# Curriculum Vitae

**Prof. Paul C. Bressloff**
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Department of Mathematics
Imperial College London
Huxley Building, South Kensington
London SW7 2AZ, UK

## Education

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| **1988** | Ph.D, Department of Mathematics, King's College, London University<br>Title of thesis: *Quantum field theory of superstrings in the light-cone gauge* |
| **1982** | BA, First Class Honors, Physics, Oxford University. |

## Professional Experience

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| **2023-** | Chair in Applied Mathematics and Stochastic Processes, Imperial College London |
| **2009-2011** | Professor of Applied Mathematics, University of Oxford |
| **2005-2023** | Adjunct Professor of Ophthalmology, University of Utah. |
| **2001-2023** | Professor of Mathematics, Department of Mathematics, University of Utah. |
| **1997-2000** | Professor of Applied Mathematics, Department of Mathematical Sciences, Loughborough University. |
| **1996-1997** | Reader in Applied Mathematics, Department of Mathematical Sciences, Loughborough University. |
| **1993-1995** | Lecturer in Applied Mathematics, Department of Mathematical Sciences, Loughborough University, UK |
| **1988-1993** | Research Scientist, GEC-Marconi Ltd., Hirst Research Centre, London, UK |

## Additional Positions

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| **2014-2017** | International Visiting Chair, INRIA, Sophia-Antipolis |
| **1999-2000** | Visiting Professor, Department of Mathematics, University of Chicago |

## Awards

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| **2017** | Distinguished Scholarly and Creative Researcher Award, University of Utah |
| **2016** | Elected a Fellow of the Society for Industrial and Applied Mathematics |
| **2012** | Elected a Fellow of the Institute of Mathematics and its Applications |
| **2009** | Royal Society Wolfson Merit Award |
| **2000** | Elected a Fellow of the Institute of Physics. |
| **1999** | Royal Society Leverhulme Trust Research Professorship |

## Grants

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| **2024-2027** | NIH (MPI): *Identifying the functional circuitry and computational principles underlying feedback-induced coherent oscillations.* ($3.8 million). **PENDING** |
| **2018-2023** | NSF (CO-PI): *Functional properties and computational function of top-down feedback in early visual cortex* ($1.3 million) |
| **2016-2020** | NSF (PI): *Laminar Neural Field Models of Visual Cortex* ($400,000) |
| **2014-2017** | NSF (CO-PI): *Computation of visual context information in the primary visual cortex* ($600,000) |
| **2012-2017** | NSF-RTG grant (CO-PI): *Cross-disciplinary research training in mathematical biology* ($2,500,000). |
| **2012-2015** | NSF DMS (PI). *Stochastic Neural Field Theory*. ($350,000). |
| **2010-2015** | BBSRC LOLA (CO-PI). *Engineering Human Neural Networks* (£3,000,000). |
| **2010-2011** | John Fell Award (PI). *Mathematical Modelling of Protein Receptor Transport and its Role in Synaptic Plasticity* |
| **2010-2012** | OCCAM Research Grant (PI). *Mathematical modelling of mRNA transport and its role in learning and memory* |
| **2008-2012** | NSF DMS (PI). *Mathematical models of protein receptor trafficking in dendrites*. ($270,000). |
| **2006** | NSF DMS 0515725 (PI): *Gordon Research Conference on Theoretical Biology and Biomathematics* ($24,000) |

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|---|---|
| **2004-2009** | NSF-RTG grant (CO-PI): *Cross-disciplinary research training in mathematical biology* ($2,500,000). |
| **2005-2008** | NSF DMS 0515725 (PI): *Neural oscillations and waves induced by local network inhomogeneities* ($232,122) |
| **2002-2007** | NSF-IGERT grant (CO-PI): *Cross-disciplinary research training in mathematical biology* ($2,942,000). |
| **2002-2005** | NSF DMS 0209824 (PI): *Spatio-temporal dynamics and multiple feature maps in primary visual cortex* ($109, 260). |
| **1997-2001** | EPSRC research grant in applied nonlinear mathematics (PI)*: Neuronal population dynamics: coordination of locomotion in a simple model vertebrate* (£118, 360). |
| **1997** | Royal Society travel grant |
| **1997** | EPSRC conference grant (£18,000). |
| **1995-1998** | EPSRC research grant in mathematical biology (PI): *Nonlinear dynamics of the pupil light reflex* (£30,000). |

