize, awarded in March 2006 by the University of Cambridge.
- Whitehead Prize, awarded in June 2006 by the London Mathematical Society.
- Invited Fellowship of the Institute of Mathematics and its Applications, November 2006.
- Leverhulme Research Fellowship, May 2009–April 2011.

Research Grants

I have also been awarded a number of travel grants, which are not listed.

- J.A. Sherratt, P.K. Maini: The mathematics of wound contraction. Earmarked graduate studentship, *Science and Engineering Research Council*, £15 000, Oct 1992–Sept 1995.
- J.A. Sherratt, P.K. Maini: Modelling wound contraction in the dermis. Prize graduate studentship (Paul Dale), *Wellcome Trust*, £66 000, Oct 1992–Sept 1996.
- J.A. Sherratt: Spatiotemporal chaos in biology. Computing equipment, *Royal Society*, £9779, Mar 1994–Feb 1995.
- J.A. Sherratt: The role of spatial discretisation in spatiotemporal chaos in biological systems. Computing equipment grant, *Nuffield Foundation (New Lecturers Scheme)*, £3960, May 1994–Apr 1996.
- J.A. Sherratt: Modelling the macrophage invasion of tumours. Earmarked graduate studentship, *Engineering and Physical Sciences Research Council*, £25 000, Oct 1994–Sept 1997.
- D.A. Rand, R.S. Mackay, D. Barkley, J.A. Sherratt, I.N. Stewart: Nonlinear computational projects. Computer programmer, *Engineering and Physical Sciences Research Council*, £38 564, Oct 1994–Sept 1997.
- P.K. Maini, M.A.J. Chaplain, J.A. Sherratt: Order and disorder in tissues: modelling and analysis of wound healing and tumour growth. Collaborative meetings, *London Mathematical Society*, £2000, Mar 1995–Feb 1997.

- J.A. Sherratt, P.K. Maini: Mathematical modelling of scar tissue formation. Postdoctoral research assistant, *Engineering and Physical Sciences Research Council*, **£101 164**, Jun 1996-May 1999.
- J.A. Sherratt, M.A.J. Chaplain: Mathematical modelling of metastasis. Scientific meeting, *Engineering and Physical Sciences Research Council (Applied Nonlinear Mathematics Initiative)*, **£2975**, July 1996-Jan 1997.
- J.A. Sherratt, D.L. Simmons: The role of extracellular matrix in leucocyte emigration. Postdoctoral research training fellowship (Abbey Perumpanani), *Wellcome Trust*, **£108 697**, Oct 1996-Sept 1999.
- J.A. Sherratt, D.J. Nokes: Mathematical modelling of pulse vaccination. Graduate studentship (Joël Mossong), *Ministry of Education, Luxembourg* **£28 800**, Oct 1996-Sept 1999.
- P.K. Maini, J.A. Sherratt, S. Tuft: Modelling the corneal epithelium and limbus – an investigation of the relationship between microscopic and macroscopic corneal epithelial biology. Postdoctoral research training fellowship (Eamonn Gaffney), *Wellcome Trust*, **£90 064**, Nov 1996-Oct 1999.
- D.A. Rand, A.C. Newell, D. Barkley, J.A. Sherratt: Computational nonlinear mathematics. Scientific programmer and equipment, *Engineering and Physical Sciences Research Council (Applied Nonlinear Mathematics Initiative)*, **£146 147**, Jan 1997-Dec 1999.
- C.E. Lewis, J.A. Sherratt, J. Royds, H.M. Byrne: Moving boundaries and nonlinear waves modelling the role of p53 in tumour growth. Postdoctoral research assistant. *Engineering and Physical Sciences Research Council (Applied Nonlinear Mathematics Initiative)*, **£73 058**, Sep 1997-Aug 2000.
- P.K. Maini, M.A.J. Chaplain, J.A. Sherratt, H.M. Byrne: Order and disorder in tissues: modelling and analysis of wound healing and tumour growth. Collaborative meetings, *London Mathematical Society*, **£1000**, Jan-Dec 1998.
- J.A. Sherratt: Mathematical modelling of the spatiotemporal dynamics of cell signalling in the epidermis. Earmarked postgraduate studentship. *Biotechnology and Biological Sciences Research Council*, **£32280**, Oct 1998-Sep 2001.
- J.A. Sherratt: From single cells to continua: micro-scale to macro-scale modelling. Scientific meeting. *Engineering and Physical Sciences Research Council*, **£8000**, Feb-July 1999.
- J.A. Sherratt: A multi-media exhibit on mathematical modelling in medicine. Public understanding of science project. *Engineering and Physical Sciences Research Council*, **£12 500**, Feb 1999-Feb 2000.
- J.A. Sherratt: Centre for Theoretical Modelling in Medicine. Funding for a new interdisciplinary research centre. *Scottish Higher Education Funding Council*, **£425 000**, Oct 1999-Apr 2003.
- J.A. Sherratt: Mathematical Modelling in Medicine. Advanced Research Fellowship, *EPSRC*, **£224 020**, Oct 2000-Sept 2005.

- S. McDougall, M.A.J. Chaplain, S. Anderson, J.A. Sherratt: Mathematical modelling of dynamic capillary growth and vascular perfusion of chemotherapy treatments. *EPSRC*, £62 675, Apr 2002-Dec 2003.
- S. McKee, M.A.J. Chaplain, N.A. Hill, J.A. Sherratt: Mathematics biomedical network. *EPSRC*, £61 426, Jan 2004-Dec 2006.
- J.A. Sherratt, X. Lambin: Modelling periodic waves in cyclic populations. *NERC*, £65 000, Oct 2004-Sep 2007.
- T.S. Deisboeck and 16 others including J.A. Sherratt: Development of a virtual tumor. *US National Institutes of Health*, US\$2 406 268 , Oct 2004–Sep 2009. (The Heriot-Watt component of this grant is US\$72 900).
- A. Millar and 9 others including J.A. Sherratt: Centre for Systems Biology at Edinburgh *BBSRC*, £8 695 631, May 2006-April 2011. (The Heriot-Watt component of this grant is £38 245).
- S. Hartley, F. Massey, X. Lambin, J.A. Sherratt: Do silica-based defences drive plant-herbivore dynamics? *NERC*, £593 734, Oct 2008-Sep 2011. (The Heriot-Watt component of this grant is £15 099).
- J.A. Sherratt: Mathematical modelling of spatiotemporal ecology. *Leverhulme Trust* (Research Fellowship), £32 104, May 2009-April 2011.

Research Student Supervision

Paul Dale: *Oct 1992–July 1995* “Control of scarring in adult and foetal wounds” (with Dr P.K. Maini). Paul is an Anglican Minister in Kirribilli, Australia.

Luke Olsen: *Oct 1992–May 1996* “Modelling wound contraction” (with Dr P.K. Maini). Luke is a financial modeller in the City of London.

Markus Owen: *Oct 1994–July 1997* “Modelling the macrophage invasion of early tumour growth”. Markus is a Professor of Mathematics at University of Nottingham.

Alison Kay: *Oct 1996–June 1999* “Modelling and simulation of ecological invasions”. Alison is a Senior Mathematical Modeller at the Centre for Ecology and Hydrology, Wallingford, UK.

Steven Webb: *Oct 1997–Sept 2000* “Mathematical oncology and periodic wave train forcing”. Steven won the Heriot-Watt University MacFarlane Prize for the most outstanding contribution to the research of the university by a PHD graduate. He is a Reader in mathematics at Liverpool John Moores University.

Helen Wearing: *Oct 1998–Nov 2001* “Mathematical modelling of cell–cell signalling in developmental biology and wound healing”. Helen is Associate Professor in mathematics and biology (joint appointment) at University of New Mexico.

Christina Cobbold: *Oct 1998–Oct 2001* “Mathematical modelling of problems in human biology: dermal wound healing and atherosclerosis”.

Christina is a Senior Lecturer in mathematics at University of Glasgow.

