Maurice J Chacron

List of Publications by Year
in descending order

116 papers	4,487 citations	94269 37 h-index	118652 62 g-index
127 all docs	127 docs citations	127 times ranked	1414 citing authors

#	Article	IF	Citations
1	Sensory adaptation mediates efficient and unambiguous encoding of natural stimuli by vestibular thalamocortical pathways. Nature Communications, 2022, 13, 2612.	5.8	8
2	Editorial: Recent Advances in Electroreception and Electrogeneration. Frontiers in Integrative Neuroscience, 2021, 15, 668677.	1.0	0
3	Population Coding of Natural Electrosensory Stimuli by Midbrain Neurons. Journal of Neuroscience, 2021, 41, 3822-3841.	1.7	11
4	Synergistic population coding of natural communication stimuli by hindbrain electrosensory neurons. Scientific Reports, 2021, 11, 10840.	1.6	6
5	The neural basis for violations of Weberâ€™s law in self-motion perception. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	10
6	Serotonergic Modulation of Sensory Neuron Activity and Behavior in Apteronotus albifrons. Frontiers in Integrative Neuroscience, 2020, 14, 38.	1.0	7
7	Lower Baseline Variability Gives Rise to Lower Detection Thresholds in Midbrain than Hindbrain Electrosensory Neurons. Neuroscience, 2020, 448, 43-54.	1.1	2
8	Neural Synchrony Gives Rise to Amplitude- and Duration-Invariant Encoding Consistent With Perception of Natural Communication Stimuli. Frontiers in Neuroscience, 2020, 14, 79.	1.4	9
9	Neuronal On- and Off-type heterogeneities improve population coding of envelope signals in the presence of stimulus-induced noise. Scientific Reports, 2020, 10, 10194.	1.6	5
10	Serotonin modulates optimized coding of natural stimuli through increased neural and behavioural responses via enhanced burst firing. Journal of Physiology, 2020, 598, 1573-1589.	1.3	9
11	Serotonin and sensory processing. Handbook of Behavioral Neuroscience, 2020, , 449-459.	0.7	3
12	Neural variability determines coding strategies for natural self-motion in macaque monkeys. ELife, 2020, 9, .	2.8	13
13	Novel Functions of Feedback in Electrosensory Processing. Frontiers in Integrative Neuroscience, 2019, 13, 52.	1.0	9
14	Descending pathways mediate adaptive optimized coding of natural stimuli in weakly electric fish. Science Advances, 2019, 5, eaax2211.	4.7	12
15	Negative optokinetic afternystagmus in larval zebrafish demonstrates set-point adaptation. Scientific Reports, 2019, 9, 19039.	1.6	4
16	Envelope Coding and Processing: Implications for Perception and Behavior. Springer Handbook of Auditory Research, 2019, , 251-277.	0.3	7
17	Coding strategies in the otolith system differ for translational head motion vs. static orientation relative to gravity. ELife, 2019, 8, .	2.8	39
18	Population Coding and Correlated Variability in Electrosensory Pathways. Frontiers in Integrative Neuroscience, 2018, 12, 56.	1.0	14