**Postdocs**

**James Macluarin** (2017-2018) [Assistant Professor, NJIT]
**Sean Lawley** (2014-2017) [Associate Professor, University of Utah]
**Victor Burlakov** (2010-2012) [Senior Research Associate, Oxford]
**Jay Newby** (2010-2012)
**Berton Earnshaw** (2007-2009)
**Lars Schwabe** (2005-2006) [Assistant Professor, University of Rostock]
**Stephen Coombes** (1996-1998). [Full Professor, University of Nottingham]

**Ph.D students**

**Ryan Schumm.** Ph. D 2023 [Researcher, NSA]
**Hyunjoong Kim.** Ph. D 2020. [Simon's Postdoc, UPenn]
**Patrick Murphy**. Ph. D 2020 [Postdoc, Rice University]
**Bridget Fan**. Ph. D 2019 [Postdoc: University of Houston].
**Ethan Levien**. Ph. D 2018 [Assistant Professor, Dartmouth]
**Sam Carroll**. Ph. D 2018
**Heather Brooks**. Ph. D 2018 [Assistant Professor, Harvey Mudd]
**Barghav Karamched**. Ph. D 2017 [Assistant Professor, Florida State University]
**Bin Lin.** Ph. D 2017 [Assistant Professor, Clarkson University]
**Matthew Webber**. Ph. D 2014. [Works in the City of London]
**Yi Ming Lai**. Ph. D 2013 [Research Associate, University of Nottingham]
**Jay Newby**. Ph. D 2010 [Assistant Professor, University of Alberta]
**Zackary Kilpatrick**. Ph. D 2010 [Associate Professor, University of Colorado Boulder]
**William Nesse** Ph. D. (2008). [Associate Professor (Lecturer), University of Utah]
**Berton Earnshaw**. Ph. D 2007 [Software engineer, CEO]
**Andrew Oster**. Ph.D 2006 [Associate Professor, West Washington University]
**Stefanos Folias**. Ph.D 2005 [Associate Professor, University of Alaska]
**Matthew James**. Ph. D 2002
**Barry de Souza**. Ph. D 2000.
**Peter N. Roper.** Ph. D: 1998 [Software engineer].

**Departmental and University Activities**

• Graduate committee (2022-2023)
• RTP committee (2020-2022)
• Chair of Career-line faculty retention and promotion committee (2019-2020)
• Faculty mentor of access students - provides the opportunity for female UGs to pursue a research project in a STEM subject
• Member of university search committee for a cluster hire (TEP) in biophysics (2016-2019)
• Chair of Applied Math Research Committee (2015,2016)
• Chair of Instructorship Committee (2014)
• Faculty member of the Mathematical Biology and Neuroscience Graduate Programs

• Designed and taught new undergraduate and graduate courses: mathematical neuroscience (2002), biophysics (2004, 2008), systems physiology (2005), statistical mechanics (2006,2011), symmetric bifurcation theory (2006), stochastic processes in biology (2008,2013,2016,2018) nonlinear waves (2016)
• Member of Graduate Committee for redesigning core graduate courses (2013)
• Member/Chair Departmental Hiring Committee (2001-2004, 2007, 2017)
• Member of Graduate Committee (2006)
• Member of Postdoc Hiring Committee (2012)
• Academic Senate (2005-2008)
• College of Science "Frontiers of Sciences" Committee (2006, 2007)
• Member of thesis committees in bioengineering, biology and ophthalmology.
• Invited popular lecturer for the local business community (Science at Breakfast) and high-school students (College of Science Open Day).