Stephen Turner: *Oct 1999–Nov 2002* “Mathematical modelling of cancer invasion and biological cell movement”. Stephen’s background was in clinical medicine, and he returned to this after his PhD to complete his clinical training. He is currently a Senior Registrar in General Adult Psychiatry (North & Central London rotation), and holds an Honorary Research Associate position at University College London.

Helen Waugh: *Oct 2002–Aug 2006* “Mathematical modelling of diabetic wound healing”.

Helen is a Senior Business Analyst at Doosan Power Systems, Paisley.

Nicola Armstrong: *Oct 2004–Sep 2007* “Mathematical modelling of cell–cell adhesion in cancer” (with Dr K.J. Painter). Nicola is Head of Mathematics at Fettes College, Edinburgh.

Matthew Smith: *Oct 2004–Oct 2007* “Mathematical investigations into the mechanism driving the spatiotemporal dynamics of cyclic populations”. Matthew won the Heriot-Watt University MacFarlane Prize for the most outstanding contribution to the research of the university by a PhD graduate. He is a permanent scientist at Microsoft Research, Cambridge.

Jenny Bloomfield: *Oct 2007–April 2011* “Mathematical modelling of cell–cell interactions” (with Dr K.J. Painter). Jenny is Senior Public Affairs Officer at the Scottish Council for Voluntary Organisations.

Jennifer Reynolds: *Apr 2008–Dec 2011* “Mathematical modelling of field vole dynamics” (with Dr A. White). Jennifer is a postdoctoral researcher at the University of Minnesota.

Ayawoa Dagbovie: *Aug 2010–Aug 2013* “Applications of absolute stability to ecological systems”. Ayawoa is an instructor at the African Institute for Mathematical Sciences in Ghana.

Rachel Taylor: *Sep 2010–March 2013* “Seasonal forcing in ecology and epidemiology” (with Dr A. White). Rachel is a postdoctoral researcher at the University of South Florida.

Arianna Bianchi: *Jan 2013– Dec 2015* “Mathematical modelling of wound healing” (with Dr K.J. Painter). Arianna is a postdoctoral researcher at the University of Alberta.

Jamie Bennett: *Sep 2015–* “Periodic travelling wave generation in the wake of ecological invasions”.

Journal Editorships

- Associate Editor of *Mathematical Medicine and Biology* (formerly *IMA Journal of Mathematics Applied in Medicine and Biology*), January 1996–September 2006
- Associate Editor of *Journal of Theoretical Medicine*, January 1997–September 2006
- Member of the Editorial Board of *Journal of Theoretical Biology*, March 2000–2004
- Member of the Editorial Board of *Ecology Letters*, December 2004–May 2005

- Member of the Guest Editorial Board of *Journal of Mathematical Modelling of Natural Phenomena* for a special issue on morphogenesis, published in 2009.
- Member of the Guest Editorial Board of *Journal of Mathematical Modelling of Natural Phenomena* for a special issue on reaction-diffusion waves, published in 2010.
- Member of the Editorial Board of *Nonlinearity*, January 2010–July 2013.

Software

I am sole author/developer of WAVETRAIN, a free open-source software package for studying periodic travelling wave solutions of partial differential equations. WAVETRAIN0.0 was released in September 2011. Following a series of revisions and major extensions, WAVETRAIN1.2 was released in April 2015. The WAVETRAIN home page is <http://www.ma.hw.ac.uk/wavetrain>.

Papers in Peer-Reviewed Journals

Published or in press

1. J.A. Sherratt, J.D. Murray: Models of epidermal wound healing. *Proc. R. Soc. Lond. B* **241**, 29-36 (1990).
2. J.A. Sherratt, J.D. Murray: Mathematical analysis of a basic model for epidermal wound healing. *J. Math. Biol.* **29**, 389-404 (1991).
3. J.A. Sherratt: A perturbation problem arising from a mechanical model for epithelial morphogenesis. *IMA J. Appl. Math.* **47**, 147-162 (1991).
4. J.A. Sherratt, M.A. Nowak: Oncogenes, anti-oncogenes and the immune response to cancer. *Proc. R. Soc. Lond. B* **248**, 261-271 (1992).
5. J.A. Sherratt, J.D. Murray: Epidermal wound healing: the clinical implications of a simple mathematical model. *Cell Transplantation* **1**, 365-371 (1992).
6. J.A. Sherratt, P. Martin, J.D. Murray, J. Lewis: Mathematical models of wound healing in embryonic and adult epidermis. *IMA J. Math. Appl. Med. Biol.* **9**, 177-196 (1992).
7. P.K. Maini, D.L. Benson, J.A. Sherratt: Pattern formation in reaction-diffusion models with spatially inhomogeneous diffusion coefficients. *IMA J. Math. Appl. Med. Biol.* **9**, 197-213 (1992).
8. J.A. Sherratt, J.D. Murray: Epidermal wound healing: a theoretical approach. *Comments Theor. Biol.* **2**, 315-333 (1992).
9. D.L. Benson, J.A. Sherratt, P.K. Maini: Diffusion driven instability in an inhomogeneous domain. *Bull. Math. Biol.* **55**, 365-384 (1993).
10. J.A. Sherratt, J. Lewis: Stress-induced alignment of actin filaments and the mechanics of cytogel. *Bull. Math. Biol.* **55**, 637-654 (1993).
11. J.A. Sherratt, E.H. Sage, J.D. Murray: Chemical control of eukaryotic cell movement: a new model. *J. Theor. Biol.* **162**, 23-40 (1993).
12. J.A. Sherratt: Actin aggregation and embryonic epidermal wound healing. *J. Math. Biol.* **31**, 703-716 (1993).

13. J.A. Sherratt: Cellular growth control and travelling waves of cancer. *SIAM J. Appl. Math.* **53**, 1713-1730 (1993).
14. D.L. Benson, P.K. Maini, J.A. Sherratt: Analysis of pattern formation in reaction-diffusion models with spatially inhomogeneous diffusion coefficients. *Math. Comp. Modelling* **17**, 29-34 (1993).
15. J.A. Sherratt: The amplitude of periodic plane waves depends on initial conditions in a variety of λ - ω systems. *Nonlinearity* **6**, 703-716 (1993).
16. J.A. Sherratt: Transition waves that leave behind regular or irregular spatiotemporal oscillations in a system of three reaction-diffusion equations. *Int. J. Bifurc. Chaos* **3**, 1269-1279 (1993).
17. J.A. Sherratt: Chemotaxis and chemokinesis in eukaryotic cells: the Keller-Segel equations as an approximation to a detailed model. *Bull. Math. Biol.* **56**, 129-146 (1994).
18. P.D. Dale, J.A. Sherratt, P.K. Maini: On the speed of corneal epithelial wound healing. *Appl. Math. Lett.* **7**, 11-14 (1994).
19. J.A. Sherratt: Irregular wakes in reaction-diffusion waves. *Physica D* **70**, 370-382 (1994).
20. J.A. Sherratt: On the speed of amplitude transition waves in reaction diffusion equations of λ - ω type. *IMA J. Appl. Math.* **52**, 79-92 (1994).
21. T. Höfer, P.K. Maini, J.A. Sherratt, M.A.J. Chaplain, P. Chauvet, D. Metevier, P.C. Montes, J.D. Murray: A resolution of the chemotactic wave paradox. *Appl. Math. Lett.* **7**, 1-5 (1994).
22. J.A. Sherratt: On the evolution of periodic plane waves in reaction-diffusion equations of λ - ω type. *SIAM J. Appl. Math.* **54**, 1374-1385 (1994).
23. P.D. Dale, P.K. Maini, J.A. Sherratt: Mathematical modelling of corneal epithelial wound healing. *Math. Biosci.* **124**, 127-147 (1994).
This paper was awarded the Bellman Prize for the best paper in Mathematical Biosciences during 1994 and 1995.
24. J.A. Sherratt: Turing bifurcations with a temporally varying diffusion coefficient. *J. Math. Biol.* **33**, 295-308 (1995).
25. T. Höfer, J.A. Sherratt, P.K. Maini: *Dictyostelium discoideum*: cellular self-organisation in an excitable biological medium. *Proc. R. Soc. Lond. B* **259**, 249-257 (1995).
26. J.A. Sherratt: Diffusion driven instability in oscillating environments. *Eur. J. Appl. Math.* **6**, 355-372 (1995).
27. J.A. Sherratt, M.A. Lewis, A.C. Fowler: Ecological chaos in the wake of invasion. *Proc. Natl. Acad. Sci. USA* **92**, 2524-2528 (1995).
28. J.A. Sherratt: Unstable wavetrains and chaotic wakes in reaction-diffusion systems of λ - ω type. *Physica D* **82**, 165-179 (1995).
29. T. Höfer, J.A. Sherratt, P.K. Maini: Cellular pattern formation in a model of *Dictyostelium* aggregation. *Physica D* **85**, 425-444 (1995).

