Richard Bertram

List of Publications by Year
in descending order

134 papers	4,643 citations	109321 35 h-index	123424 61 g-index
141 all docs	141 docs citations	141 times ranked	3191 citing authors

#	Article	IF	Citations
1	Topological and phenomenological classification of bursting oscillations. Bulletin of Mathematical Biology, 1995, 57, 413-439.	1.9	235
2	Ion Channels and Signaling in the Pituitary Gland. Endocrine Reviews, 2010, 31, 845-915.	20.1	202
3	Backbone Structure of the Amantadine-Blocked Trans-Membrane Domain M2 Proton Channel from Influenza A Virus. Biophysical Journal, 2007, 92, 4335-4343.	0.5	175
4	Metabolic and electrical oscillations: partners in controlling pulsatile insulin secretion. American Journal of Physiology - Endocrinology and Metabolism, 2007, 293, E890-E900.	3.5	155
5	Calcium and Glycolysis Mediate Multiple Bursting Modes in Pancreatic Islets. Biophysical Journal, 2004, 87, 3074-3087.	0.5	147
6	A simplified model for mitochondrial ATP production. Journal of Theoretical Biology, 2006, 243, 575-586.	1.7	145
7	The Ca2+ Dynamics of Isolated Mouse Î²-Cells and Islets: Implications for Mathematical Models. Biophysical Journal, 2003, 84, 2852-2870.	0.5	141
8	Intra- and Inter-Islet Synchronization of Metabolically Driven Insulin Secretion. Biophysical Journal, 2005, 89, 107-119.	0.5	129
9	Multi-timescale systems and fast-slow analysis. Mathematical Biosciences, 2017, 287, 105-121.	1.9	123
10	An improved hydrogen bond potential: Impact on medium resolution protein structures. Protein Science, 2002, 11, 1415-1423.	7.6	108
11	Interaction of Glycolysis and Mitochondrial Respiration in Metabolic Oscillations of Pancreatic Islets. Biophysical Journal, 2007, 92, 1544-1555.	0.5	104
12	Glucose Modulates [Ca2+]i Oscillations in Pancreatic Islets via Ionic and Glycolytic Mechanisms. Biophysical Journal, 2006, 91, 2082-2096.	0.5	102
13	Modeling Study of the Effects of Overlapping Ca2+ Microdomains on Neurotransmitter Release. Biophysical Journal, 1999, 76, 735-750.	0.5	99
14	The Phantom Burster Model for Pancreatic Î²-Cells. Biophysical Journal, 2000, 79, 2880-2892.	0.5	97
15	A calcium-based phantom bursting model for pancreatic islets. Bulletin of Mathematical Biology, 2004, 66, 1313-1344.	1.9	97
16	Individual Mice Can Be Distinguished by the Period of Their Islet Calcium Oscillations. Diabetes, 2005, 54, 3517-3522.	0.6	89
17	Diffusion of Calcium and Metabolites in Pancreatic Islets: Killing Oscillations with a Pitchfork. Biophysical Journal, 2006, 90, 3434-3446.	0.5	85
18	Closing in on the Mechanisms of Pulsatile Insulin Secretion. Diabetes, 2018, 67, 351-359.	0.6	70

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19	Mixed mode oscillations as a mechanism for pseudo-plateau bursting. Journal of Computational Neuroscience, 2010, 28, 443-458.	1.0	68
20	Fast-Activating Voltage- and Calcium-Dependent Potassium (BK) Conductance Promotes Bursting in Pituitary Cells: A Dynamic Clamp Study. Journal of Neuroscience, 2011, 31, 16855-16863.	3.6	57
21	Electrical Bursting, Calcium Oscillations, and Synchronization of Pancreatic Islets. Advances in Experimental Medicine and Biology, 2010, 654, 261-279.	1.6	57
22	Simulated-annealing real-space refinement as a tool in model building. Acta Crystallographica Section D: Biological Crystallography, 2002, 58, 761-767.	2.5	52