**Additional Professional Activities**

**Publications**: 270 refereed journal articles, 4 books and 1 edited book.

**Google Scholar**: 11800 citations, h-index = 57

**Professional memberships**: SIAM Dynamical Systems and Life Sciences Activity Groups, Institute for Applied Mathematics

**NSF Panel member**: Mathematical Sciences, Integrative Biology and Neuroscience,

**Editorial board member**: SIAM J. Appl. Math (2011-2021), Journal of Mathematical Biology (2011-2021), Journal of Mathematical Neuroscience (2011-2021), Brain Multiphysics, Biological Cybernetics (2011-2021), Phys. Rev. E (2013-2018), European J. of Applied Mathematics (2011-2018)

**Invited SIAM plenary speaker:**

SIAM Life Sciences (2008),
SIAM Nonlinear Waves (2014)

**Distinguished Colloquia**: Georgia State (2018), Notre Dame (2019)

**MBI Scientific Advisory Board Member:** (2011-2013)

**Reviewer of Tenure and Full Professor Promotions**: University of California Davis, Iowa State University, University of Pittsburgh, Drexel University, Ohio State University, University of Minnesota, College of William and Mary, Georgia State, University of Chicago, Princeton, Courant, Tulane University, Harvard, UCLA, Notre Dame, Brandeis…

# List of Publications*

Professor Paul C. Bressloff
*BSc (Oxford) Ph. D (London)*

## Books

1. **P. C. Bressloff**. *Stochastic Processes in Cell Biology (2nd edition)*. Volumes I and II. Interdisciplinary Applied Mathematics, 1400 pp. (Springer, 2021)
2. **P. C. Bressloff**. *Stochastic Processes in Cell Biology*. Interdisciplinary Applied Mathematics 685 pp. (Springer, 2014)
3. **P. C. Bressloff**. *Waves in Neural Media: From Single Cells to Neural Fields*, 450 pp. (Springer, 2014).
4. S. Coombes and **P. C. Bressloff** (editors). *Bursting: The Genesis of Rhythm in the Nervous System*. World Scientific Press. (2005).
5. J. G. Taylor, **P. C. Bressloff** and A. Restuccia. *Finite superstrings.* (World Scientific, 1992).

## Papers

1. **P. C. Bressloff**. Sushi belt model of vesicular transport in axons. In preparation. Preprint (2024)
2. **P. C. Bressloff**. Semipermeable interfaces and the target problem. Invited Book Chapter. *The target problem*
3. **P. C. Bressloff**.Transition path theory for diffusive search with stochastic resetting. *J. Phys. A* Submitted. Preprint (2024)
4. **P. C. Bressloff**. Global density equations for a population of actively switching particles. *J. Phys. A* Submitted. Preprint (2024)
5. **P. C. Bressloff**. Asymptotic analysis of conversion-limited phase separation. *Proc. Roy. Soc. A* Submitted. Preprint (2024)
6. **P. C. Bressloff**. Encounter-based reaction-subdiffusion model II: partially absorbing traps and the occupation time propagator *J. Phys. A* In press (2023).
7. **P. C. Bressloff**. Encounter-based reaction-subdiffusion model I: surface absorption and the local time propagator *J. Phys. A* In press (2023).
8. R. Schumm and **P. C. Bressloff**. A numerical method for solving snapping out Brownian motion in 2D bounded domains. *J. Comp. Phys.* **493** 112479
9. **P. C. Bressloff**. Renewal equations for single-particle diffusion in multi-layered media. *SIAM J. Appl. Math.* **83**1518-1545 (2023).

*Most papers can be downloaded from my homepage http://www.math.utah.edu/ bresslof/papers.html

10. **P. C. Bressloff.** 3D narrow capture problem for traps with semipermeable interfaces. *Multiscale Model. Simul.* **21** 1268-1298 (2023)

11. **P. C. Bressloff**. Close encounters of the sticky kind: Brownian motion at absorbing boundaries. *Phys. Rev. E* **107** 064121 (2023).

12. **P. C. Bressloff**. 2D interfacial diffusion model of synaptic receptor dynamics. *Proc Roy Soc . A* **479** 20220831 (2023).

13. **P. C. Bressloff**. Trapping of an active Brownian particle at a partially absorbing wall. *Proc. Roy. Soc. A* **479** 20230086 (2023).

14. **P. C. Bressloff**. Encounter-based model of a run-and-tumble particle II: absorption at sticky boundaries. *J. Stat. Mech.* **043208** (2023).

15. **P. C. Bressloff.** Diffusion with stochastic resetting screened by a semipermeable membrane *J. Phys. A* **56** 105001 (2023)

16. **P. C. Bressloff.** Renewal equations for single-particle diffusion through semi-permeable membranes *Phys. Rev. E* **107** 014110 (2023).

