

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

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

Professional Experience

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

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

Awards

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

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)
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).

Publications

280 refereed journal articles

3 books and 1 edited book.

Google Scholar: 12400 citations, h-index = 57

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) [Associate Professor, University of Alberta]
Lars Schwabe (2005-2006)
Stephen Coombes (1996-1998). [Full Professor, University of Nottingham]

Ph.D students

Ryan Schumm. Ph. D 2023 [Research Scientist, NSA]
Hyunjoong Kim. Ph. D 2020. [Assistant Professor University of Cincinnati]
Patrick Murphy. Ph. D 2020 [Assistant Professor, San Jose State University]
Bridget Fan. Ph. D 2019 [Research Scientist].
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 [Associate 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].

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).

In preparation

1. **P. C. Bressloff**. Modeling stochastic search-and-capture processes as a G/M/1 queue. In preparation (2024).
2. **P. C. Bressloff**. Nonlocal model of cell-to-cell viral spread via cytonemes. In preparation (2024).
3. **P. C. Bressloff**. Cytoneme vs diffusive search for an arc-like target with resetting. In preparation (2024).
4. **P. C. Bressloff**. Encounter-based model of diffusion in an intermittent potential. In preparation (2024).
5. **P. C. Bressloff**. Global density equations for interacting particle systems in an intermittent potential. In preparation (2024).
6. **P. C. Bressloff**. Ostwald ripening with intermittent attractive interactions. In preparation (2024)

Papers

1. **P. C. Bressloff**. Stochastic thermodynamics of switching diffusion processes. *Phys. Rev. Res.* Submitted (2024)
2. **P. C. Bressloff**. Entropy production for single-particle diffusion across a semipermeable membrane. *Phys. Rev. Res.* Submitted (2024)

*Most papers can be downloaded from my homepage <http://www.math.utah.edu/~bressloff/papers.html>

3. **P. C. Bressloff.** A generalized Dean-Kawasaki equation for an interacting Brownian gas in a partially absorbing medium. *Proc. Roy. Soc. A*. Submitted (2024)
4. **P. C. Bressloff.** Asymptotic analysis of particle cluster formation in the presence of anchoring sites. *Eur. Phys. J. E*. In press (2024)
5. **P. C. Bressloff.** Global density equations for interacting particle systems with stochastic resetting: from overdamped Brownian motion to phase synchronization. *Chaos* **34** 043101 (2024)
6. **P. C. Bressloff.** Global density equations for a population of actively switching particles. *J. Phys. A* **57** 085001 (2024)
7. **P. C. Bressloff.** Transition path theory for diffusive search with stochastic resetting. *J. Phys. A* In press. (2024)
8. **P. C. Bressloff.** Asymptotic analysis of conversion-limited phase separation. *Proc. Roy. Soc. A* **480** 20230725 (2024)
9. **P. C. Bressloff.** Truncated stochastically switching processes. *Phys. Rev. E* **109** 024103 (2024)
10. **P. C. Bressloff.** Probabilistic formulations of diffusive search processes with stochastic resetting. Invited Book Chapter. *The Mathematics of Movement: an Interdisciplinary Approach to Mutual Challenges in Animal Ecology and Cell Biology*. (2024)
11. **P. C. Bressloff.** Semipermeable interfaces and the target problem. Invited Book Chapter. *The target problem* (2024)
12. **P. C. Bressloff.** Encounter-based reaction-subdiffusion model II: partially absorbing traps and the occupation time propagator *J. Phys. A* **56** 435005 (2023).
13. **P. C. Bressloff.** Encounter-based reaction-subdiffusion model I: surface absorption and the local time propagator *J. Phys. A* **56** 435004 (2023) (2023).
14. R. Schumm and **P. C. Bressloff.** A numerical method for solving snapping out Brownian motion in 2D bounded domains. *J. Comp. Phys.* **493** 112479
15. **P. C. Bressloff.** Renewal equations for single-particle diffusion in multi-layered media. *SIAM J. Appl. Math.* **83**1518-1545 (2023).
16. **P. C. Bressloff.** 3D narrow capture problem for traps with semipermeable interfaces. *Multiscale Model. Simul.* **21** 1268-1298 (2023)
17. **P. C. Bressloff.** Close encounters of the sticky kind: Brownian motion at absorbing boundaries. *Phys. Rev. E* **107** 064121 (2023).
18. **P. C. Bressloff.** 2D interfacial diffusion model of synaptic receptor dynamics. *Proc Roy Soc. A* **479** 20220831 (2023).
19. **P. C. Bressloff.** Trapping of an active Brownian particle at a partially absorbing wall. *Proc. Roy. Soc. A* **479** 20230086 (2023).
20. **P. C. Bressloff.** Encounter-based model of a run-and-tumble particle II: absorption at sticky boundaries. *J. Stat. Mech.* **043208** (2023).
21. **P. C. Bressloff.** Diffusion with stochastic resetting screened by a semipermeable membrane *J. Phys. A* **56** 105001 (2023)
22. **P. C. Bressloff.** Renewal equations for single-particle diffusion through semi-permeable membranes *Phys. Rev. E* **107** 014110 (2023).
23. **P. C. Bressloff.** Accumulation time of diffusion in a 3D singularly perturbed domain. *SIAM Appl. Math* **83** 862-881(2023).

