

Curriculum Vitae

Prof. Paul C. Bressloff

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Department of Mathematics

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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
- 2023-** Adjunct Professor of Professor of Mathematics, Department of Mathematics, 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

- 2025-2028** 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)

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

Samantha Linn (2025-2028) NSF postdoctoral fellowship, Imperial College
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

Demosthenes Georgiou [1st year Imperial]
Jose Giral-Barajas [2nd year Imperial]
Kevin Chen [2nd year Imperial]
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 [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].

Additional Professional Activities

Publications: 290 refereed journal articles, 4 books and 1 edited book.

Google Scholar: 14018 citations, h-index = 60

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

Editorial board member: SIAM Life Sciences (2025-), 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 Plenary Speaker:

SIAM Life Sciences (2008),
SIAM Nonlinear Waves (2014)
Conference on Advanced COmputational Methods in ENgineering ACOMEN2025 (2025)

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**. Renewal theory for diffusion in stochastically gated domains. *Proc Roy. Soc. A* Submitted (2026).
2. **P. C. Bressloff** and S. N. Linn Renewal theory for a run-and-tumble particle with stochastic resetting and a sticky boundary *Phys. Rev. E*. Submitted (2026)
3. Jose Barajas and **P. C. Bressloff**. Effects of stochastic resetting on diffusion-mediated resource accumulation in a G/M/c queue. *Phys. Rev. E*. Submitted (2026)
4. Kevin Chen and **P. C. Bressloff**. Protein cluster formation as a moving boundary value problem *SIAM J. Appl. Math.* Submitted (2026).
5. **P. C. Bressloff**. Macroscopic fluctuation theory for the absorption of Brownian particles by partially reactive targets. *J. Phys. A*. In press (2025).
6. **P. C. Bressloff** Run-and-tumble particle with diffusion: boundary local times and the zero-diffusion limit. *J. Stat.Mech.* **113201** (2025).
7. José Barajas and **P. C. Bressloff**. Modelling stochastic search-and-capture processes as a G/M/c queue. *J. Phys. A*. **58** 355001 (39pp) (2025).
8. **P. C. Bressloff** Slow-fast dynamical systems with stochastic resetting. *SIAM Appl. Dyn. Syst.* **24** 2549-2574 (2025).
9. **P. C. Bressloff** Global density equations for the Kuramoto with stochastic resetting and coupling through an external medium. *Chaos* **35** 023162 (2025)

[†]Most papers can be downloaded from my homepage: <https://bressloff.github.io/>