17. **P. C. Bressloff.** Accumulation time of diffusion in a 3D singularly perturbed domain. *SIAM Appl. Math* **83** 862-881(2023).

18. **P. C. Bressloff.** Probabilistic model of diffusion through a semipermeable membrane *Proc Roy Soc A.* **478** 2022.0615 (2022)

19. **P. C. Bressloff.** Encounter-based model of a run-and-tumble particle *J. Stat. Mech.* 113206 (2022)

20. **P. C. Bressloff.** Morphogen gradient formation in partially absorbing media. *Phys. Biol.* **19** 066005 (2022)

21. **P. C. Bressloff.** Accumulation times for diffusion-mediated surface reactions. *J. Phys. A* **55** 415002 (2022)

22. **P. C. Bressloff.** Stochastically switching diffusion with partially reactive surfaces. *Phys. Rev. E* **106** 034108 (2022).

23. **P. C. Bressloff.** Spectral theory of diffusion in partially absorbing media. *Proc. Roy. Soc. A.***478** 20220319 (2022).

24. **P. C. Bressloff.** Diffusion in partially absorbing media with position and occupation time resetting. *J. Stat. Mech.* **063207** (2022).

25. **P. C. Bressloff.** Diffusion-mediated surface reactions and stochastic resetting. *J. Phys. A.* **55** 275002 (2022)

26. **P. C. Bressloff.** Diffusion-mediated absorption by partially-reactive targets: Brownian functionals and generalized propagators. *J. Phys. A.* **55** 205001 (2022) - **Won JPA best paper prize (2023)**

27. **P. C. Bressloff.** The narrow capture problem: an encounter-based approach to partially reactive targets. *Phys. Rev. E.* **105** 034141 (2022).

28. **P. C. Bressloff** and R. Schumm. The narrow capture problem with partially absorbing targets and stochastic resetting *Multiscale Model. Simul.* **20**857-881 (2022).

29. R. Schumm and **P. C. Bressloff**. Local accumulation times in a diffusion–trapping model of synaptic receptor dynamics. *Phys. Rev. E.* **105** 064407 (2022).

30. **P. C. Bressloff.** Local accumulation time for diffusion in cells with gap junction coupling. *Phys. Rev. E.* **105** 034404 (2022).

31. **P. C. Bressloff**. Accumulation time of diffusion in a 2D singularly perturbed domain. *Proc. Roy. Soc. A.* **478** 20210847 (2022).

32. **P. C. Bressloff**. Queuing model of axonal transport. *Brain Multiphysics* **2** 100042 (2021)

33. R. Schumm and **P. C. Bressloff** Search processes with partially absorbing traps and stochastic resetting. *J. Phys. A* **54** 404004 (2021).

34. **P. C. Bressloff.** Accumulation time of diffusion processes with stochastic resetting. *J. Phys. A* **54** 354001 (2021).

35. **P. C. Bressloff.** Drift-diffusion on a Cayley tree with stochastic resetting: the localization delocalization transition. *J.Stat. Mech.* **063206** (2021).

36. **P. C. Bressloff**. Construction of stochastic hybrid path integrals using operator methods. *J. Phys. A* **54** 185001 (2021).

37. **P. C. Bressloff**. Coherent spin states and stochastic hybrid path integrals. *J. Stat. Mech.* **043207** (2021)

38. **P. C. Bressloff**. Directed search-and-capture model of cytoneme-based morphogenesis. *SIAM J. App. Math.* **81** 919–938 (2021)

39. **P. C. Bressloff**. Asymptotic analysis of target fluxes in the three-dimensional narrow capture problem *Multiscale Model. Simul.* **19** 612-632 (2021).

40. **P. C. Bressloff**. Multi-spike solutions of a hybrid reaction-transport model. *Proc. Roy. Soc. A* **477** 20200829 (2021).

41. **P. C. Bressloff**. Asymptotic analysis of extended two-dimensional narrow capture problems. *Proc. Roy. Soc. A* **477** 20200771 (2021).

42. **P. C. Bressloff**. First-passage processes and the target-based accumulation of resources. *Phys. Rev. E* **103** 012101 (2021).

