Mathieu Desroches

List of Publications by Year in Descending Order

56 papers	1,155 citations	17 h-index	32 g-index
60 ext. papers	1,431 ext. citations	3.8 avg, IF	4.54 L-index

#	Paper	IF	Citations
56	Classification of bursting patterns: A tale of two ducks.. *PLoS Computational Biology*, **2022**, 18, e1009752	5	0
55	Spike-adding and reset-induced canard cycles in adaptive integrate and fire models. *Nonlinear Dynamics*, **2021**, 104, 2451-2470	5	1
54	Targeting Impaired Antimicrobial Immunity in the Brain for the Treatment of Alzheimer's Disease. *Neuropsychiatric Disease and Treatment*, **2021**, 17, 1311-1339	3.1	5
53	Canonical models for torus canards in elliptic bursters. *Chaos*, **2021**, 31, 063129	3.3	2
52	Modeling NaV1.1/SCN1A sodium channel mutations in a microcircuit with realistic ion concentration dynamics suggests differential GABAergic mechanisms leading to hyperexcitability in epilepsy and hemiplegic migraine. *PLoS Computational Biology*, **2021**, 17, e1009239	5	3
51	Initiation of migraine-related cortical spreading depolarization by hyperactivity of GABAergic neurons and NaV1.1 channels. *Journal of Clinical Investigation*, **2021**, 131,	15.9	4
50	Targeting Infectious Agents as a Therapeutic Strategy in Alzheimer's Disease. *CNS Drugs*, **2020**, 34, 673-695	6.7	10
49	Canard-induced complex oscillations in an excitatory network. *Journal of Mathematical Biology*, **2020**, 80, 2075-2107	2	6
48	Local Theory for Spatio-Temporal Canards and Delayed Bifurcations. *SIAM Journal on Mathematical Analysis*, **2020**, 52, 5703-5747	1.7	3
47	Why we should use topological data analysis in ageing: Towards defining the "topological shape of ageing". *Mechanisms of Ageing and Development*, **2020**, 192, 111390	5.6	1
46	Inflection, Canards and Folded Singularities in Excitable Systems: Application to a 3D FitzHughNagumo Model. *Journal of Nonlinear Science*, **2020**, 30, 3265-3291	2.8	2
45	Parabolic bursting, spike-adding, dips and slices in a minimal model. *Mathematical Modelling of Natural Phenomena*, **2019**, 14, 406	3	0
44	Conductance-Based Refractory Density Approach for a Population of Bursting Neurons. *Bulletin of Mathematical Biology*, **2019**, 81, 4124-4143	2.1	1
43	Modeling cortical spreading depression induced by the hyperactivity of interneurons. *Journal of Computational Neuroscience*, **2019**, 47, 125-140	1.4	12
42	Metastable Resting State Brain Dynamics. *Frontiers in Computational Neuroscience*, **2019**, 13, 62	3.5	11
41	Anticipation via canards in excitable systems. *Chaos*, **2019**, 29, 013111	3.3	8
40	Spike-Adding in a Canonical Three-Time-Scale Model: Superslow Explosion and Folded-Saddle Canards. *SIAM Journal on Applied Dynamical Systems*, **2018**, 17, 1989-2017	2.8	9

39	Piecewise-Linear (PWL) Canard Dynamics. *Understanding Complex Systems*, **2018**, 67-86	0.4	2
38	Synchronization of weakly coupled canard oscillators. *Physica D: Nonlinear Phenomena*, **2017**, 349, 46-61	3.3	10
37	Spatiotemporal canards in neural field equations. *Physical Review E*, **2017**, 95, 042205	2.4	9
36	Building Bridges through Science. *Neuron*, **2017**, 96, 730-735	13.9	2
35	Ducks in space: from nonlinear absolute instability to noise-sustained structures in a pattern-forming system. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2017**, 473, 20170018	2.4	8
34	A modular architecture for transparent computation in recurrent neural networks. *Neural Networks*, **2017**, 85, 85-105	9.1	6
33	Canards, Folded Nodes, and Mixed-Mode Oscillations in Piecewise-Linear Slow-Fast Systems. *SIAM Review*, **2016**, 58, 653-691	7.4	32
32	Spike-adding in parabolic bursters: The role of folded-saddle canards. *Physica D: Nonlinear Phenomena*, **2016**, 331, 58-70	3.3	20
31	Time-coded neurotransmitter release at excitatory and inhibitory synapses. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, E1108-15	11.5	7
30	From Canards of Folded Singularities to Torus Canards in a Forced van der Pol Equation. *Journal of Nonlinear Science*, **2016**, 26, 405-451	2.8	8
29	Canards in a minimal piecewise-linear square-wave burster. *Chaos*, **2016**, 26, 073111	3.3	5
28	Canard-Mediated (De)Synchronization in Coupled Phantom Bursters. *SIAM Journal on Applied Dynamical Systems*, **2016**, 15, 580-608	2.8	8
27	Mixed-Mode Oscillations Due to a Singular Hopf Bifurcation in a Forest Pest Model. *Mathematical Population Studies*, **2015**, 22, 71-79	0.8	5
26	A Multiple Time Scale Coupling of Piecewise Linear Oscillators. Application to a Neuroendocrine System. *SIAM Journal on Applied Dynamical Systems*, **2015**, 14, 643-673	2.8	14
25	Noise-induced Canard and Mixed-Mode Oscillations in Large-Scale Stochastic Networks. *SIAM Journal on Applied Mathematics*, **2015**, 75, 2024-2049	1.8	4
24	Extending the zero-derivative principle for slow–fast dynamical systems. *Zeitschrift Fur Angewandte Mathematik Und Physik*, **2015**, 66, 2255-2270	1.6	7
23	On the dynamics of the adenylate energy system: homeorhesis vs homeostasis. *PLoS ONE*, **2014**, 9, e108676	3.7	48
22	Inflection, canards and excitability threshold in neuronal models. *Journal of Mathematical Biology*, **2013**, 67, 989-1017	2	34