10. **P. C. Bressloff** Asymptotic analysis of the narrow capture problem with partially accessible targets. *SIAM J. Appl. Math.* **85** 2122-2144 (2025)
11. **P. C. Bressloff** Diffusion-mediated absorption versus absorption by partially reactive targets: a renewal approach. *J. Phys. A* **58** 245003 (43pp) (2025)
12. **P. C. Bressloff** Random search with stochastic resetting: when finding a target is not enough. *Phys. Rev. E* **111**, 054127 (2025)
13. **P. C. Bressloff** Stochastic calculus of run-and-tumble motion: an applied perspective. *Proc Roy. Soc. A* **481** 20240815 (2025)
14. **P. C. Bressloff** Encounter-based model of an RTP with stochastic resetting. *J. Phys. A* **58** 125002 (2025)
15. **P. C. Bressloff** Probabilistic formulations of diffusive search processes with stochastic resetting. In: *The Mathematics of Movement: an Interdisciplinary Approach to Mutual Challenges in Animal Ecology and Cell Biology* L. Giuggioli and P. Maini eds. Springer (2025)
16. **P. C. Bressloff** Cellular diffusion processes in singularly perturbed domains. Special issue: Problems, progress and perspectives in mathematical and computational biology *J. Math. Biol.* **89** 58 (52 pages) (2024)
17. **P. C. Bressloff**. Asymptotic analysis of conversion-limited phase separation. *Proc. Roy. Soc. A* **480** 20230725 (2024)
18. **P. C. Bressloff**. Asymptotic analysis of particle cluster formation in the presence of anchoring sites. *Eur. Phys. J. E* **47** 30 (2024)
19. **P. C. Bressloff** Semi-permeable interfaces and the target problem. In: *Target Search Problems* D. Grebenkov, R. Metzler and G. Oshanin (eds) Springer (2024)
20. **P. C. Bressloff**. Generalized Itô's lemma and the stochastic thermodynamics of diffusion with resetting. *J. Phys. A* **57** 445003 (2024)
21. **P. C. Bressloff**. Entropy production for single-particle diffusion across a semipermeable membrane. *Phys. Rev. Res.* **6** 023283 (2024).
22. **P. C. Bressloff**. A generalized Dean-Kawasaki equation for an interacting Brownian gas in a partially absorbing medium. *Proc. Roy. Soc. A* **480** 20230915.(2024)
23. **P. C. Bressloff**. Global density equations for interacting particle systems with stochastic resetting: from overdamped Brownian motion to phase synchronization. *Chaos* **34** 043101 (2024)
24. **P. C. Bressloff**. Global density equations for a population of actively switching particles. *J. Phys. A* **57** 085001 (2024)
25. **P. C. Bressloff**. Transition path theory for diffusive search with stochastic resetting. *J. Phys. A* **57** 145001 (2024)
26. **P. C. Bressloff**. Truncated stochastically switching processes. *Phys. Rev. E* **109** 024103 (2024)
27. **P. C. Bressloff**. Trapping of an active Brownian particle at a partially absorbing wall. *Proc. Roy. Soc. A* **479** 20230086 (2023).
28. **P. C. Bressloff**. Encounter-based model of a run-and-tumble particle II: absorption at sticky boundaries. *J. Stat. Mech.* **043208** (2023).
29. **P. C. Bressloff**. Encounter-based reaction-subdiffusion model II: partially absorbing traps and the occupation time propagator *J. Phys. A* **56** 435005 (2023).

30. **P. C. Bressloff.** Encounter-based reaction-subdiffusion model I: surface absorption and the local time propagator *J. Phys. A* **56** 435004 (2023).
31. **P. C. Bressloff.** Accumulation time of diffusion in a 3D singularly perturbed domain. *SIAM Appl. Math* **83** 862-881(2023).
32. **P. C. Bressloff.** 3D narrow capture problem for traps with semipermeable interfaces. *Multiscale Model. Simul.* **21** 1268-1298 (2023)
33. **P. C. Bressloff.** Renewal equations for single-particle diffusion in multi-layered media. *SIAM J. Appl. Math.* **83**1518-1545 (2023).
34. R. Schumm and **P. C. Bressloff.** A numerical method for solving snapping out Brownian motion in 2D bounded domains. *J. Comp. Phys.* **493** 112479 (2023)
35. **P. C. Bressloff.** Close encounters of the sticky kind: Brownian motion at absorbing boundaries. *Phys. Rev. E* **107** 064121 (2023).
36. **P. C. Bressloff.** 2D interfacial diffusion model of synaptic receptor dynamics. *Proc Roy Soc. A* **479** 20220831 (2023).
37. **P. C. Bressloff.** Diffusion with stochastic resetting screened by a semipermeable membrane *J. Phys. A* **56** 105001 (2023)
38. **P. C. Bressloff.** Renewal equations for single-particle diffusion through semi-permeable membranes *Phys. Rev. E* **107** 014110 (2023).
39. **P. C. Bressloff.** Probabilistic model of diffusion through a semipermeable membrane *Proc Roy Soc A.* **478** 2022.0615 (2022)
40. **P. C. Bressloff** and R. Schumm. The narrow capture problem with partially absorbing targets and stochastic resetting. *Multiscale Model. Simul.* **20**857-881 (2022).
41. R. Schumm and **P. C. Bressloff.** Local accumulation times in a diffusion-trapping model of synaptic receptor dynamics. *Phys. Rev. E.* **105** 064407 (2022).
42. **P. C. Bressloff.** Encounter-based model of a run-and-tumble particle *J. Stat. Mech.* 113206 (2022)
43. **P. C. Bressloff.** Morphogen gradient formation in partially absorbing media. *Phys. Biol.* **19** 066005 (2022)
44. **P. C. Bressloff.** Accumulation times for diffusion-mediated surface reactions. *J. Phys. A* **55** 415002 (2022)
45. **P. C. Bressloff.** Stochastically switching diffusion with partially reactive surfaces. *Phys. Rev. E* **106** 034108 (2022).
46. **P. C. Bressloff.** Spectral theory of diffusion in partially absorbing media. *Proc. Roy. Soc. A.***478** 20220319 (2022).
47. **P. C. Bressloff.** Diffusion in partially absorbing media with position and occupation time resetting. *J. Stat. Mech.* **063207** (2022).
48. **P. C. Bressloff.** Diffusion-mediated surface reactions and stochastic resetting. *J. Phys. A.* **55** 275002 (2022)
49. **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)**
50. **P. C. Bressloff.** The narrow capture problem: an encounter-based approach to partially reactive targets. *Phys. Rev. E.* **105** 034141 (2022).