23	Low dose of dopamine may stimulate prolactin secretion by increasing fast potassium currents. Journal of Computational Neuroscience, 2007, 22, 211-222.	1.0	52
24	Phase Analysis of Metabolic Oscillations and Membrane Potential in Pancreatic Islet Î² -Cells. Biophysical Journal, 2016, 110, 691-699.	0.5	52
25	Multiple Geometric Viewpoints of Mixed Mode Dynamics Associated with Pseudo-plateau Bursting. SIAM Journal on Applied Dynamical Systems, 2013, 12, 789-830.	1.6	51
26	Metabolic Oscillations in Pancreatic Islets Depend on the Intracellular Ca2+ Level but Not Ca2+ Oscillations. Biophysical Journal, 2010, 99, 76-84.	0.5	50
27	Microfluidic System for Generation of Sinusoidal Glucose Waveforms for Entrainment of Islets of Langerhans. Analytical Chemistry, 2010, 82, 6704-6711.	6.5	49
28	Calcium cooperativity of exocytosis as a measure of Ca2+ channel domain overlap. Brain Research, 2011, 1398, 126-138.	2.2	49
29	Auditory-Dependent Vocal Recovery in Adult Male Zebra Finches Is Facilitated by Lesion of a Forebrain Pathway That Includes the Basal Ganglia. Journal of Neuroscience, 2007, 27, 12308-12320.	3.6	48
30	The relationship between two fast/slow analysis techniques for bursting oscillations. Chaos, 2012, 22, 043117.	2.5	45
31	Glucose Diffusion in Pancreatic Islets of Langerhans. Biophysical Journal, 1998, 74, 1722-1731.	0.5	42
32	KNDy Neurons Modulate the Magnitude of the Steroid-Induced Luteinizing Hormone Surges in Ovariectomized Rats. Endocrinology, 2015, 156, 4200-4213.	2.8	41
33	Long Lasting Synchronization of Calcium Oscillations by Cholinergic Stimulation in Isolated Pancreatic Islets. Biophysical Journal, 2008, 95, 4676-4688.	0.5	40
34	The dynamics underlying pseudo-plateau bursting in a pituitary cell model. Journal of Mathematical Neuroscience, 2011, 1, .	2.4	40
35	Complex bursting in pancreatic islets: a potential glycolytic mechanism. Journal of Theoretical Biology, 2004, 228, 513-521.	1.7	39
36	Large conductance Ca²⁺â€activated K⁺ (BK) channels promote secretagogueâ€induced transition from spiking to bursting in murine anterior pituitary corticotrophs. Journal of Physiology, 2015, 593, 1197-1211.	2.9	39

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37	A geometric understanding of how fast activating potassium channels promote bursting in pituitary cells. Journal of Computational Neuroscience, 2014, 36, 259-278.	1.0	38
38	Electrophysiological characterization and computational models of HVC neurons in the zebra finch. Journal of Neurophysiology, 2013, 110, 1227-1245.	1.8	37
39	Negative Feedback Synchronizes Islets of Langerhans. Biophysical Journal, 2014, 106, 2275-2282.	0.5	37
40	From Plateau to Pseudo-Plateau Bursting: MakingÂtheÂTransition. Bulletin of Mathematical Biology, 2011, 73, 1292-1311.	1.9	35
41	Ca 2+ Effects on ATP Production and Consumption Have Regulatory Roles on Oscillatory Islet Activity. Biophysical Journal, 2016, 110, 733-742.	0.5	35
42	Female zebra finches do not sing yet share neural pathways necessary for singing in males. Journal of Comparative Neurology, 2019, 527, 843-855.	1.6	35
43	Slow variable dominance and phase resetting in phantom bursting. Journal of Theoretical Biology, 2011, 276, 218-228.	1.7	34
44	A computational study of the effects of serotonin on a molluscan burster neuron. Biological Cybernetics, 1993, 69, 257-267.	1.3	33