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19	Active Sensing: Constancy Requires Change. Current Biology, 2018, 28, R1391-R1394.	1.8	3
20	Weakly electric fish distinguish between envelope stimuli arising from different behavioral contexts. Journal of Experimental Biology, 2018, 221, .	0.8	13
21	Descending pathways generate perception of and neural responses to weak sensory input. PLoS Biology, 2018, 16, e2005239.	2.6	31
22	Serotonin Selectively Increases Detectability of Motion Stimuli in the Electrosensory System. ENeuro, 2018, 5, ENEURO.0013-18.2018.	0.9	9
23	Feedback optimizes neural coding and perception of natural stimuli. ELife, 2018, 7, .	2.8	23
24	Neuronal variability and tuning are balanced to optimize naturalistic self-motion coding in primate vestibular pathways. ELife, 2018, 7, .	2.8	28
25	The statistics of the vestibular input experienced during natural selfâ€motion differ between rodents and primates. Journal of Physiology, 2017, 595, 2751-2766.	1.3	62
26	SK channel subtypes enable parallel optimized coding of behaviorally relevant stimulus attributes: A review. Channels, 2017, 11, 281-304.	1.5	21
27	Envelope statistics of self-motion signals experienced by human subjects during everyday activities: Implications for vestibular processing. PLoS ONE, 2017, 12, e0178664.	1.1	36
28	Physiology of Tuberous Electrosensory Systems â˜†. , 2017, , .		4
29	Differential receptive field organizations give rise to nearly identical neural correlations across three parallel sensory maps in weakly electric fish. PLoS Computational Biology, 2017, 13, e1005716.	1.5	21
30	Electrosensory neural responses to natural electro-communication stimuli are distributed along a continuum. PLoS ONE, 2017, 12, e0175322.	1.1	8
31	Stimulus background influences phase invariant coding by correlated neural activity. ELife, 2017, 6, .	2.8	16
32	Burst Firing in the Electrosensory System of Gymnotiform Weakly Electric Fish: Mechanisms and Functional Roles. Frontiers in Computational Neuroscience, 2016, 10, 81.	1.2	24
33	Adaptation to second order stimulus features by electrosensory neurons causes ambiguity. Scientific Reports, 2016, 6, 28716.	1.6	23
34	Optimized Parallel Coding of Second-Order Stimulus Features by Heterogeneous Neural Populations. Journal of Neuroscience, 2016, 36, 9859-9872.	1.7	36
35	Self-motion evokes precise spike timing in the primate vestibular system. Nature Communications, 2016, 7, 13229.	5.8	36
36	Temporal decorrelation by SK channels enables efficient neural coding and perception of natural stimuli. Nature Communications, 2016, 7, 11353.	5.8	40

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37	Electrosensory processing in<i>Apteronotus albifrons</i>: implications for general and specific neural coding strategies across wave-type weakly electric fish species. Journal of Neurophysiology, 2016, 116, 2909-2921.	0.9	25
38	Neural correlations enable invariant coding and perception of natural stimuli in weakly electric fish. ELife, 2016, 5, .	2.8	38
39	Parallel sparse and dense information coding streams in the electrosensory midbrain. Neuroscience Letters, 2015, 607, 1-6.	1.0	20
40	The Increased Sensitivity of Irregular Peripheral Canal and Otolith Vestibular Afferents Optimizes their Encoding of Natural Stimuli. Journal of Neuroscience, 2015, 35, 5522-5536.	1.7	41
41	Neural Heterogeneities Determine Response Characteristics to Second-, but Not First-Order Stimulus Features. Journal of Neuroscience, 2015, 35, 3124-3138.	1.7	36
42	Activation of Parallel Fiber Feedback by Spatially Diffuse Stimuli Reduces Signal and Noise Correlations via Independent Mechanisms in a Cerebellum-Like Structure. PLoS Computational Biology, 2015, 11, e1004034.	1.5	25
43	Coding stimulus amplitude by correlated neural activity. Physical Review E, 2015, 91, 042717.	0.8	7
44	Coding of envelopes by correlated but not single-neuron activity requires neural variability. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 4791-4796.	3.3	40
45	Electrosensory Midbrain Neurons Display Feature Invariant Responses to Natural Communication Stimuli. PLoS Computational Biology, 2015, 11, e1004430.	1.5	26
46	Weakly electric fish give behavioral responses to envelopes naturally occurring during movement: implications for neural processing. Journal of Experimental Biology, 2014, 217, 1381-91.	0.8	40
47	Motion processing across multiple topographic maps in the electrosensory system. Physiological Reports, 2014, 2, e00253.	0.7	13
48	Neural correlations in the electrosensory lateral line lobe of the weakly electric fish, Apteronotus leptorhynchus: analysis of multi-channel recordings. BMC Neuroscience, 2014, 15, .	0.8	0
49	Changes in stimulus envelope reveal two classes of peripheral electrosensory neurons. BMC Neuroscience, 2014, 15, .	0.8	0
50	Differential neural responses to naturally occurring envelopes in the electrosensory system. BMC Neuroscience, 2014, 15, .	0.8	1
51	Statistics of the Vestibular Input Experienced during Natural Self-Motion: Implications for Neural Processing. Journal of Neuroscience, 2014, 34, 8347-8357.	1.7	98
52	Serotonin modulates electrosensory processing and behavior via 5-HT2-like receptors. Neuroscience, 2014, 271, 108-118.	1.1	23
53	Neural correlations code for stimulus variance. BMC Neuroscience, 2013, 14, P61.	0.8	0
54	Perception and coding of envelopes in weakly electric fishes. Journal of Experimental Biology, 2013, 216, 2393-2402.	0.8	51