30. A.J. Perumpanani, J.A. Sherratt, P.K. Maini: Phase differences in reaction-diffusion-advection systems and applications to morphogenesis. *IMA J. Appl. Math.* **55**, 19-33 (1995).
31. P.D. Dale, L. Olsen, P.K. Maini, J.A. Sherratt: Travelling waves in wound healing. *FORMA* **10**, 205-222 (1995). (A review paper).
32. J.A. Sherratt, P.K. Maini, W. Jäger, W.A. Müller: A receptor based model for pattern formation in *Hydra*. *FORMA* **10**, 77-95 (1995).
33. L. Olsen, J.A. Sherratt, P.K. Maini: A mechanochemical model for adult dermal wound contraction and the permanence of the contracted tissue displacement profile. *J. Theor. Biol.* **177**, 113-128 (1995).
34. P.D. Dale, J.A. Sherratt, P.K. Maini: A mathematical model for collagen fibre formation during foetal and adult dermal wound healing. *Proc. R. Soc. Lond. B* **263**, 653-660 (1996).
35. J.A. Sherratt, B.P. Marchant: Algebraic decay and variable speeds in wave front solutions of a scalar reaction-diffusion equation. *IMA J. Appl. Math.* **56**, 289-302 (1996).
36. L. Olsen, J.A. Sherratt, P.K. Maini: A mathematical model for fibro-proliferative wound healing disorders. *Bull. Math. Biol.* **58**, 787-808 (1996).
37. J.A. Sherratt: Periodic waves in reaction-diffusion models of oscillatory biological systems. *FORMA* **11**, 61-80 (1996).
38. J.A. Sherratt, B.P. Marchant: Non-sharp travelling wave fronts in the Fisher equation with degenerate nonlinear diffusion. *Appl. Math. Lett.* **9**, 33-38 (1996).
39. J.A. Sherratt: Periodic travelling waves in a family of deterministic cellular automata. *Physica D* **95**, 319-335 (1996).
40. J.A. Sherratt: Oscillatory and chaotic wakes behind moving boundaries in reaction-diffusion systems. *Dyn. Stab. Sys.* **11**, 303-324 (1996).
41. A.J. Perumpanani, J.A. Sherratt, J. Norbury, H.M. Byrne: Biological inferences from a mathematical model for malignant invasion. *Invasion and Metastasis* **16**, 209-221 (1996).
42. J.A. Sherratt, B.T. Eagan, M.A. Lewis: Oscillations and chaos behind predator-prey invasion: mathematical artifact or ecological reality? *Phil. Trans. R. Soc. B* **352**, 21-38 (1997).
43. J.A. Sherratt: A comparison of two numerical methods for oscillatory reaction-diffusion equations. *Appl. Math. Lett.* **10**, 1-5 (1997).
44. J. Sneyd, J.A. Sherratt: On the propagation of calcium waves in an inhomogeneous medium. *SIAM J. Appl. Math.* **57**, 73-94 (1997).
45. P.D. Dale, J.A. Sherratt, P.K. Maini: The role of fibroblast migration in collagen fibre formation during foetal and adult dermal wound healing. *Bull. Math. Biol.* **59**, 1077-1100 (1997).
46. A.J. Perumpanani, J.A. Sherratt, J. Norbury: Mathematical modelling of capsule formation and multinodularity in benign tumour growth. *Nonlinearity* **10**, 1599-1614 (1997).

47. E.A. Gaffney, P.K. Maini, J.A. Sherratt, P.D. Dale: Wound healing in the corneal epithelium: biological mechanisms and mathematical models. *J. Theor. Med.* **1**, 13-23 (1997). (A review paper).
48. M.R. Owen, J.A. Sherratt: Pattern formation and spatiotemporal irregularity in a model for macrophage-tumour interaction. *J. Theor. Biol.* **189**, 63-80 (1997).
49. L. Olsen, J.A. Sherratt, P.K. Maini, F. Arnold: A mathematical model for the capillary endothelial cell extracellular matrix interactions in wound healing angiogenesis. *IMA J. Math. Appl. Med. Biol.* **14**, 261-282 (1997).
50. L. Olsen, P.K. Maini, J.A. Sherratt: Spatially varying equilibria of mechanical models: application to dermal wound contraction. *Math. Biosci.* **147**, 113-129 (1998).
51. J.C. Dallon, J.A. Sherratt: A mathematical model for fibroblast and collagen orientation. *Bull. Math. Biol.* **60**, 101-130 (1998).
52. M.R. Owen, J.A. Sherratt: Modelling the macrophage invasion of tumours: effects on growth and composition. *IMA J. Math. Appl. Med. Biol.* **15**, 165-185 (1998).
53. J.A. Sherratt: On the transition from initial data to travelling waves in the Fisher-KPP equation. *Dyn. Stab. Sys.* **13**, 167-174 (1998).
54. J.A. Sherratt: Invasive wave fronts and their oscillatory wakes are linked by a modulated travelling phase resetting wave. *Physica D* **117**, 145-166 (1998).
55. M.R. Owen, J.A. Sherratt: Mathematical modelling of juxtacrine cell signalling. *Math. Biosci.* **152**, 125-150 (1998).
56. D.L. Benson, P.K. Maini, J.A. Sherratt: Unravelling the Turing bifurcation using spatially varying diffusion coefficients. *J. Math. Biol.* **37**, 381-417 (1998).
57. L. Olsen, P.K. Maini, J.A. Sherratt, B. Marchant: Simple modelling of extracellular matrix alignment in dermal wound healing. I. Cell flux induced alignment. *J. Theor. Med.* **1**, 175-192 (1998).
58. A.J. Perumpanani, D.L. Simmons, A.J.H. Gearing, K.M. Miller, G. Ward, J. Norbury, M. Schneemann, J.A. Sherratt: Extracellular matrix mediated chemotaxis can impede cell migration. *Proc. R. Soc. Lond. B* **265**, 2347-2352 (1998).
59. S.D. Webb, J.A. Sherratt, R.G. Fish: Mathematical modelling of tumour acidity: regulation of intracellular pH. *J. Theor. Biol.* **196**, 237-250 (1999).
60. A.J. Perumpanani, J.A. Sherratt, J. Norbury, H. Byrne: A two parameter family of travelling waves with a singular barrier arising from the modelling of matrix mediated malignant invasion. *Physica D* **126**, 145-159 (1999).
61. M.R. Owen, J.A. Sherratt, S.R. Myers: How far can a juxtacrine signal travel? *Proc. R. Soc. Lond. B* **266**, 579-585 (1999).
62. E.A. Gaffney, P.K. Maini, J.A. Sherratt, S. Tuft: The mathematical modelling of cell kinetics in corneal epithelial wound healing. *J. Theor. Biol.* **197**, 15-40 (1999).
63. L. Olsen, P.K. Maini, J.A. Sherratt, J. Dallon: Mathematical modelling of anisotropy in fibrous connective tissue. *Math. Biosci.* **158**, 145-170 (1999).