45	Slow oscillations of KATP conductance in mouse pancreatic islets provide support for electrical bursting driven by metabolic oscillations. American Journal of Physiology - Endocrinology and Metabolism, 2013, 305, E805-E817.	3.5	33
46	NEGATIVE CALCIUM FEEDBACK: THE ROAD FORM CHAY-KEIZER. , 2005, , 19-48.		32
47	Filtering of Calcium Transients by the Endoplasmic Reticulum in Pancreatic Î²-Cells. Biophysical Journal, 2004, 87, 3775-3785.	0.5	31
48	Residual Bound Ca2+ Can Account for the Effects of Ca2+ Buffers on Synaptic Facilitation. Journal of Neurophysiology, 2006, 96, 3389-3397.	1.8	31
49	A-Type K⁺ Current Can Act as a Trigger for Bursting in the Absence of a Slow Variable. Neural Computation, 2008, 20, 436-451.	2.2	31
50	Independent Premotor Encoding of the Sequence and Structure of Birdsong in Avian Cortex. Journal of Neuroscience, 2014, 34, 16821-16834.	3.6	31
51	Mechanism for the Universal Pattern of Activity in Developing Neuronal Networks. Journal of Neurophysiology, 2010, 103, 2208-2221.	1.8	30
52	Dynamical complexity and temporal plasticity in pancreatic gÎ²b-cells. Journal of Biosciences, 2000, 25, 197-209.	1.1	28
53	Phosphofructo-2-kinase/Fructose-2,6-bisphosphatase Modulates Oscillations of Pancreatic Islet Metabolism. PLoS ONE, 2012, 7, e34036.	2.5	28
54	Synchronization of mouse islets of Langerhans by glucose waveforms. American Journal of Physiology - Endocrinology and Metabolism, 2011, 301, E742-E747.	3.5	27

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55	Is bursting more effective than spiking in evoking pituitary hormone secretion? A spatiotemporal simulation study of calcium and granule dynamics. American Journal of Physiology - Endocrinology and Metabolism, 2016, 310, E515-E525.	3.5	27
56	A statistical method for quantifying songbird phonology and syntax. Journal of Neuroscience Methods, 2008, 174, 147-154.	2.5	26
57	A Tale of Two Rhythms: The Emerging Roles of Oxytocin in Rhythmic Prolactin Release. Journal of Neuroendocrinology, 2010, 22, 778-784.	2.6	26
58	A mathematical model for the mating-induced prolactin rhythm of female rats. American Journal of Physiology - Endocrinology and Metabolism, 2006, 290, E573-E582.	3.5	25
59	Ca²⁺Current versus Ca²⁺Channel Cooperativity of Exocytosis. Journal of Neuroscience, 2009, 29, 12196-12209.	3.6	25
60	Atomic refinement with correlated solid-state NMR restraints. Journal of Magnetic Resonance, 2003, 163, 300-309.	2.1	24
61	A Mathematical Study of the Differential Effects of Two SERCA Isoforms on Ca2+ Oscillations in Pancreatic Islets. Bulletin of Mathematical Biology, 2008, 70, 1251-71.	1.9	24
62	Dual Pre-Motor Contribution to Songbird Syllable Variation. Journal of Neuroscience, 2011, 31, 322-330.	3.6	24
63	Glucocorticoids Inhibit CRH/AVP-Evoked Bursting Activity of Male Murine Anterior Pituitary Corticotrophs. Endocrinology, 2016, 157, 3108-3121.	2.8	24
64	Neuronal Intrinsic Physiology Changes During Development of a Learned Behavior. ENeuro, 2017, 4, ENEURO.0297-17.2017.	1.9	23
65	A Phantom Bursting Mechanism for Episodic Bursting. Bulletin of Mathematical Biology, 2008, 70, 1979-1993.	1.9	22
66	Bifurcations of canard-induced mixed mode oscillations in a pituitary Lactotroph model. Discrete and Continuous Dynamical Systems, 2012, 32, 2879-2912.	0.9	22