24. **P. C. Bressloff.** Probabilistic model of diffusion through a semipermeable membrane *Proc Roy Soc A.* **478** 2022.0615 (2022)
25. **P. C. Bressloff.** Encounter-based model of a run-and-tumble particle *J. Stat. Mech.* 113206 (2022)
26. **P. C. Bressloff.** Morphogen gradient formation in partially absorbing media. *Phys. Biol.* **19** 066005 (2022)
27. **P. C. Bressloff.** Accumulation times for diffusion-mediated surface reactions. *J. Phys. A* **55** 415002 (2022)
28. **P. C. Bressloff.** Stochastically switching diffusion with partially reactive surfaces. *Phys. Rev. E* **106** 034108 (2022).
29. **P. C. Bressloff.** Spectral theory of diffusion in partially absorbing media. *Proc. Roy. Soc. A.***478** 20220319 (2022).
30. **P. C. Bressloff.** Diffusion in partially absorbing media with position and occupation time resetting. *J. Stat. Mech.* **063207** (2022).
31. **P. C. Bressloff.** Diffusion-mediated surface reactions and stochastic resetting. *J. Phys. A.* **55** 275002 (2022)
32. **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)**
33. **P. C. Bressloff.** The narrow capture problem: an encounter-based approach to partially reactive targets. *Phys. Rev. E.* **105** 034141 (2022).
34. **P. C. Bressloff** and R. Schumm. The narrow capture problem with partially absorbing targets and stochastic resetting *Multiscale Model. Simul.* **20**857-881 (2022).
35. R. Schumm and **P. C. Bressloff.** Local accumulation times in a diffusion-trapping model of synaptic receptor dynamics. *Phys. Rev. E.* **105** 064407 (2022).
36. **P. C. Bressloff.** Local accumulation time for diffusion in cells with gap junction coupling. *Phys. Rev. E.* **105** 034404 (2022).
37. **P. C. Bressloff.** Accumulation time of diffusion in a 2D singularly perturbed domain. *Proc. Roy. Soc. A.* **478** 20210847 (2022).
38. **P. C. Bressloff.** Queuing model of axonal transport. *Brain Multiphysics* **2** 100042 (2021)
39. R. Schumm and **P. C. Bressloff** Search processes with partially absorbing traps and stochastic resetting. *J. Phys. A* **54** 404004 (2021).
40. **P. C. Bressloff.** Accumulation time of diffusion processes with stochastic resetting. *J. Phys. A* **54** 354001 (2021).
41. **P. C. Bressloff.** Drift-diffusion on a Cayley tree with stochastic resetting: the localization delocalization transition. *J.Stat. Mech.* **063206** (2021).
42. **P. C. Bressloff.** Construction of stochastic hybrid path integrals using operator methods. *J. Phys. A* **54** 185001 (2021).
43. **P. C. Bressloff.** Coherent spin states and stochastic hybrid path integrals. *J. Stat. Mech.* **043207** (2021)
44. **P. C. Bressloff.** Directed search-and-capture model of cytoneme-based morphogenesis. *SIAM J. App. Math.* **81** 919–938 (2021)