64. M.R. Owen, J.A. Sherratt: Mathematical modelling of macrophage dynamics in tumours. *Math. Models Meth. Appl. Sci.* **9**, 513-539 (1999).
65. A.L. Kay, J.A. Sherratt: On the persistence of spatiotemporal oscillations generated by invasion. *IMA J. Appl. Math.*, **63**, 199-216 (1999).
66. J. Dallon, J.A. Sherratt, P.K. Maini: Mathematical modelling of extracellular matrix dynamics using discrete cells: fibre orientation and tissue regeneration. *J. Theor. Biol.* **199**, 449-471 (1999).
67. S.D. Webb, J.A. Sherratt, R.G. Fish: Alterations in proteolytic activity at low pH and its association with invasion: a theoretical model. *Clin. Exp. Metastasis* **17**, 397-407 (1999).
68. M.R. Owen, J.A. Sherratt, H.J. Wearing: Lateral induction by juxtacrine signalling is a new mechanism for pattern formation. *Dev. Biol.* **217**, 54-61 (2000).
69. J.A. Sherratt: Travelling wave solutions of a mathematical model for tumour encapsulation. *SIAM J. Appl. Math.* **60**, 392-407 (2000).
70. H.J. Wearing, M.R. Owen, J.A. Sherratt: Mathematical modelling of juxtacrine patterning. *Bull. Math. Biol.* **62**, 293-320 (2000).
71. C.A. Cobbold, J.A. Sherratt: Mathematical modelling of nitric oxide activity in wound healing can explain keloid and hypertrophic scarring. *J. Theor. Biol.* **204**, 257-288 (2000).
72. H.J. Wearing, J.A. Sherratt: Keratinocyte growth factor signalling: a mathematical model of dermal-epidermal interaction in epidermal wound healing. *Math. Biosci.* **165**, 41-62 (2000).
73. J. Dallon, J.A. Sherratt, P.K. Maini, M.W.J. Ferguson: Biological implications of a discrete mathematical model for collagen deposition and alignment in wound repair. *IMA J. Math. Appl. Med. Biol.* **17**, 379-393 (2000).
74. J.A. Sherratt: Wave front propagation in a competition equation with a new motility term modelling contact inhibition between cell populations. *Proc. R. Soc. Lond. A* **456**, 2365-2386 (2000).
75. J.C. Dallon, J.A. Sherratt: A mathematical model for spatially varying extracellular matrix alignment. *SIAM J. Appl. Math.* **61**, 506-527 (2000).
76. A.L. Kay, J.A. Sherratt: Spatial noise stabilizes periodic wave patterns in oscillatory systems on finite domains. *SIAM J. Appl. Math.* **61**, 1013-1041 (2000).
77. J.A. Sherratt: Periodic travelling waves in cyclic predator-prey systems. *Ecology Lett.* **4**, 30-37 (2001).
78. J.C. Dallon, J.A. Sherratt, P.K. Maini: Modeling the effects of TGF β on extracellular matrix alignment in dermal wound repair. *Wound Repair Regen.* **9**, 278-286 (2001).
79. A.L. Kay, J.A. Sherratt, J.B. McLeod: Comparison theorems and variable speed waves for a scalar reaction-diffusion equation. *Proc. R. Soc. Edin. A* **131A**, 1133-1161 (2001).
80. H.J. Wearing, J.A. Sherratt: Nonlinear analysis of juxtacrine patterns. *SIAM J. Appl. Math.* **62**, 283-309 (2001)

81. B.P. Marchant, J. Norbury, J.A. Sherratt: Travelling wave solutions to a haptotaxis-dominated model of malignant invasion. *Nonlinearity* **14**,1653-1671 (2001).
82. J.A. Sherratt, M.A.J. Chaplain: A new mathematical model for avascular tumour growth. *J. Math. Biol.* **43**, 291-312 (2001).
83. J.A. Sherratt, X. Lambin, C.J. Thomas, T.N. Sherratt: Generation of periodic waves by landscape features in cyclic predator-prey systems. *Proc. R. Soc. Lond. B* **269**, 327-334 (2002).
84. N.J. Savill, R. Weller, J.A. Sherratt: Mathematical modelling of nitric oxide regulation of rete peg formation in psoriasis. *J. Theor. Biol.* **214**, 1-16 (2002)
85. S.D. Webb, J.A. Sherratt, R.G. Fish: Cells behaving badly: a theoretical model for the FAS/FAS-L system in tumour immunology. *Math. Biosci.* **179**, 113-129 (2002) *The model in this paper was selected for translation into CellML by the University of Auckland (www.cellml.org).*
86. S. Turner, J.A. Sherratt: Intercellular adhesion and cancer invasion: a discrete simulation using the extended Potts model. *J. Theor. Biol.* **216**, 85-100 (2002)
87. J.A. Sherratt, R. Weller, N.J. Savill: Modelling blood flow regulation by nitric oxide in psoriatic plaques. *Bull. Math. Biol.* **64**, 623-641 (2002)
88. J.A. Sherratt, J.C. Dallon: Theoretical models of wound healing: past successes and future challenges. *C.R. Biologies* **325**, 557-564 (2002). (A review paper).
89. C.A. Cobbold, J.A. Sherratt, S.R.J. Maxwell: Lipoprotein oxidation and its significance for atherosclerosis: a mathematical approach. *Bull. Math. Biol.* **64**, 65-96 (2002).
90. P.K. Maini, J.A. Sherratt, L. Olsen: Mathematical models for cell-matrix interactions during dermal wound healing. *Int. J. Bif. Chaos* **12**, 2021-2029 (2002).
91. S.R. McDougall, A.R.A. Anderson, M.A.J. Chaplain, J.A. Sherratt: Mathematical modelling of flow through vascular networks: implications for tumour-induced angiogenesis and chemotherapy strategies. *Bull. Math. Biol.* **64**, 673-702 (2002).
92. S.D. Webb, J.A. Sherratt: A perturbation problem arising from the modelling of soluble Fas ligand in tumour immunology. *Math. Comp. Modelling* **37**, 323-331 (2003).
93. N.J. Savill, J.A. Sherratt: The control of epidermal stem cell clusters by Notch mediated lateral induction. *Dev. Biol.* **258**, 141-153 (2003).
94. J.A. Sherratt: Periodic travelling wave selection by Dirichlet boundary conditions in oscillatory reaction-diffusion systems. *SIAM J. Appl. Math.* **63**, 1520-1538 (2003).
95. J.A. Sherratt, X. Lambin, T.N. Sherratt: The effects of the size and shape of landscape features on the formation of travelling waves in cyclic populations. *Am. Nat.* **162**, 503-513 (2003).
96. K.J. Painter, J.A. Sherratt: Modelling the movement of interacting cell populations. *J. Theor. Biol.* **225**, 327-339 (2003).
97. S.D. Webb, J.A. Sherratt: Oscillatory reaction-diffusion equations with temporally varying parameters. *Math. Comp. Modelling* **39**, 45-60 (2004).