67	Implications of G-protein-mediated Ca2+ channel inhibition for neurotransmitter release and facilitation. , 1999, 7, 197-211.		20
68	Glucose Oscillations Can Activate an Endogenous Oscillator in Pancreatic Islets. PLoS Computational Biology, 2016, 12, e1005143.	3.2	20
69	Mathematical aspects of protein structure determination with NMR orientational restraints. Bulletin of Mathematical Biology, 2004, 66, 1705-1730.	1.9	19
70	Quantifying the Relative Contributions of Divisive and Subtractive Feedback to Rhythm Generation. PLoS Computational Biology, 2011, 7, e1001124.	3.2	19
71	Calcium and Metabolic Oscillations in Pancreatic Islets: Who's Driving the Bus?. SIAM Journal on Applied Dynamical Systems, 2014, 13, 683-703.	1.6	19
72	Experience-Dependent Intrinsic Plasticity During Auditory Learning. Journal of Neuroscience, 2019, 39, 1206-1221.	3.6	19

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73	Differential Filtering of Two Presynaptic Depression Mechanisms. Neural Computation, 2001, 13, 69-85.	2.2	18
74	A Minimal Model for G Proteinâ€“Mediated Synaptic Facilitation and Depression. Journal of Neurophysiology, 2003, 90, 1643-1653.	1.8	18
75	Why pacing frequency affects the production of early afterdepolarizations in cardiomyocytes: An explanation revealed by slow-fast analysis of a minimal model. Physical Review E, 2019, 99, 052205.	2.1	18
76	Interpreting Frequency Responses to Dose-Conserved Pulsatile Input Signals in Simple Cell Signaling Motifs. PLoS ONE, 2014, 9, e95613.	2.5	18
77	Transitions between bursting modes in the integrated oscillator model for pancreatic Î²-cells. Journal of Theoretical Biology, 2018, 454, 310-319.	1.7	17
78	A Simple Model of Transmitter Release and Facilitation. Neural Computation, 1997, 9, 515-523.	2.2	16
79	A Mathematical Model for the Actions of Activin, Inhibin, and Follistatin on Pituitary Gonadotrophs. Bulletin of Mathematical Biology, 2008, 70, 2211-2228.	1.9	16
80	Models of Electrical Activity: Calibration and Prediction Testing onÂtheÂSame Cell. Biophysical Journal, 2012, 103, 2021-2032.	0.5	16
81	Dual Detection System for Simultaneous Measurement of Intracellular Fluorescent Markers and Cellular Secretion. Analytical Chemistry, 2016, 88, 10368-10373.	6.5	16
82	Fast-slow analysis of the Integrated Oscillator Model for pancreatic Î²-cells. Journal of Theoretical Biology, 2018, 457, 152-162.	1.7	16
83	Oscillations in K(ATP) conductance drive slow calcium oscillations in pancreatic Î²-cells. Biophysical Journal, 2022, 121, 1449-1464.	0.5	16
84	Symbiosis of Electrical and Metabolic Oscillations in Pancreatic Î²-Cells. Frontiers in Physiology, 2021, 12, 781581.	2.8	14
85	A computational tool for automated large-scale analysis and measurement of bird-song syntax. Journal of Neuroscience Methods, 2012, 210, 147-160.	2.5	13
86	Cervical stimulation activates A1 and locus coeruleus neurons that project to the paraventricular nucleus of the hypothalamus. Brain Research Bulletin, 2012, 88, 566-573.	3.0	13
87	Modeling of Glucose-Induced cAMP Oscillations in Pancreatic Î² Cells: cAMP Rocks when Metabolism Rolls. Biophysical Journal, 2015, 109, 439-449.	0.5	12
88	From global to local: exploring the relationship between parameters and behaviors in models of electrical excitability. Journal of Computational Neuroscience, 2016, 40, 331-345.	1.0	12