51. **P. C. Bressloff.** Local accumulation time for diffusion in cells with gap junction coupling. *Phys. Rev. E* **105** 034404 (2022).
52. **P. C. Bressloff.** Accumulation time of diffusion in a 2D singularly perturbed domain. *Proc. Roy. Soc. A* **478** 20210847 (2022).
53. **P. C. Bressloff.** Queuing model of axonal transport. *Brain Multiphysics* **2** 100042 (2021)
54. **P. C. Bressloff.** Accumulation time of diffusion processes with stochastic resetting. *J. Phys. A* **54** 354001 (2021).
55. **P. C. Bressloff.** Drift-diffusion on a Cayley tree with stochastic resetting: the localization delocalization transition. *J.Stat. Mech.* **063206** (2021).
56. **P. C. Bressloff.** Construction of stochastic hybrid path integrals using operator methods. *J. Phys. A* **54** 185001 (2021).
57. **P. C. Bressloff.** Coherent spin states and stochastic hybrid path integrals. *J. Stat. Mech.* **043207** (2021)
58. **P. C. Bressloff.** Directed search-and-capture model of cytoneme-based morphogenesis. *SIAM J. App. Math.* **81** 919–938 (2021)
59. **P. C. Bressloff.** Asymptotic analysis of target fluxes in the three-dimensional narrow capture problem *Multiscale Model. Simul.* **19** 612-632 (2021).
60. **P. C. Bressloff.** Multi-spike solutions of a hybrid reaction-transport model. *Proc. Roy. Soc. A* **477** 20200829 (2021).
61. **P. C. Bressloff.** Asymptotic analysis of extended two-dimensional narrow capture problems. *Proc. Roy. Soc. A* **477** 20200771 (2021).
62. **P. C. Bressloff.** First-passage processes and the target-based accumulation of resources. *Phys. Rev. E* **103** 012101 (2021).
63. R. Schumm and **P. C. Bressloff** Search processes with partially absorbing traps and stochastic resetting. *J. Phys. A* **54** 404004 (2021).
64. **P. C. Bressloff.** Occupation time of a run-and-tumble particle with resetting. *Phys. Rev. E* **102** 042135 (2020).
65. **P. C. Bressloff.** Target competition for resources under multiple search-and-capture events with stochastic resetting. *Proc. Roy. Soc. A* **476** 20200475 (2020).
66. **P. C. Bressloff.** Diffusive search for a stochastically-gated target with resetting. *J. Phys. A.* **53** 425001 (2020).
67. **P. C. Bressloff.** Queueing theory of search processes with stochastic resetting. *Phys. Rev. E* **102** 032109 (2020)
68. **P. C. Bressloff.** Stochastic resetting and the mean-field dynamics of focal adhesions. *Phys. Rev. E* **102** 022134 (2020)
69. **P. C. Bressloff.** Search processes with stochastic resetting and multiple targets. *Phys. Rev. E* **102** 022115 (2020)
70. **P. C. Bressloff.** Modeling active cellular transport as a directed search process with stochastic resetting and delays. *J. Phys. A.* **53** 355001 (2020)
71. **P. C. Bressloff.** Switching diffusions and stochastic resetting. *J. Phys. A.* **53** 275003 (2020)

