# Mathieu Desroches

## List of Publications by Citations



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|---|---|---|---|
| 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 | Mixed-Mode Oscillations with Multiple Time Scales. *SIAM Review*, **2012**, 54, 211-288 | 7.4 | 336 |
| 55 | 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 |
| 54 | Mixed-mode oscillations and slow manifolds in the self-coupled FitzHugh-Nagumo system. *Chaos*, **2008**, 18, 015107 | 3.3 | 63 |
| 53 | The Geometry of Slow Manifolds near a Folded Node. *SIAM Journal on Applied Dynamical Systems*, **2008**, 7, 1131-1162 | 2.8 | 51 |
| 52 | Numerical continuation of canard orbits in slowfast dynamical systems. *Nonlinearity*, **2010**, 23, 739-765 | 1.7 | 48 |
| 51 | On the dynamics of the adenylate energy system: homeorhesis vs homeostasis. *PLoS ONE*, **2014**, 9, e108676 | 3.7 | 48 |
| 50 | 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 |
| 49 | Mixed-Mode Oscillations in a Multiple Time Scale Phantom Bursting System. *SIAM Journal on Applied Dynamical Systems*, **2012**, 11, 1458-1498 | 2.8 | 35 |
| 48 | A showcase of torus canards in neuronal bursters. *Journal of Mathematical Neuroscience*, **2012**, 2, 3 | 2.4 | 34 |
| 47 | Inflection, canards and excitability threshold in neuronal models. *Journal of Mathematical Biology*, **2013**, 67, 989-1017 | 2 | 34 |
| 46 | Canards, Folded Nodes, and Mixed-Mode Oscillations in Piecewise-Linear Slow-Fast Systems. *SIAM Review*, **2016**, 58, 653-691 | 7.4 | 32 |
| 45 | 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 |
| 44 | 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 |
| 43 | Canards and curvature: nonsmooth approximation by pinching. *Nonlinearity*, **2011**, 24, 1655-1682 | 1.7 | 21 |
| 42 | Spike-adding in parabolic bursters: The role of folded-saddle canards. *Physica D: Nonlinear Phenomena*, **2016**, 331, 58-70 | 3.3 | 20 |
| 41 | Canards and curvature: the smallness of in slowfast dynamics. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2011**, 467, 2404-2421 | 2.4 | 19 |
| 40 | Canard cycles in aircraft ground dynamics. *Nonlinear Dynamics*, **2011**, 66, 681-688 | 5 | 18 |

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| 39 | 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 |
| 38 | Canards of mixed type in a neural burster. *Physical Review E*, **2012**, 85, 021920 | 2.4 | 15 |
| 37 | 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 |
| 36 | Numerical Continuation Techniques for Planar Slow-Fast Systems. *SIAM Journal on Applied Dynamical Systems*, **2013**, 12, 1159-1180 | 2.8 | 14 |
| 35 | Modeling cortical spreading depression induced by the hyperactivity of interneurons. *Journal of Computational Neuroscience*, **2019**, 47, 125-140 | 1.4 | 12 |
| 34 | Metastable Resting State Brain Dynamics. *Frontiers in Computational Neuroscience*, **2019**, 13, 62 | 3.5 | 11 |
| 33 | Synchronization of weakly coupled canard oscillators. *Physica D: Nonlinear Phenomena*, **2017**, 349, 46-61 | 3.3 | 10 |
| 32 | Targeting Infectious Agents as a Therapeutic Strategy in Alzheimer's Disease. *CNS Drugs*, **2020**, 34, 673-695 | 6.5 | 10 |
| 31 | 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 |
| 30 | Spatiotemporal canards in neural field equations. *Physical Review E*, **2017**, 95, 042205 | 2.4 | 9 |
| 29 | 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 |
| 28 | 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 |
| 27 | Canard-Mediated (De)Synchronization in Coupled Phantom Bursters. *SIAM Journal on Applied Dynamical Systems*, **2016**, 15, 580-608 | 2.8 | 8 |
| 26 | Anticipation via canards in excitable systems. *Chaos*, **2019**, 29, 013111 | 3.3 | 8 |
| 25 | 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 |
| 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 | Canard-induced complex oscillations in an excitatory network. *Journal of Mathematical Biology*, **2020**, 80, 2075-2107 | 2 | 6 |
| 22 | A modular architecture for transparent computation in recurrent neural networks. *Neural Networks* , **2017**, 85, 85-105 | 9.1 | 6 |

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| 21 | ON THE NUMERICAL CONTINUATION OF ISOLAS OF EQUILIBRIA. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2012**, 22, 1250277 | 2 | 6 |
| 20 | Mixed-Mode Oscillations Due to a Singular Hopf Bifurcation in a Forest Pest Model. *Mathematical Population Studies*, **2015**, 22, 71-79 | 0.8 | 5 |
| 19 | 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 |
| 18 | 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 |
| 17 | Canards in a minimal piecewise-linear square-wave burster. *Chaos*, **2016**, 26, 073111 | 3.3 | 5 |
| 16 | Noise-induced Canard and Mixed-Mode Oscillations in Large-Scale Stochastic Networks. *SIAM Journal on Applied Mathematics*, **2015**, 75, 2024-2049 | 1.8 | 4 |
| 15 | GABAergic neurons and NaV1.1 channel hyperactivity: a novel neocortex-specific mechanism of Cortical Spreading Depression | | 4 |
| 14 | 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 |
| 13 | Local Theory for Spatio-Temporal Canards and Delayed Bifurcations. *SIAM Journal on Mathematical Analysis*, **2020**, 52, 5703-5747 | 1.7 | 3 |
| 12 | 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 |
| 11 | Building Bridges through Science. *Neuron*, **2017**, 96, 730-735 | 13.9 | 2 |
| 10 | Inflection, Canards and Folded Singularities in Excitable Systems: Application to a 3D FitzHugh□Nagumo Model. *Journal of Nonlinear Science*, **2020**, 30, 3265-3291 | 2.8 | 2 |
| 9 | Canonical models for torus canards in elliptic bursters. *Chaos*, **2021**, 31, 063129 | 3.3 | 2 |
| 8 | Piecewise-Linear (PWL) Canard Dynamics. *Understanding Complex Systems*, **2018**, 67-86 | 0.4 | 2 |
| 7 | Conductance-Based Refractory Density Approach for a Population of Bursting Neurons. *Bulletin of Mathematical Biology*, **2019**, 81, 4124-4143 | 2.1 | 1 |
| 6 | A new method for the reconstruction of unknown non-monotonic growth functions in the chemostat **2012**, | | 1 |
| 5 | 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 |
| 4 | Spike-adding and reset-induced canard cycles in adaptive integrate and fire models. *Nonlinear Dynamics*, **2021**, 104, 2451-2470 | 5 | 1 |

# List of Publications

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| 3 | Parabolic bursting, spike-adding, dips and slices in a minimal model. *Mathematical Modelling of Natural Phenomena*, **2019**, 14, 406 | 3 | 0 |
| 2 | Classification of bursting patterns: A tale of two ducks.. *PLoS Computational Biology*, **2022**, 18, e1009752 | 5 | 0 |
| 1 | Bursting in a next generation neural mass model with synaptic dynamics: a slow-fast approach. *Nonlinear Dynamics*,1 | 5 | 0 |