98. S. Turner, J.A. Sherratt, K.J. Painter, N.J. Savill: From a discrete to a continuous model of biological cell movement. *Phys. Rev. E* **69**, art. no. 021910 (2004).
99. S. Turner, J.A. Sherratt, D. Cameron: Tamoxifen treatment failure in cancer and the nonlinear dynamics of TGF-beta. *J. Theor. Biol.* **229**, 101-111 (2004).
100. J.A. Sherratt: An analysis of vegetation stripe formation in semi-arid landscapes. *J. Math. Biol.* **51**, 183-197 (2005).
101. H.V. Waugh, J.A. Sherratt: Macrophage dynamics in diabetic wound healing. *Bull. Math. Biol.* **68**, 197-207 (2006). *The model in this paper was selected for translation into CellML by the University of Auckland (www.cellml.org).*
102. N.J. Armstrong, K. Painter, J.A. Sherratt: A continuum approach to modelling cell adhesion. *J. Theor. Biol.* **243**, 98-113 (2006).
103. M. Smith, A. White, X. Lambin, J.A. Sherratt, M. Begon: Delayed density dependent season length alone can lead to multiannual rodent population cycles. *Am. Nat.* **167**, 695-704 (2006).
104. S. McDougall, J. Dallon, J.A. Sherratt, P. Maini: Fibroblast migration and collagen deposition during dermal wound healing: mathematical modelling and clinical implications. *Phil. Trans. R. Soc. Lond. A* **364**, 1385-1405 (2006).
105. J.A. Sherratt, G.J. Lord: Nonlinear dynamics and pattern bifurcations in a model for vegetation stripes in semi-arid environments. *Theor. Pop. Biol.* **71**, 1-11 (2007).
106. H.V. Waugh, J.A. Sherratt: Modelling the effects of treating diabetic wounds with engineered skin substitutes. *Wound Repair Regen.* **15**, 556-565 (2007). *The model in this paper was selected for translation into CellML by the University of Auckland (www.cellml.org).*
107. M.J. Smith, J.A. Sherratt: The effects of unequal diffusion coefficients on periodic travelling waves in oscillatory reaction-diffusion systems. *Physica D* **236**, 90-103 (2007).
108. M.J. Smith, J.A. Sherratt, N.J. Armstrong: The effects of obstacle size on periodic travelling waves in oscillatory reaction-diffusion equations. *Proc. R. Soc. Lond. A* **464**, 365-390 (2008).
109. J.A. Sherratt, M.J. Smith: Periodic travelling waves in cyclic populations: field studies and reaction-diffusion models. *J. R. Soc. Interface* **5**, 483-505 (2008). (A review paper).
110. M.J. Smith, A. White, J.A. Sherratt, S. Telfer, M. Begon, X. Lambin: Disease effects on reproduction can cause population cycles in seasonal environments. *J. Animal Ecol.* **77**, 378-389 (2008). *This paper was selected as "must read" by Faculty of 1000 Biology.*
111. M.J. Smith, J.A. Sherratt, X. Lambin: The effects of density-dependent dispersal on the spatiotemporal dynamics of cyclic populations. *J. Theor. Biol.* **254**, 264-274 (2008).
112. J.A. Sherratt: A comparison of periodic travelling wave generation by Robin and Dirichlet boundary conditions in oscillatory reaction-diffusion equations. *IMA J. Appl. Math.* **73**, 759-781 (2008).
113. N.J. Armstrong, K.J. Painter, J.A. Sherratt: Adding adhesion to a chemical signalling model for somite formation. *Bull. Math. Biol.* **71**, 1-24 (2009).

114. J.A. Sherratt, N.J. Armstrong, S.A. Gourley, K.J. Painter: Boundedness of solutions of a nonlocal reaction-diffusion model for cellular adhesion. *Eur. J. Appl. Math.* **20**, 123-144 (2009).
115. S.S. Bell, A. White, J.A. Sherratt, M. Boots: Invading with biological weapons: the role of shared disease in ecological invasion. *Theor. Ecol.* **2**, 53-66 (2009).
116. J.A. Sherratt, M.J. Smith, J.D.M. Rademacher: Locating the transition from periodic oscillations to spatiotemporal chaos in the wake of invasion. *Proc. Natl. Acad. Sci. USA* **106**, 10890-10895 (2009).
117. M.J. Smith, J.D.M. Rademacher, J.A. Sherratt: Absolute stability of wavetrains can explain spatiotemporal dynamics in reaction-diffusion systems of lambda-omega type. *SIAM J. Appl. Dyn. Systems* **8**, 1136-1159 (2009).
118. M.J. Smith, J.A. Sherratt: Propagating fronts in the complex Ginzburg-Landau equation generate fixed-width bands of plane waves. *Phys. Rev. E* **80**, art. no. 046209 (2009).
119. J.A. Sherratt, M.J. Smith, J.D.M. Rademacher: Patterns of sources and sinks in the complex Ginzburg-Landau equation with zero linear dispersion. *SIAM J. Appl. Dyn. Systems* **9**, 883-918 (2010).
120. K.J. Painter, N.J. Armstrong, J.A. Sherratt: The impact of adhesion on cellular invasion processes in cancer and development. *J. Theor. Biol.* **264**, 1057-1067 (2010).
121. J.A. Sherratt: On the form of smooth-front travelling waves in a reaction-diffusion equation with degenerate nonlinear diffusion. *Math. Model. Nat. Phenom.* **5**, 63-78 (2010).
122. J.A. Sherratt: Pattern solutions of the Klausmeier model for banded vegetation in semi-arid environments I. *Nonlinearity* **23**, 2657-2675 (2010). This paper was selected for the "Nonlinearity Highly Downloaded Collection" for 2010.
123. J.M. Bloomfield, J.A. Sherratt, K.J. Painter, G. Landini: Cellular automata and integrodifferential equation models for cell renewal in mosaic tissues. *J. R. Soc. Interface* **7**, 1525-1535 (2010).
124. J.M. Bloomfield, K.J. Painter, J.A. Sherratt: How does cellular contact affect differentiation mediated pattern formation? *Bull. Math. Biol.* **73**, 1529-1558 (2011).
125. J.J.H. Reynolds, A. White, J.A. Sherratt, M. Boots: The population dynamical consequences of density-dependent prophylaxis. *J. Theor. Biol.* **288**, 1-8 (2011).
126. J.A. Sherratt: Pattern solutions of the Klausmeier model for banded vegetation in semi-arid environments II. Patterns with the largest possible propagation speeds. *Proc. R. Soc. Lond. A* **467**, 3272-3294 (2011)
127. J.A. Sherratt: Numerical continuation methods for studying periodic travelling wave (wavetrain) solutions of partial differential equations. *Appl. Math. Computation* **218**, 4684-4694 (2012).
128. J.A. Sherratt, A.D. Synodinos: Vegetation patterns and desertification waves in semi-arid environments: mathematical models based on local facilitation in plants. *Discrete Cont. Dyn. Syst. Ser. B* **17**, 2815-2827 (2012).

129. J.J.H. Reynolds, F.P. Massey, X. Lambin, S. Reidinger, J.A. Sherratt, M.J. Smith, A. White, S.E. Hartley: Delayed induced silica defences in grasses and their potential for destabilising herbivore population dynamics. *Oecologia* **170**, 445-456 (2012).
130. J.A. Sherratt, M.J. Smith: Transition to spatiotemporal chaos via stationary branching shocks and holes. *Physica D* **241**, 1671-1679 (2012).
131. J.A. Sherratt: Pattern solutions of the Klausmeier model for banded vegetation in semi-arid environments III: the transition between homoclinic solutions. *Physica D* **242**, 30-41 (2013).
132. R.A. Taylor, A. White, J.A. Sherratt: The impact of variations in seasonality on population cycles. *Proc. R. Soc. Lond. B* **280**, 20122714 (2013).
133. J.A. Sherratt: Pattern solutions of the Klausmeier model for banded vegetation semi-arid environments IV: slowly moving patterns and their stability. *SIAM J. Appl. Math.* **73**, 330-350 (2013).
134. J.A. Sherratt: Numerical continuation of boundaries in parameter space between stable and unstable periodic travelling wave (wavetrain) solutions of partial differential equations. *Adv. Comput. Math.* **39**, 175-192 (2013).
135. J.A. Sherratt: History-dependent patterns of whole ecosystems. *Ecological Complexity* **14**, 8-20 (2013).
136. J.A. Sherratt: Pattern solutions of the Klausmeier model for banded vegetation in semi-arid environments V: the transition from patterns to desert. *SIAM J. Appl. Math.* **73**, 1347-1367 (2013). This paper was selected as the subject of a “research nugget” article on SIAM’s online news site. It also formed the basis for an article in *Bionieuws*, a Dutch magazine for biologists.
137. J.A. Sherratt: Generation of periodic travelling waves in cyclic populations by hostile boundaries. *Proc. R. Soc. Lond. A* **469**: 20120756 (2013)
138. J.A. Sherratt, Yu. Brezhnev: On the mean values of the Weierstrass elliptic function \wp . *Physica D* **263**: 86-98 (2013).
139. J.J.R. Reynolds, J.A. Sherratt, A. White: Stability switches as the length of a time delay increases in a host-pathogen model. *J. Nonlinear Sci.* **23**: 1073-1087 (2013).
140. J.J.H. Reynolds, J.A. Sherratt, A. White, X. Lambin: A comparison of the dynamical impact of seasonal mechanisms in a herbivore–plant defence system. *Theor. Ecol.* **6**: 225-239 (2013).
141. R.A. Taylor, J.A. Sherratt, A. White: Seasonal forcing and multi-year cycles in interacting populations: lessons from a predator-prey model. *J. Math. Biol.* **67**: 1741-1764 (2013).
142. A.S. Dagbovie, J.A. Sherratt: Absolute stability and dynamical stabilisation in predator-prey systems. *J. Math. Biol.* **68**: 1403-1421 (2014).
143. J.A. Sherratt, A.S. Dagbovie, F.M. Hilker: A mathematical biologist’s guide to absolute and convective instability. *Bull. Math. Biol.* **76**: 1-16 (2014) (A review paper).