72. **P. C. Bressloff**. Directed intermittent search with stochastic resetting. *J. Phys. A.* **53** 105001 (2020).
73. **P. C. Bressloff**. Stochastically-gated diffusion model of selective nuclear transport. *Phys. Rev. E.* **101** 042404 (2020).
74. **P. C. Bressloff**. Two-dimensional droplet ripening in a concentration gradient. *J. Phys. A.* **53** 365002 (2020).
75. **P. C. Bressloff**. Active suppression of Ostwald ripening: beyond mean field theory. *Phys. Rev. E* **101** 042804 (2020).
76. H. Kim and **P. C. Bressloff**. Stochastic Turing pattern formation in a model with active and passive transport. *Bull. Math. Biol.* **82** 144 (2020)
77. S. Carroll, H. Brooks and **P. C. Bressloff**. Pattern formation in a two-dimensional hybrid reaction-transport model. *Physica D* **402**132274 (2020).
78. P. Murphy, **P. C. Bressloff** and S. D. Lawley. Interaction between switching diffusivities and cellular microstructure. *Multiscale Model. Simul.* **18** 572-588 (2020).
79. **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).
80. **P. C. Bressloff** and J. N. MacLaurin. Phase reduction of stochastic biochemical oscillators. *SIAM J. Appl. Dyn. Syst.* **19** 151-180 (2020).
81. **P. C. Bressloff** and J. N. MacLaurin. Wandering bumps in a stochastic neural field: a variational approach. *Physica D.* **406** 132403 (2020).
82. 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).
83. H. Kim and **P. C. Bressloff**. Impulsive signaling model of cytoneme-based morphogen gradient formation. *Phys. Biol.* **16** 056005 (2019).
84. **P. C. Bressloff** and H. Kim. A search-and-capture model of cytoneme-mediated morphogen gradient formation. *Phys. Rev. E.* **99** 052401 (2019)
85. **P. C. Bressloff**, S. D. Lawley and P. Murphy. Protein concentration gradients and switching diffusions. *Phys. Rev. E.* **99** 032409 (2019).
86. 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).
87. 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).
88. **P. C. Bressloff** and S. Carroll. Stochastic neural fields as gradient dynamical systems. *Phys. Rev. E.* **100** 012402 (2019).
89. **P. C. Bressloff**. Stochastic neural field theory of wandering bumps on a sphere. *Physica D.* **399** 138-152 (2019).
90. **P. C. Bressloff**. Stochastic neural field model of stimulus-dependent neural variability. *PLoS Comp. Biol.* **15**(3): e1006755 (2019).
91. **P. C. Bressloff** and J. N. MacLaurin. On the synchronization of stochastic hybrid oscillators driven by a common switching environment. *Chaos* **I28** 123123 (2018).
92. **P. C. Bressloff** and J. MacLaurin. A variational method for analyzing limit cycle oscillations in stochastic hybrid systems *Chaos* **28** 063105 (2018).