45. **P. C. Bressloff**. Asymptotic analysis of target fluxes in the three-dimensional narrow capture problem *Multiscale Model. Simul.* **19** 612-632 (2021).
46. **P. C. Bressloff**. Multi-spike solutions of a hybrid reaction-transport model. *Proc. Roy. Soc. A* **477** 20200829 (2021).
47. **P. C. Bressloff**. Asymptotic analysis of extended two-dimensional narrow capture problems. *Proc. Roy. Soc. A* **477** 20200771 (2021).
48. **P. C. Bressloff**. First-passage processes and the target-based accumulation of resources. *Phys. Rev. E* **103** 012101 (2021).
49. H. Kim and **P. C. Bressloff**. Stochastic Turing pattern formation in a model with active and passive transport. *Bull. Math. Biol.* **82** 144 (2020)
50. **P. C. Bressloff**. Occupation time of a run-and-tumble particle with resetting. *Phys. Rev. E* **102** 042135 (2020).
51. **P. C. Bressloff**. Target competition for resources under multiple search-and-capture events with stochastic resetting. *Proc. Roy. Soc. A* **476** 20200475 (2020).
52. **P. C. Bressloff**. Diffusive search for a stochastically-gated target with resetting. *J. Phys. A.* **53** 425001 (2020).
53. **P. C. Bressloff**. Queueing theory of search processes with stochastic resetting. *Phys. Rev. E* **102** 032109 (2020)
54. **P. C. Bressloff**. Stochastic resetting and the mean-field dynamics of focal adhesions. *Phys. Rev. E* **102** 022134 (2020)
55. **P. C. Bressloff**. Search processes with stochastic resetting and multiple targets. *Phys. Rev. E* **102** 022115 (2020)
56. **P. C. Bressloff**. Two-dimensional droplet ripening in a concentration gradient. *J. Phys. A.* **53** 365002 (2020).
57. **P. C. Bressloff**. Modeling active cellular transport as a directed search process with stochastic resetting and delays. *J. Phys. A.* **53** 355001 (2020)
58. **P. C. Bressloff**. Switching diffusions and stochastic resetting. *J. Phys. A.* **53** 275003 (2020)
59. **P. C. Bressloff**. Directed intermittent search with stochastic resetting. *J. Phys. A.* **53** 105001 (2020).
60. **P. C. Bressloff**. Stochastically-gated diffusion model of selective nuclear transport. *Phys. Rev. E.* **101** 042404 (2020).
61. **P. C. Bressloff**. Active suppression of Ostwald ripening: beyond mean field theory. *Phys. Rev. E* **101** 042804 (2020).
62. P. Murphy, **P. C. Bressloff** and S. D. Lawley. Interaction between switching diffusivities and cellular microstructure. *Multiscale Model. Simul.* **18** 572-588 (2020).
63. **P. C. Bressloff** and J. N. MacLaurin. Wandering bumps in a stochastic neural field: a variational approach. *Physica D.* **406** 132403 (2020).
64. **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).
65. **P. C. Bressloff** and J. N. Maclaurin. Phase reduction of stochastic biochemical oscillators. *SIAM J. Appl. Dyn. Syst.* **19** 151-180 (2020).