144. A.S. Dagbovie, J.A. Sherratt: Pattern selection and hysteresis in the Rietkerk model for banded vegetation in semi-arid environments. *J. R. Soc. Interface* **11**: 20140465 (2014).
145. J.A. Sherratt: Periodic travelling waves in integrodifferential equations for nonlocal dispersal. *SIAM J. Appl. Dyn. Systems* **13**: 1517-1541 (2014).
146. R.A. Taylor, A. White, J.A. Sherratt: Seasonal forcing in a host-macroparasite system. *J. Theor. Biol.* **365**: 55-66 (2015).
147. J.A. Sherratt: Using wavelength and slope to infer the historical origin of semi-arid vegetation bands. *PNAS USA* **112**: 4202-4207 (2015).
148. A. Bianchi, K.J. Painter, J.A. Sherratt: A mathematical model for lymphangiogenesis in normal and diabetic wounds. *J. Theor. Biol.* **383**: 61-86 (2015).
149. C.A. Cobbold, F. Lutscher, J.A. Sherratt: Diffusion-driven instabilities and emerging spatial patterns in patchy landscapes. *Ecological Complexity* **24**: 69-81 (2015).
150. K.J. Painter, J.M. Bloomfield, J.A. Sherratt, A. Gerisch: A nonlocal model for contact attraction and repulsion in heterogeneous cell populations. *Bull. Math. Biol.* in press.
151. J.A. Sherratt: When does colonisation of a semi-arid hillslope generate vegetation patterns? *J. Math. Biol.* in press.
152. J.A. Sherratt: Invasion generates periodic travelling waves (wavetrains) in predator-prey models with nonlocal dispersal. *SIAM J. Appl. Math.* in press.

Review Papers in Book Chapters and Magazines

1. J.A. Sherratt, J.C. Dallon, T. Höfer, P.K. Maini: Mathematical modelling of signalling in *Dictyostelium discoideum*. In: *Microbial signalling and communication*, ed. R.R. England, G. Hobbs, N.J. Bainton, D. McL. Roberts, Cambridge University Press, pp. 241-254 (1999).
2. N. Monk, J.A. Sherratt, M.R. Owen: Spatiotemporal patterning in models of juxtacrine intercellular signalling with feedback. In: *Mathematical models for biological pattern formation*, ed. P.K. Maini, H.G. Othmer, Springer-Verlag, pp. 165-192 (2000).
3. J.A. Sherratt: Predictive mathematical modelling in metastasis. In: *Metastasis methods and protocols*, ed. S. Brookes, Humana Press, pp. 309-316 (2001).
4. J.A. Sherratt: Healing by numbers: mathematics meets medicine. *The Biologist* **48**, 254-258 (2001).

Publications in Conference Proceedings

1. P.K. Maini, D.L. Benson, J.A. Sherratt: Environmental instability in heterogeneous domains. *J. Agric. Sci.* **119**, 138-139 (1992).
2. J.A. Sherratt, J. Lewis: Stress-induced alignment of intracellular actin filaments. *Mol. Biol. Cell* **3(S)**, A37 (1992).

3. D.L. Benson, P.K. Maini, J.A. Sherratt: Pattern formation in heterogeneous domains. In: *Experimental and theoretical advances in biological pattern formation*, ed. H.G. Othmer, P.K. Maini, J.D. Murray, Plenum Press, New York, pp. 29-32 (1993).
4. J.A. Sherratt, J. Lewis: Modelling actin filament alignment. In: *Experimental and theoretical advances in biological pattern formation*, ed. H.G. Othmer, P.K. Maini, J.D. Murray, Plenum Press, New York, pp. 319-324 (1993).
5. T. Höfer, P.K. Maini, J.A. Sherratt: A mathematical model for chemotactic movement and aggregation in cellular slime moulds. *J. Agricul. Sci.* **123**, 149-154 (1994).
6. P.D. Dale, J.A. Sherratt, P.K. Maini: Corneal epithelial wound healing. *J. Biol. Sys.* **3**, 957-965 (1995).
7. T. Höfer, P.K. Maini, J.A. Sherratt, M.A.J. Chaplain, J.D. Murray: Resolving the chemotactic wave paradox: a mathematical model for chemotaxis of *Dictyostelium* amoebae. *J. Biol. Sys.* **3**, 967-973 (1995).
8. L. Olsen, J.A. Sherratt, P.K. Maini: A mechanochemical model for adult dermal wound contraction. *J. Biol. Sys.* **3**, 1021-1031 (1995).
9. L. Olsen, P.K. Maini, J.A. Sherratt: A mechanochemical model for normal and abnormal dermal wound repair. *Nonlinear Analysis – Theory, Methods, Appl.* **30**, 3333-3338 (1997).
10. J.A. Sherratt, A.J. Perumpanani, J. Norbury: Mathematics of complex systems. *Brit. J. Cancer* **76** (suppl. 1): 10 (1997).
11. J.A. Sherratt: Mathematical modelling of cancer invasion and metastasis. *Clin. Exp. Metastasis* **15**, 63-65 (1997).
12. M.R. Owen, J.A. Sherratt: The macrophage invasion of tumours: effects on growth, composition, and spatial structure. *Clin. Exp. Metastasis* **15**, 66 (1997).
13. A.J. Perumpanani, J.A. Sherratt, J. Norbury: Modelling matrix degradation during tumour invasion. *Clin. Exp. Metastasis* **15**, 69 (1997).
14. J.A. Sherratt, M.R. Owen, A.J. Perumpanani: Pattern formation in cancer. In: *On growth and form: spatio-temporal patterning in biology*, ed. M.A.J. Chaplain, G.D. Singh, J. McLachlan, John Wiley & Son, pp. 47-74 (1999).
15. S.D. Webb, J.A. Sherratt, R.G. Fish: Modelling Tumour Acidity and Invasion. In: *The tumour microenvironment: causes and consequences of hypoxia and acidity*, Novartis Foundation, London, John Wiley & Son, pp. 169-185 (2001).
16. P.K. Maini, J.C. Dallon, J.A. Sherratt: A multiscale model for collagen alignment in wound healing. *J. Physiol.* **561P**, SA11 [abstract] 186 (2005).
17. J.A. Sherratt, M.J. Smith, J.D.M. Rademacher: Spatiotemporal dynamics in ecology: insights from physics. In: *XVIIth International Congress on Mathematical Physics*, ed. P. Exner, World Scientific, pp. 651-655 (2010).

18. J.A. Sherratt: Turing patterns in deserts. In: *How the World Computes*, ed. S.B. Cooper, A. Dawar, B. Löwe, Lecture Notes in Computer Science 7318, Springer, New York, pp. 667-674 (2012).