43. H. Kim and **P. C. Bressloff**. Stochastic Turing pattern formation in a model with active and passive transport. *Bull. Math. Biol.* **82** 144 (2020)

44. **P. C. Bressloff**. Occupation time of a run-and-tumble particle with resetting. *Phys. Rev. E* **102** 042135 (2020).

45. **P. C. Bressloff**. Target competition for resources under multiple search-and-capture events with stochastic resetting. *Proc. Roy. Soc. A* **476** 20200475 (2020).

46. **P. C. Bressloff**. Diffusive search for a stochastically-gated target with resetting. *J. Phys. A.* **53** 425001 (2020).

47. **P. C. Bressloff**. Queueing theory of search processes with stochastic resetting. *Phys. Rev. E* **102** 032109 (2020)

48. **P. C. Bressloff**. Stochastic resetting and the mean-field dynamics of focal adhesions. *Phys. Rev. E* **102** 022134 (2020)

49. **P. C. Bressloff**. Search processes with stochastic resetting and multiple targets. *Phys. Rev. E* **102** 022115 (2020)

50. **P. C. Bressloff**. Two-dimensional droplet ripening in a concentration gradient. *J. Phys. A.* **53** 365002 (2020).

51. **P. C. Bressloff**. Modeling active cellular transport as a directed search process with stochastic resetting and delays. *J. Phys. A.* **53** 355001 (2020)

52. **P. C. Bressloff**. Switching diffusions and stochastic resetting. *J. Phys. A.* **53** 275003 (2020)

53. **P. C. Bressloff**. Directed intermittent search with stochastic resetting. *J. Phys. A.* **53** 105001 (2020).

54. **P. C. Bressloff**. Stochastically-gated diffusion model of selective nuclear transport. *Phys. Rev. E.* **101** 042404 (2020).

55. **P. C. Bressloff**. Active suppression of Ostwald ripening: beyond mean field theory. *Phys. Rev. E* **101** 042804 (2020).

56. P. Murphy, **P. C. Bressloff** and S. D. Lawley. Interaction between switching diffusivities and cellular microstructure. *Multiscale Model. Simul.* **18** 572-588 (2020).

57. **P. C. Bressloff** and J. N. MacLaurin. Wandering bumps in a stochastic neural field: a variational approach. *Physica D.* **406** 132403 (2020).

58. **P. C. Bressloff**, S. D. Lawley and P. Murphy. Effective permeability of gap junctions with age-structured switching. *SIAM J. Appl. Math.* **80** 312-337 (2020).

59. **P. C. Bressloff** and J. N. Maclaurin. Phase reduction of stochastic biochemical oscillators. *SIAM J. Appl. Dyn. Syst.* **19** 151-180 (2020).

60. S. Carroll, H. Brooks and **P. C. Bressloff**. Pattern formation in a two-dimensional hybrid reaction-transport model. *Physica D* **402**132274 (2020).

61. G. Fan, G. Russo and **P. C. Bressloff**. Network synchronization with relative state dependent noise through a shared medium. *SIAM J. Appl. Dyn. Syst.* **18** 1934-1953 (2019).

62. H. Kim and **P. C. Bressloff**. Impulsive signaling model of cytoneme-based morphogen gradient formation. *Phys. Biol.* **16** 056005 (2019).

63. **P. C. Bressloff** and S. Carroll. Stochastic neural fields as gradient dynamical systems. *Phys. Rev. E.* **100** 012402 (2019).

64. **P. C. Bressloff**. Stochastic neural field theory of wandering bumps on a sphere. *Physica D.* **399** 138-152 (2019).

65. **P. C. Bressloff** and H. Kim. A search-and-capture model of cytoneme-mediated morphogen gradient formation. *Phys. Rev. E.* **99** 052401 (2019)

66. **P. C. Bressloff**, S. D. Lawley and P. Murphy. Protein concentration gradients and switching diffusions. *Phys. Rev. E.* **99** 032409 (2019).

67. **P. C. Bressloff**. Stochastic neural field model of stimulus-dependent neural variability. *PLoS Comp. Biol.* **15**(3): e1006755 (2019).