89	Upregulation of an inward rectifying K+ channel can rescue slow Ca2+ oscillations in K(ATP) channel deficient pancreatic islets. PLoS Computational Biology, 2017, 13, e1005686.	3.2	12
90	Using phase relations to identify potential mechanisms for metabolic oscillations in isolated Î²-cell mitochondria. Islets, 2009, 1, 87-94.	1.8	11

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91	Big Ducks in the Heart: Canard Analysis Can Explain Large Early Afterdepolarizations in Cardiomyocytes. SIAM Journal on Applied Dynamical Systems, 2020, 19, 1701-1735.	1.6	11
92	Canard analysis reveals why a large Ca2+ window current promotes early afterdepolarizations in cardiac myocytes. PLoS Computational Biology, 2020, 16, e1008341.	3.2	11
93	A distributed neural network model for the distinct roles of medial and lateral HVC in zebra finch song production. Journal of Neurophysiology, 2017, 118, 677-692.	1.8	10
94	Population Dynamics of Synaptic Release Sites. SIAM Journal on Applied Mathematics, 1998, 58, 142-169.	1.8	9
95	ENZYME ISOFORMS MAY INCREASE PHENOTYPIC ROBUSTNESS. Evolution; International Journal of Organic Evolution, 2008, 62, 2884-2893.	2.3	9
96	Disconnection of a basal ganglia circuit in juvenile songbirds attenuates the spectral differentiation of song syllables. Developmental Neurobiology, 2014, 74, 574-590.	3.0	9
97	Mathematical Modeling in Neuroendocrinology. , 2015, 5, 911-927.		9
98	Synchronization of pancreatic islets by periodic or non-periodic muscarinic agonist pulse trains. PLoS ONE, 2019, 14, e0211832.	2.5	9
99	Role for G Protein Gî²î³ Isoform Specificity in Synaptic Signal Processing: A Computational Study. Journal of Neurophysiology, 2002, 87, 2612-2623.	1.8	8
100	Endothelin Action on Pituitary Lactotrophs: One Receptor, Many GTP-Binding Proteins. Science Signaling, 2006, 2006, pe4-pe4.	3.6	8
101	Orthogonal topography in the parallel input architecture of songbird HVC. Journal of Comparative Neurology, 2017, 525, 2133-2151.	1.6	8
102	Spiking and Membrane Properties of Rat Olfactory Bulb Dopamine Neurons. Frontiers in Cellular Neuroscience, 2020, 14, 60.	3.7	8
103	Calcium Oscillation Frequency-Sensitive Gene Regulation and Homeostatic Compensation in Pancreatic $$upbeta $$-Cells. Bulletin of Mathematical Biology, 2017, 79, 1295-1324.	1.9	7
104	The Effects of GABAergic Polarity Changes on Episodic Neural Network Activity in Developing Neural Systems. Frontiers in Computational Neuroscience, 2017, 11, 88.	2.1	7
105	Where to look and how to look: Combining global sensitivity analysis with fast/slow analysis to study multi-timescale oscillations. Mathematical Biosciences, 2019, 314, 1-12.	1.9	7
106	Fast-slow analysis of a stochastic mechanism for electrical bursting. Chaos, 2021, 31, 103128.	2.5	7
107	Determining the contributions of divisive and subtractive feedback in the Hodgkin-Huxley model. Journal of Computational Neuroscience, 2014, 37, 403-415.	1.0	6
108	Chronic stress facilitates bursting electrical activity in pituitary corticotrophs. Journal of Physiology, 2022, 600, 313-332.	2.9	6

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109	Intrinsic physiology of inhibitory neurons changes over auditory development. Journal of Neurophysiology, 2018, 119, 290-304.	1.8	5