93. **P. C. Bressloff** and J. Maclaurin. A variational method for analyzing stochastic limit cycle oscillators *SIAM J. Appl. Dyn. Syst.* **17** 2205-2233 (2018).
94. **P. C. Bressloff** and J. Maclaurin. Stochastic hybrid systems in cellular neuroscience. *J. Math. Neurosci.* **8** 12 (2018)
95. **P. C. Bressloff**, S. D. Lawley and P. Murphy. Diffusion in an age-structured randomly switching environment. *J. Phys. A* **51** 315001 (2018).
96. 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).
97. H. Kim and **P. C. Bressloff**. Mathematical models of cytoneme-based morphogen gradient formation. *SIAM J. Appl. Math* **78** 2323-2347 (2018).
98. **P. C. Bressloff** and H. Kim. Bidirectional transport model of morphogen gradient formation via cytonemes. *Phys. Biol.* **15** 026010 (2018).
99. **P. C. Bressloff** and B. Karamched. Doubly stochastic Poisson model of flagellar length control. *SIAM J. Appl. Math.* **78** 719-741 (2018).
100. 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).
101. E. Levien and **P. C. Bressloff**. On balance relations for irreversible chemical reaction networks. *J. Phys. A.* **50** 475004 (2017).
102. G. Fan and **P. C. Bressloff**. Population model of quorum sensing with multiple pathways. *Bull. Math. Biol.* **79** 2599-2626 (2017).
103. **P. C. Bressloff** and S. D. Lawley. Dynamically active compartments coupled by a stochastically-gated gap junction. *J. Nonlinear Sci.* **27** 1487-1512 (2017)
104. **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).
105. H. A. Brooks and **P. C. Bressloff**. Turing mechanism for homeostatic control of synaptic density in *C elegans*. *Phys Rev. E* **96** 012413 (2017).
106. **P. C. Bressloff** and S. D. Lawley. Hybrid colored noise process with space-dependent switching rates. *Phys. Rev. E* **96** 012129 (2017)
107. 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)
108. **P. C. Bressloff** and S. D. Lawley. Temporal disorder as a mechanism for spatially heterogeneous diffusion. *Phys. Rev. E* **95** 060101(R) (2017).
109. **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).
110. 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).
111. **P. C. Bressloff** and S. D. Lawley. Residence times for a Brownian particle with temporal heterogeneity. *J. Phys. A* **50** 195001 (2017).
112. **P. C. Bressloff** and O. Faugeras. On the Hamiltonian structure of large deviations in stochastic hybrid systems. *J. Stat. Mech.* 033206 (2017).
113. **P. C. Bressloff**. Feynman-Kac formula for stochastic hybrid systems. *Phys. Rev. E* **95** 012138 (2017).

114. **P. C. Bressloff.** Stochastically-gated local and occupation times of a Brownian particle. *Phys. Rev. E* **95** 012130 (2017).
115. **P. C. Bressloff.** Stochastic Liouville equation for particles driven by dichotomous environmental noise. *Phys. Rev. E* **95** 012124 (2017).
116. **P. C. Bressloff.** Stochastic switching in biology: from genotype to phenotype (Invited topical review) *J. Phys. A* **50** 055601 (2017)
117. B. Karamched and **P. C. Bressloff.** Effects of geometry on reversible vesicular transport. *J. Phys. A.* **50** 055601 (2017).
118. 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).
119. 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).
120. **P. C. Bressloff.** Stochastic Fokker-Planck equation in random environments. *Phys. Rev. E* **94** 042129 (2016).
121. **P. C. Bressloff.** Ultrasensitivity and noise amplification in a model of *V. harveyi* quorum sensing. *Phys. Rev. E* **93** 062418 (2016).
122. **P. C. Bressloff.** Diffusion in cells with stochastically-gated gap junctions. *SIAM J. Appl. Math.* **76** 1658-1682 (2016).
123. **P. C. Bressloff** and S. D. Lawley. Diffusion on a tree with stochastically-gated nodes. *J. Phys. A* **49** 245601 (2016).
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