68. G. Fan and **P. C. Bressloff**. Modeling the role of feedback in the adaptive response of bacterial quorum sensing. *Bull. Math. Biol.* **81** 1479-1505 (2019).

69. E. Levien and **P. C. Bressloff**. Effects of a common noisy environment on correlations in downstream gene transcription. *Bull Math Biol.* **81** 800–829 (2019).

70. **P. C. Bressloff** and J. N. Maclaurin. On the synchronization of stochastic hybrid oscillators driven by a common switching environment. *Chaos* **I28** 123123 (2018).

71. **P. C. Bressloff** and J. Maclaurin. A variational method for analyzing limit cycle oscillations in stochastic hybrid systems *Chaos* **28** 063105 (2018).

72. **P. C. Bressloff** and J. Maclaurin. A variational method for analyzing stochastic limit cycle oscillators *SIAM J. Appl. Dyn. Syst.* **17** 2205-2233 (2018).

73. **P. C. Bressloff** and J. Maclaurin. Stochastic hybrid systems in cellular neuroscience. *J. Math. Neurosci.* **8** 12 (2018)

74. **P. C. Bressloff**, S. D. Lawley and P. Murphy. Diffusion in an age-structured randomly switching environment. *J. Phys. A* **51** 315001 (2018).

75. E. Levien and **P. C. Bressloff**. Robustness of stochastic chemical reaction networks to extrinsic noise: the role of deficiency. *Multiscale Model. Simul.* **16** 1519-1541 (2018).

76. H. Kim and **P. C. Bressloff**. Mathematical models of cytoneme-based morphogen gradient formation. *SIAM J. Appl. Math* **78** 2323-2347 (2018).

77. **P. C. Bressloff** and H. Kim. Bidirectional transport model of morphogen gradient formation via cytonemes. *Phys. Biol.* **15** 026010 (2018).

78. **P. C. Bressloff** and B. Karamched. Doubly stochastic Poisson model of flagellar length control. *SIAM J. Appl. Math.* **78** 719-741 (2018).

79. S. R. Carroll and **P. C. Bressloff**. Symmetric Bifurcations in a Neural Field Model for encoding the direction of spatial contrast gradients. *SIAM J. Appl. Dyn. Syst.* **17** 1-51 (2018).

80. E. Levien and **P. C. Bressloff**. On balance relations for irreversible chemical reaction networks. *J. Phys. A.* **50** 475004 (2017).

81. G. Fan and **P. C. Bressloff**. Population model of quorum sensing with multiple pathways. *Bull. Math. Biol.* **79** 2599-2626 (2017).

82. **P. C. Bressloff** and S. D. Lawley. Dynamically active compartments coupled by a stochastically-gated gap junction. *J. Nonlinear Sci.* **27** 1487-1512 (2017)

83. **P. C. Bressloff**, B. M. Karamched, S. D. Lawley and E. Levien. Diffusive transport in the presence of stochastically gated absorption. *Phys. Rev. E* **96** 022102 (2017).

84. H. A. Brooks and **P. C. Bressloff**. Turing mechanism for homeostatic control of synaptic density in *C elegans*. *Phys Rev. E* **96** 012413 (2017).

85. **P. C. Bressloff** and S. D. Lawley. Hybrid colored noise process with space-dependent switching rates. *Phys. Rev. E* **96** 012129 (2017)

86. E. Levien and **P. C. Bressloff**. Coupling sample paths to the partial thermodynamic limit in stochastic chemical reaction networks. *J. Comput. Phys.* **346** 1-13 (2017)

87. **P. C. Bressloff** and S. D. Lawley. Temporal disorder as a mechanism for spatially heterogeneous diffusion. *Phys. Rev. E* **95** 060101(R) (2017).

88. **P. C. Bressloff** and S. D. Lawley. Mean first passage times for piecewise deterministic Markov processes and the effects of critical points. *J. Stat. Mech.* 063202 (2017).

89. A. Angelucci, M. Bijanzadeh, L. Nurminen, F. Federer, S. Merlin and **P. C. Bressloff**. Circuits and mechanisms for surround modulation in visual cortex. *Ann. Rev. Neurosci.* **40** 425-451 (2017).