110	Phantom bursting may underlie electrical bursting in single pancreatic<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si183.svg"><mml:mrow><mml:mi>Î²</mml:mi></mml:mrow></mml:math>-cells. Journal of Theoretical Biology, 2020, 501, 110346.	1.7	5
111	Influence of dynorphin on estradiol- and cervical stimulation-induced prolactin surges in ovariectomized rats. Endocrine, 2016, 53, 585-594.	2.3	4
112	Interhemispheric dominance switching in a neural network model for birdsong. Journal of Neurophysiology, 2018, 120, 1186-1197.	1.8	3
113	Network dynamics underlie learning and performance of birdsong. Current Opinion in Neurobiology, 2020, 64, 119-126.	4.2	3
114	Multi-mode attractors and spatio-temporal canards. Physica D: Nonlinear Phenomena, 2020, 411, 132544.	2.8	3
115	Chronic stimulation induces adaptive potassium channel activity that restores calcium oscillations in pancreatic islets in vitro. American Journal of Physiology - Endocrinology and Metabolism, 2020, 318, E554-E563.	3.5	3
116	Reduced-system analysis of the effects of serotonin on a molluscan burster neuron. Biological Cybernetics, 1994, 70, 359-368.	1.3	3
117	Canards Underlie Both Electrical and Ca^{2+}-Induced Early Afterdepolarizations in a Model for Cardiac Myocytes. SIAM Journal on Applied Dynamical Systems, 2022, 21, 1059-1091.	1.6	3
118	A Correction to the Perspective Titled "Endothelin Action on Pituitary Lactotrophs: One Receptor, Many GTP-Binding Proteins" by Bertram et al.. Science Signaling, 2006, 2006, er2-er2.	3.6	2
119	Correlation Analysis. Methods in Enzymology, 2009, 467, 1-22.	1.0	2
120	Electrical, Calcium, and Metabolic Oscillations in Pancreatic Islets. , 2015, , 453-474.		2
121	Stabilization of collapsing scroll waves in systems with random heterogeneities. Chaos, 2017, 27, 043108.	2.5	2
122	Expansion of scroll wave filaments induced by chiral mismatch. Chaos, 2018, 28, 045106.	2.5	2
123	Large conductance Ca²⁺-activated K⁺channels (BK) promote secretagogue-induced transition from spiking to bursting in murine anterior pituitary corticotrophs. Journal of Physiology, 2014, , n/a-n/a.	2.9	2
124	Integrative modeling of the pancreatic ï¿½ï¿½-cell. , 2005, , .		1
125	Mathematical modeling demonstrates how multiple slow processes can provide adjustable control of islet bursting. Islets, 2011, 3, 320-326.	1.8	1
126	Fast-slow analysis as a technique for understanding the neuronal response to current ramps. Journal of Computational Neuroscience, 2021, , .	1.0	1

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127	Geometric Singular Perturbation Analysis of Bursting Oscillations in Pituitary Cells. Frontiers in Applied Dynamical Systems: Reviews and Tutorials, 2015, , 1-52.	0.5	1
128	A closed-loop multi-scale model for intrinsic frequency-dependent regulation of axonal growth. Mathematical Biosciences, 2022, 344, 108768.	1.9	1
129	Response to the Comment by F. Diederichs. Biophysical Journal, 2008, 94, 5080.	0.5	0
130	The Molecular Cell Biology of Anterior Pituitary Cells. , 2014, , 19-39.		0
131	Endocrine Cell Function and Dysfunction. , 2014, , 1-5.		0
132	Electrical, Calcium, and Metabolic Oscillations in Pancreatic Islets. , 2014, , 1-20.		0
133	Measuring the Curl of Paper. College Mathematics Journal, 1999, 30, 315.	0.1	0
134	Endocrine Cell Function and Dysfunction. , 2022, , 1308-1311.		0