66. S. Carroll, H. Brooks and **P. C. Bressloff**. Pattern formation in a two-dimensional hybrid reaction-transport model. *Physica D* **402**132274 (2020).
67. 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).
68. H. Kim and **P. C. Bressloff**. Impulsive signaling model of cytoneme-based morphogen gradient formation. *Phys. Biol.* **16** 056005 (2019).
69. **P. C. Bressloff** and S. Carroll. Stochastic neural fields as gradient dynamical systems. *Phys. Rev. E* **100** 012402 (2019).
70. **P. C. Bressloff**. Stochastic neural field theory of wandering bumps on a sphere. *Physica D.* **399** 138-152 (2019).
71. **P. C. Bressloff** and H. Kim. A search-and-capture model of cytoneme-mediated morphogen gradient formation. *Phys. Rev. E* **99** 052401 (2019)
72. **P. C. Bressloff**, S. D. Lawley and P. Murphy. Protein concentration gradients and switching diffusions. *Phys. Rev. E* **99** 032409 (2019).
73. **P. C. Bressloff**. Stochastic neural field model of stimulus-dependent neural variability. *PLoS Comp. Biol.* **15**(3): e1006755 (2019).
74. 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).
75. 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).
76. **P. C. Bressloff** and J. N. Maclaurin. On the synchronization of stochastic hybrid oscillators driven by a common switching environment. *Chaos* **I28** 123123 (2018).
77. **P. C. Bressloff** and J. Maclaurin. A variational method for analyzing limit cycle oscillations in stochastic hybrid systems *Chaos* **28** 063105 (2018).
78. **P. C. Bressloff** and J. Maclaurin. A variational method for analyzing stochastic limit cycle oscillators *SIAM J. Appl. Dyn. Syst.* **17** 2205-2233 (2018).
79. **P. C. Bressloff** and J. Maclaurin. Stochastic hybrid systems in cellular neuroscience. *J. Math. Neurosci.* **8** 12 (2018)
80. **P. C. Bressloff**, S. D. Lawley and P. Murphy. Diffusion in an age-structured randomly switching environment. *J. Phys. A* **51** 315001 (2018).
81. 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).
82. H. Kim and **P. C. Bressloff**. Mathematical models of cytoneme-based morphogen gradient formation. *SIAM J. Appl. Math* **78** 2323-2347 (2018).
83. **P. C. Bressloff** and H. Kim. Bidirectional transport model of morphogen gradient formation via cytonemes. *Phys. Biol.* **15** 026010 (2018).
84. **P. C. Bressloff** and B. Karamched. Doubly stochastic Poisson model of flagellar length control. *SIAM J. Appl. Math.* **78** 719-741 (2018).
85. 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).
86. E. Levien and **P. C. Bressloff**. On balance relations for irreversible chemical reaction networks. *J. Phys. A.* **50** 475004 (2017).

87. G. Fan and **P. C. Bressloff**. Population model of quorum sensing with multiple pathways. *Bull. Math. Biol.* **79** 2599-2626 (2017).
88. **P. C. Bressloff** and S. D. Lawley. Dynamically active compartments coupled by a stochastically-gated gap junction. *J. Nonlinear Sci.* **27** 1487-1512 (2017)
89. **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).
90. H. A. Brooks and **P. C. Bressloff**. Turing mechanism for homeostatic control of synaptic density in *C elegans*. *Phys Rev. E* **96** 012413 (2017).
91. **P. C. Bressloff** and S. D. Lawley. Hybrid colored noise process with space-dependent switching rates. *Phys. Rev. E* **96** 012129 (2017)
92. 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)
93. **P. C. Bressloff** and S. D. Lawley. Temporal disorder as a mechanism for spatially heterogeneous diffusion. *Phys. Rev. E* **95** 060101(R) (2017).
94. **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).
95. 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).
96. **P. C. Bressloff** and S. D. Lawley. Residence times for a Brownian particle with temporal heterogeneity. *J. Phys. A* **50** 195001 (2017).
97. **P. C. Bressloff** and O. Faugeras. On the Hamiltonian structure of large deviations in stochastic hybrid systems. *J. Stat. Mech.* 033206 (2017).
98. **P. C. Bressloff**. Feynman-Kac formula for stochastic hybrid systems. *Phys. Rev. E* **95** 012138 (2017).
99. **P. C. Bressloff**. Stochastically-gated local and occupation times of a Brownian particle. *Phys. Rev. E* **95** 012130 (2017).
100. **P. C. Bressloff**. Stochastic Liouville equation for particles driven by dichotomous environmental noise. *Phys. Rev. E* **95** 012124 (2017).
101. **P. C. Bressloff**. Stochastic switching in biology: from genotype to phenotype (Invited topical review) *J. Phys. A* **50** 055601 (2017)
102. B. Karamched and **P. C. Bressloff**. Effects of geometry on reversible vesicular transport. *J. Phys. A.* **50** 055601 (2017).
103. 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).
104. 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).
105. **P. C. Bressloff**. Stochastic Fokker-Planck equation in random environments. *Phys. Rev. E* **94** 042129 (2016).
106. **P. C. Bressloff**. Ultrasensitivity and noise amplification in a model of *V. harveyi* quorum sensing. *Phys. Rev. E* **93** 062418 (2016).
107. **P. C. Bressloff**. Diffusion in cells with stochastically-gated gap junctions. *SIAM J. Appl. Math.* **76** 1658-1682 (2016).