90. **P. C. Bressloff** and S. D. Lawley. Residence times for a Brownian particle with temporal heterogeneity. *J. Phys. A* **50** 195001 (2017).

91. **P. C. Bressloff** and O. Faugeras. On the Hamiltonian structure of large deviations in stochastic hybrid systems. *J. Stat. Mech.* 033206 (2017).

92. **P. C. Bressloff**. Feynman-Kac formula for stochastic hybrid systems. *Phys. Rev. E* **95** 012138 (2017).

93. **P. C. Bressloff**. Stochastically-gated local and occupation times of a Brownian particle. *Phys. Rev. E* **95** 012130 (2017).

94. **P. C. Bressloff**. Stochastic Liouville equation for particles driven by dichotomous environmental noise. *Phys. Rev. E* **95** 012124 (2017).

95. **P. C. Bressloff**. Stochastic switching in biology: from genotype to phenotype (Invited topical review) *J. Phys. A* **50** 055601 (2017)

96. B. Karamched and **P. C. Bressloff**. Effects of geometry on reversible vesicular transport. *J. Phys. A*. **50** 055601 (2017).

97. Bin Xu and **P. C. Bressloff**. A theory of synchrony for active compartments with delays coupled through bulk diffusion. *Physica D* **341** 45-59 (2017).

98. E. Levien and **P. C. Bressloff**. A stochastic hybrid framework for obtaining statistics of many random walkers in a switching environment. *Multiscale Model. Simul.* **14** 1417-1433 (2016).

99. **P. C. Bressloff**. Stochastic Fokker-Planck equation in random environments. *Phys. Rev. E* **94** 042129 (2016).

100. **P. C. Bressloff**. Ultrasensitivity and noise amplification in a model of V. harveyi quorum sensing. *Phys. Rev. E* **93** 062418 (2016).

101. **P. C. Bressloff**. Diffusion in cells with stochastically-gated gap junctions. *SIAM J. Appl. Math.* **76** 1658-1682 (2016).

102. **P. C. Bressloff** and S. D. Lawley. Diffusion on a tree with stochastically-gated nodes. *J. Phys. A* **49** 245601 (2016).

103. S. Carroll and **P. C. Bressloff**. Phase equation for patterns of orientation selectivity in a neural field model of visual cortex. *SIAM J. Appl. Dan. Syst.* **15** 60-83 (2016).

104. H. A. Brooks and **P. C. Bressloff**. A mechanism for Turing pattern formation with active and passive transport. *SIAM J. Appl. Dyn. Syst.* **15** 1823-1843 (2016).

105. Bin Xu and **P. C. Bressloff**. A PDE-DDE model for cell polarization in fission yeast. *SIAM J. Appl. Math* **76** 1844-1870 (2016).

106. **P. C. Bressloff** and B. Karamched. Model of reversible vesicular transport with exclusion. *J. Phys. A* **49** 345602 (2016).

107. **P. C. Bressloff**. Aggregation-fragmentation model of vesicular transport in neurons. *J. Phys. A* **49** 145601 (2016).

108. **P. C. Bressloff** and B. Karamched. A delayed feedback model of axonal length sensing. *Biophys. J.* **108** 2408-2419 (2015).

109. **P. C. Bressloff** and S. D. Lawley. Stochastically-gated diffusion-limited reactions for a small target in a bounded domain. *Phys. Rev. E* **92** 062117 (2015).

110. **P. C. Bressloff** and S. D. Lawley. Escape from subcellular domains with randomly switching boundaries. *Multiscale Model. Simul.* **13** 1420-1445 (2015).

111. **P. C. Bressloff** and S. D. Lawley. Escape from a potential well with a switching boundary. *J. Phys. A* **48** 225001 (2015)

112. **P. C. Bressloff** and S. D. Lawley. Moment equations for a piecewise deterministic PDE. *J. Phys. A*. **48**105001, 25pp (2015)

113. **P. C. Bressloff** and B. Karamched. A frequency-dependent decoding mechanism for axonal length sensing. Front. Cellular Neurosci. 9 281 (2015).

114. **P. C. Bressloff** and E. Levien. Synaptic democracy and active intracellular transport in axons. *Phys. Rev. Lett.* **114** 168101 (2015)

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