Organisation of Scientific Meetings

- Organiser of a workshop on “Mathematical Modelling of Cancer Invasion and Metastasis”, University of Warwick, 11–13 September 1996.
- Member of organising committee of the “Eighth IMA Conference on the Mathematical Theory of Biological Systems”, Oxford, 2–4 July 1997.
- Member of organising committee of the “Nineth IMA Conference on the Mathematical Theory of Biological Systems”, Oxford, July 1998.
- Organiser of workshop on “Chaos and Fractals in Medicine”, 15-16 December 1998, University of Warwick.
- Organiser of workshop on “From Single Cells to Continua”, 22-25 March 1999, ICMS, Edinburgh.
- Co-organiser of workshop on “Brain Tumour Modelling”, 27-28 June 2001, ICMS, Edinburgh.
- Member of the scientific committee for “European Conference on Mathematical and Theoretical Biology 2008”, 29 June-4 July 2008, Edinburgh.
- Member of the advisory committee for the 2008/9 program on “Developmental Biology” at the Mathematical Biosciences Institute, Iowa State University.
- Organiser of a Maxwell Colloquium celebrating the work of James D. Murray, 14-15 February 2008, Edinburgh.
- Organiser of minisymposia at Maths2010, 6-9 April 2010, Edinburgh.
- Co-organiser of workshop on “Current Challenges for Mathematical Modelling of Cyclic Populations” at Banff International Research Station, 10-15 November 2013.

Papers Presented at Scientific Meetings

► *denotes a main invited lecture*

▷ *denotes an invited lecture in a minisymposium or similar*

- 1991:**
- First European Conference on Mathematics Applied to Biology and Medicine, Grenoble, France.
 - British Applied Mathematics Colloquium, Oxford, England.
 - First European Tissue Repair Society Meeting, Oxford, England.
- 1992:**
- Twelfth Conference on Ordinary and Partial Differential Equations, Dundee, Scotland.
 - • Sixth IMA Conference on the Mathematical Theory of the Dynamics of Biological Systems, Oxford, England. (Plenary lecture).

- NATO Advanced Research Workshop on Biological Pattern Formation, Oxford, England.
 - Thirty-second Annual Meeting of the American Society for Cell Biology, Denver, USA.
- 1993:**
- Fifth International Workshop on Hydroid Development, Gunzburg, Germany.
 - ▶ • Oberwolfach Symposium on Mathematical Biology, Oberwolfach, Germany. (All speakers at this week-long meeting were invited).
 - Second European Conference on Mathematics Applied to Medicine and Biology, Lyon, France.
- 1994:**
- ▶ • ESF Workshop on Biological Pattern Formation, Heidelberg, Germany. (Most speakers at this week-long meeting were invited).
 - Euromech 323: Reaction-Diffusion Phenomena in Physical and Chemical Systems, Norwich, England.
 - Fourth European Tissue Repair Society Meeting, Oxford, England.
- 1995:**
- ▶ • ICMS Workshop on Wound Healing, Edinburgh, Scotland. (Plenary lecture).
 - ▶ • London Mathematical Society Spitalfields Day, Edinburgh, Scotland. (I was one of four speakers, all invited).
 - ICIAM Congress, Hamburg, Germany.
 - ▶ • Workshop on Dynamics of Piecewise Linear Differential Equations, Newton Institute, Cambridge, England. (All speakers at this three-day meeting were invited).
 - ▶ • Workshop on Current Issues and Controversies in Biological Dynamics, Newton Institute, Cambridge, England. (All speakers at this week-long meeting were invited).
- 1996:**
- ▶ • EPSRC Postgraduate School on Applied Nonlinear Mathematics, Bristol, England. (Invited instructional lecture).
 - Workshop on Mathematical Modelling of Cancer Invasion and Metastasis, Warwick, England. (I was the main organiser of this workshop).
 - ▶ • Third European Conference on Mathematics Applied to Biology and Medicine, Heidelberg, Germany. (Plenary lecture).
 - ▶ • Oberwolfach Symposium on Mathematical Modelling in Biology, Oberwolfach, Germany. (All speakers at this week-long meeting were invited).
- 1997:**
- ▶ • Workshop on Using Functional Analysis to Extract Physical Properties of PDEs, University of Surrey, England. (Most speakers at this two-day meeting were invited).
 - ▶ • Joint meeting of the British Oncological Association, the Association of Cancer Physicians and the Royal College of Radiologists, St Andrews, Scotland. (Plenary lecture).

- 1998:** ▶ • The Mathematical Biology of Patterns and Processes, Bath, England. (Plenary lecture).
- ▶ • Gordon Conference on Theoretical Biology and Biomathematics, Tilton, New Hampshire, USA. (Plenary lecture).
 - ▶ • Pattern Formation and Morphogenesis: the Basic Process (part of the IMA program on Mathematical Biology), Minnesota, USA. (Most speakers at this week-long meeting were invited).
 - ▶ • On Growth and Form (a meeting to commemorate the work of D'Arcy Thompson), Dundee, Scotland. (Plenary lecture).
- 1999:** ▶ • Meeting of the Society for General Microbiology, Edinburgh, Scotland. (I gave a lecture in the Main Symposium of this meeting; all of these lectures were invited).
- ▶ • Dynamics Days 1999, Como, Italy. (Plenary lecture).
 - ▷ • ICIAM99, Edinburgh, Scotland. (Invited speaker in a minisymposium).
 - ▶ • Scottish Computational Mathematics Symposium, Edinburgh, Scotland. (I was one of four speakers, all invited).
- 2000:** ▶ • IMA Symposium on Mathematics in Medicine, Glasgow, Scotland. (Plenary lecture).
- Annual Meeting of the Society for Mathematical Biology, Salt Lake City, USA.
 - UK Nitric Oxide Forum, Stevenage, England.
 - ▶ • Nottingham Study Group on Mathematical Modelling in Medicine. (I gave an invited lecture presenting a case study from my own research).
- 2001:** ▶ • Joint MRC/NIGMS Meeting on Computational Cell Biology, London, England. (All speakers at this three-day meeting were invited).
- ▶ • Workshop on Vertical Integration in Biology, Isaac Newton Institute, Cambridge, England. (All speakers at this three-day meeting were invited).
- 2003:** ▶ • Annual meeting of the Society for Mathematical Biology, Dundee, Scotland. (Akira Okubo Lecture).
- ▶ • Computational Modelling in Medicine, Edinburgh, Scotland. (Plenary lecture).
- 2004:** • Swimming Micro-organisms and Cells, Glasgow, Scotland.
- 2005:** ▷ • European Society for Mathematical and Theoretical Biology meeting, Dresden, Germany. (Invited speaker in a minisymposium).
- Annual Meeting of the British Ecological Society, Hatfield, England.
- 2006:** ▶ • Continuum Mechanics and Diffusion, Durham, England. (All speakers at this one-day meeting were invited).
- ▶ • Applied Asymptotics and Modelling Workshop, Edinburgh, Scotland. (Most speakers at this week-long meeting were invited).
 - Which Mathematics for Biology?, Anogia, Greece.