108. **P. C. Bressloff** and S. D. Lawley. Diffusion on a tree with stochastically-gated nodes. *J. Phys. A* **49** 245601 (2016).
109. S. Carroll and **P. C. Bressloff**. Phase equation for patterns of orientation selectivity in a neural field model of visual cortex. *SIAM J. Appl. Dyn. Syst.* **15** 60-83 (2016).
110. 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).
111. Bin Xu and **P. C. Bressloff**. A PDE-DDE model for cell polarization in fission yeast. *SIAM J. Appl. Math* **76** 1844-1870 (2016).
112. **P. C. Bressloff** and B. Karamched. Model of reversible vesicular transport with exclusion. *J. Phys. A* **49** 345602 (2016).
113. **P. C. Bressloff**. Aggregation-fragmentation model of vesicular transport in neurons. *J. Phys. A* **49** 145601 (2016).
114. **P. C. Bressloff** and B. Karamched. A delayed feedback model of axonal length sensing. *Biophys. J.* **108** 2408-2419 (2015).
115. **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).
116. **P. C. Bressloff** and S. D. Lawley. Escape from subcellular domains with randomly switching boundaries. *Multiscale Model. Simul.* **13** 1420-1445 (2015).
117. **P. C. Bressloff** and S. D. Lawley. Escape from a potential well with a switching boundary. *J. Phys. A* **48** 225001 (2015)
118. **P. C. Bressloff** and S. D. Lawley. Moment equations for a piecewise deterministic PDE. *J. Phys. A.* **48**105001, 25pp (2015)
119. **P. C. Bressloff** and B. Karamched. A frequency-dependent decoding mechanism for axonal length sensing. *Front. Cellular Neurosci.* **9** 281 (2015).
120. **P. C. Bressloff** and E. Levien. Synaptic democracy and active intracellular transport in axons. *Phys. Rev. Lett.* **114** 168101 (2015)
121. Bin Xu and **P. C. Bressloff**. Model of growth cone membrane polarization via microtubule length regulation. *Biophys. J.* **109** 2203-2214 (2015).
122. **P. C. Bressloff** and B. Xu. Stochastic active-transport model of cell polarization. *SIAM J. Appl. Math.* **75** 652-678 (2015).
123. **P. C. Bressloff** and Z. P. Kilpatrick. Nonlinear Langevin equations for the wandering of fronts in stochastic neural fields. *SIADS.* **14** 305-334 (2015).
124. **P. C. Bressloff**. Path-integral methods for analyzing the effects of fluctuations in stochastic hybrid neural networks. *J. Math, Neuro.* **5** (4), 33pp (2015).
125. E. Levien and **P. C. Bressloff**. Quasi-steady-state analysis of flashing ratchets. *Phys. Rev. E* **92** 042129 (2015).
126. **P. C. Bressloff** and S. Carroll. Laminar neural field model of laterally propagating waves of orientation selectivity. *PLoS Comput. Biol.* **11** e1004545 (2015).
127. **P. C. Bressloff** and S. R. Carroll. Pattern-forming instabilities in neural fields on product spaces. *SIADS.* **13**, 1620-1653 (2014).
128. S. R. Carroll and **P. C. Bressloff**. Binocular rivalry waves in directionally selective neural field models. *Physica D* **285** 8-17 (2014).

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