21	Mixed-mode bursting oscillations: dynamics created by a slow passage through spike-adding canard explosion in a square-wave burster. *Chaos*, **2013**, 23, 046106	3.3	72
20	A method for the reconstruction of unknown non-monotonic growth functions in the chemostat. *Bioprocess and Biosystems Engineering*, **2013**, 36, 1497-507	3.7	5
19	Numerical Continuation Techniques for Planar Slow-Fast Systems. *SIAM Journal on Applied Dynamical Systems*, **2013**, 12, 1159-1180	2.8	14
18	Short-term synaptic plasticity in the deterministic Tsodyks-Markram model leads to unpredictable network dynamics. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 16610-5	11.5	22
17	Canards in piecewise-linear systems: explosions and super-explosions. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2013**, 469, 20120603	2.4	25
16	A showcase of torus canards in neuronal bursters. *Journal of Mathematical Neuroscience*, **2012**, 2, 3	2.4	34
15	Mixed-Mode Oscillations in a Multiple Time Scale Phantom Bursting System. *SIAM Journal on Applied Dynamical Systems*, **2012**, 11, 1458-1498	2.8	35
14	Codimension-Two Homoclinic Bifurcations Underlying Spike Adding in the Hindmarsh--Rose Burster. *SIAM Journal on Applied Dynamical Systems*, **2012**, 11, 939-962	2.8	40
13	Canards of mixed type in a neural burster. *Physical Review E*, **2012**, 85, 021920	2.4	15
12	Mixed-Mode Oscillations with Multiple Time Scales. *SIAM Review*, **2012**, 54, 211-288	7.4	336
11	A new method for the reconstruction of unknown non-monotonic growth functions in the chemostat **2012**,		1
10	ON THE NUMERICAL CONTINUATION OF ISOLAS OF EQUILIBRIA. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2012**, 22, 1250277	2	6
9	Canards and curvature: nonsmooth approximation by pinching. *Nonlinearity*, **2011**, 24, 1655-1682	1.7	21
8	Canard cycles in aircraft ground dynamics. *Nonlinear Dynamics*, **2011**, 66, 681-688	5	18
7	Canards and curvature: the smallness of ε in slow-fast dynamics. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2011**, 467, 2404-2421	2.4	19
6	Numerical continuation of canard orbits in slow-fast dynamical systems. *Nonlinearity*, **2010**, 23, 739-765	1.7	48
5	The geometry of mixed-mode oscillations in the Olsen model for the Peroxidase-Oxidase reaction. *Discrete and Continuous Dynamical Systems - Series S*, **2009**, 2, 807-827	2.8	16
4	Mixed-mode oscillations and slow manifolds in the self-coupled FitzHugh-Nagumo system. *Chaos*, **2008**, 18, 015107	3.3	63

LIST OF PUBLICATIONS

3	The Geometry of Slow Manifolds near a Folded Node. *SIAM Journal on Applied Dynamical Systems*, **2008**, 7, 1131-1162	2.8	51
2	GABAergic neurons and NaV1.1 channel hyperactivity: a novel neocortex-specific mechanism of Cortical Spreading Depression	5	4
1	Bursting in a next generation neural mass model with synaptic dynamics: a slow-fast approach. *Nonlinear Dynamics*, 1	5	0