- 2007:** ► ● Mathematical Modelling and Analysis of Cancer Invasion of Tissues, Dundee, Scotland. (Plenary lecture).
- ● Patterns for reaction-diffusion equations, Barcelona, Spain. (I was one of two invited overseas speakers).
 - ● Summer School on Mathematics in Biomedical Engineering, Warwick, England. (Invited instructional lecture).
 - Annual Meeting of the British Ecological Society, Glasgow, Scotland.
- 2008:** ► ● Pattern formation and functional morphology, RICAM, Linz, Austria. (Plenary lecture).
- Maxwell Colloquium celebrating the work of James D. Murray, Edinburgh, Scotland. (I was the organiser of this meeting).
 - ● Colloquium on Models of Population Dynamics and Evolution, Leicester, England. (Plenary lecture).
 - ● British Mathematical Colloquium, York, England. (Invited “morning lecture”).
 - ▷ ● European Conference on Mathematical and Theoretical Biology, Edinburgh, Scotland. (Invited speaker in two minisymposia).
 - ● European Congress of Mathematics, Amsterdam, Netherlands. (Invited “science lecture”).
 - ● Workshop on Dynamics of Patterns, CWI Amsterdam, Netherlands. (All speakers at this one-day meeting are invited).
- 2009:** ► ● First joint conference of the Society of Mathematical Biology and the Chinese Society of Mathematical Biology, Hangzhou, China. (Plenary lecture).
- ● Conference on Multiply Structured Populations in Biology, University of Bath. (Invited lecture).
 - ● International Congress of Mathematical Physics, Prague, Czech Republic. (Invited lecture).
- 2010:** ► ● Nonlinear PDEs arising in mathematical biology: cell migration and tissue mechanics, Edinburgh, April 2010. (Most speakers at this 3-day meeting were invited).
- ▷ ● Conference on Computational and Mathematical Population Dynamics, Bordeaux, France, May/June 2010. (Invited speaker in two minisymposia).
 - ● Workshop on cancer modelling, Dundee, August 2010. (Invited lecture).
 - ● Workshop on PDE models of biological processes, Taiwan, December 2010. (Invited plenary lecture).
- 2011:** ► ● Workshop on Ecology and Control of Invasive Species, Mathematical Biosciences Institute, Ohio State University, USA, February 2011. (Invited plenary lecture).
- Patterns, Nonlinear Dynamics and Applications, University of Bath, June 2011.
 - ● Mathematical Frontiers in the Life Sciences, University of Limerick, Ireland, July 2011. (Invited lecture).
 - ● Mathematical and Theoretical Ecology 2011: Linking Models with Ecological Processes, University of Essex, England, September 2011. (Invited keynote speaker).

- 2012:** ► ● Pattern Formation: The inspiration of Alan Turing. St John's College, Oxford, March 2012. (Invited lecture).
- ● International Conference on Applied Mathematics, City University, Hong Kong, May 2012. (Invited speaker).
- ● Morphogenesis/Emergence as a Computability Theoretic Phenomenon, Cambridge, June 2012. (Invited speaker in a special session).
- 2013:** ► ● The Mathematics Behind Biological Invasions, University of Alberta, May/June 2013. (Distinguished lecturer at this international summer school).
- ▷ ● Canadian Mathematics Society, Halifax, Canada, June 2013. (Invited speaker in a minisymposia).
- ● Young Researchers in Mathematics Conference, Edinburgh, June 2013. (Invited speaker).
- ● The Oxford Conference on Challenges in Applied Mathematics, Oxford, July 2013. (Invited plenary lecture).
- 2014:** ► ● International Workshop on Numerical Methods and Emerging Computational Challenges in Mathematical Biology, Dundee, May 2014. (Invited plenary lecture).
- ● Graduate School on Evolution Equations, Edinburgh, October 2014. (Invited lecture).
- ● Drylands, Deserts and Desertification Conference, Sede Boqer, Israel, November 2014. (Invited speaker in a special session).
- ● Spatio-temporal dynamics in Ecology: Building bridges between Ecology and the Mathematical and Physical Sciences. Lorenz Centre, Leiden, December 2014. (Invited participant).
- 2015:** ● Third Oxford Interdisciplinary Desert Conference, Oxford, UK, April 2015.
- ● Mathematical and Theoretical Ecology 2015, Niteroj, Brazil, August 2015. (Invited keynote speaker).
- 2016:** ► ● Patterns of Vegetation in Water Controlled Ecosystems, Venice, Italy, January 2016. (Invited lecturer at this graduate school).

Invited Research Seminars

- 1990:** Mathematical Institute, University of Oxford.
- 1991:** Department of Cell and Structural Biology, University of Manchester.
- 1992:** National Institute for Medical Research, London.
 School of Mathematical Sciences, University of Bath.
 Centre for Mathematical Biology, University of Oxford.
 Department of Mathematics, University of Pittsburgh, USA.
 Department of Mathematics, University of Delaware, USA.
 Department of Mathematics, University of Utah, USA.
 Department of Applied Mathematics, University of Washington.

- 1993:** Department of Mathematics, University of Warwick.
School of Mathematics, University of Bangor.
Mathematical Institute, University of Heidelberg, Germany.
- 1994:** Department of Mathematics, University of Warwick.
Centre for Nonlinear Studies, University of Leeds.
- 1995:** Department of Mathematical Sciences, University of Loughborough.
Department of Mathematical and Computing Sciences, University of Surrey.
Department of Mathematics, University College London.
Centre for Mathematical Biology, University of Oxford.
- 1996:** Department of Theoretical Mechanics, University of Nottingham.
Department of Mathematics, Imperial College London.
Department of Mathematics, University of Warwick.
Department of Mathematics, University of Utah, USA.
Department of Applied Mathematics and Theoretical Physics, University of Cambridge.
Department of Mathematics, University of Sheffield.
- 1997:** Department of Applied Mathematics, University of Washington, USA.
Department of Mathematics, University of Pittsburgh, USA.
Department of Mathematics, Boston University, USA.
Department of Mathematics, Massachusetts Institute of Technology, USA.
Department of Mathematics, University of Birmingham.
Department of Mathematics, Heriot-Watt University.
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Department of Theoretical Mechanics, University of Nottingham.
Centre for Mathematical Biology, University of Oxford.
- 1998:** Department of Mathematics, Strathclyde University.
Department of Mathematics, University of Glasgow.
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Department of Biology, Heriot-Watt University.
Department of Mathematics, University of Edinburgh.
Department of Mathematics, Glasgow Caledonian University.

- 1999:** Institute of Mathematics and its Applications colloquium, Edinburgh.
Department of Oncology, University of Edinburgh.
Edinburgh Mathematical Society colloquium, University of Abertay.
Department of Mathematics, University of Dundee.
Department of Computing Science and Mathematics, University of Stirling.
- 2000:** Department of Mathematics, Loughborough University.
Department of Physics, Heriot-Watt University.
Department of Mathematics, Durham University.
- 2001:** COMPLEX, University College London.
Department of Mathematics, University of Glasgow.
Department of Mathematics, University of Liverpool.
NIDDK, National Institutes of Health, Bethesda, USA.
- 2005:** Department of Mathematics, University of York.
Department of Biology, University of York.
Department of Mathematics, University of Birmingham.
Department of Mathematics, University of Glasgow.
- 2006:** Department of Mathematical Sciences, University of Bath.
Department of Mathematics, University of Leeds.
Department of Animal and Plant Sciences, University of Sheffield.
Centre for Inflammation Research, Royal Infirmary, Edinburgh.
Department of Mathematics, University of Glasgow.
- 2007:** Department of Mathematics, University of Edinburgh.
Department of Mathematics, Queen's University Belfast.
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Department of Computing Science & Mathematics, University of Stirling.
School of Mathematical Sciences, University of Nottingham.
- 2008:** Institute of Integrative and Comparative Biology, University of Leeds.
Centrum Wiskunde & Informatica, Amsterdam, The Netherlands.
Department of Mathematics, Virginia Commonwealth University, USA.
Department of Biology, University of Maryland, USA.
Center for Scientific Computation and Mathematical Modeling, University of Maryland, USA.
Department of Applied Mathematics and Theoretical Physics, University of Cambridge. (Applied & Computational Mathematics seminar).

- 2009:** Microsoft Research, Cambridge.
Bristol Centre for Complexity Sciences.
Department of Mathematics, Capital Normal University, Beijing, China.
- 2010:** Mathematical Institute, University of Oxford.
Department of Mathematics, University of Surrey.
- 2011:** Division of Mathematics, University of Dundee.
Department of Mathematics, Howard University, Washington DC, USA.
School of Mathematics, University of Edinburgh.
- 2012:** Department of Computing Science and Mathematics, University of Stirling.
- 2013:** School of Mathematics, University of Edinburgh.
Department of Mathematics, University of Sussex.
Public Lecture, International Centre for Mathematical Sciences, Edinburgh.
- 2014:** Division of Mathematics, University of Dundee.
- 2015:** School of Mathematical Sciences, University of Nottingham.
Institute for Complex Systems and Mathematical Biology, University of Aberdeen.
Mathematical Institute, University of Leiden.
- Future:** School of Mathematics and Statistics, University of St Andrews (February 2016).