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55	Strong Correlations between Sensitivity and Variability Give Rise to Constant Discrimination Thresholds across the Otolith Afferent Population. Journal of Neuroscience, 2013, 33, 11302-11313.	1.7	38
56	Neuromodulation of early electrosensory processing in gymnotiform weakly electric fish. Journal of Experimental Biology, 2013, 216, 2442-2450.	0.8	30
57	Serotonin selectively enhances perception and sensory neural responses to stimuli generated by same-sex conspecifics. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 19609-19614.	3.3	87
58	The Spatial Structure of Stimuli Shapes the Timescale of Correlations in Population Spiking Activity. PLoS Computational Biology, 2012, 8, e1002667.	1.5	30
59	The Vestibular System Implements a Linearâ€"Nonlinear Transformation In Order to Encode Self-Motion. PLoS Biology, 2012, 10, e1001365.	2.6	51
60	Parallel Coding of First- and Second-Order Stimulus Attributes by Midbrain Electrosensory Neurons. Journal of Neuroscience, 2012, 32, 5510-5524.	1.7	61
61	Bursts and Isolated Spikes Code for Opposite Movement Directions in Midbrain Electrosensory Neurons. PLoS ONE, 2012, 7, e40339.	1.1	19
62	Subâ€•and suprathreshold adaptation currents have opposite effects on frequency tuning. Journal of Physiology, 2012, 590, 4839-4858.	1.3	19
63	Parallel coding of first and second order stimulus attributes. BMC Neuroscience, 2012, 13, O13.	0.8	0
64	Neural heterogeneities influence envelope and temporal coding at the sensory periphery. Neuroscience, 2011, 172, 270-284.	1.1	55
65	Information transmission and detection thresholds in the vestibular nuclei: single neurons vs. population encoding. Journal of Neurophysiology, 2011, 105, 1798-1814.	0.9	66
66	Coding movement direction by burst firing in electrosensory neurons. Journal of Neurophysiology, 2011, 106, 1954-1968.	0.9	31
67	Sparse and dense coding of natural stimuli by distinct midbrain neuron subpopulations in weakly electric fish. Journal of Neurophysiology, 2011, 106, 3102-3118.	0.9	67
68	Efficient computation via sparse coding in electrosensory neural networks. Current Opinion in Neurobiology, 2011, 21, 752-760.	2.0	84
69	In vivo conditions influence the coding of stimulus features by bursts of action potentials. Journal of Computational Neuroscience, 2011, 31, 369-383.	0.6	16
70	Nonrenewal spike train statistics: causes and functional consequences on neural coding. Experimental Brain Research, 2011, 210, 353-371.	0.7	61
71	Coding motion direction by action potential patterns. BMC Neuroscience, 2011, 12, .	0.8	0
72	Burst dynamics enable contrast coding via synchrony. BMC Neuroscience, 2011, 12, .	0.8	0

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73	Inhibition of SK and M channel-mediated currents by 5-HT enables parallel processing by bursts and isolated spikes. Journal of Neurophysiology, 2011, 105, 1276-1294.	0.9	40
74	In vivo Conditions Induce Faithful Encoding of Stimuli by Reducing Nonlinear Synchronization in Vestibular Sensory Neurons. PLoS Computational Biology, 2011, 7, e1002120.	1.5	14
75	Coding signal strength by correlated activity in bursting neurons. BMC Neuroscience, 2010, 11, .	0.8	3
76	Neural Heterogeneities and the coding of contrast envelopes. BMC Neuroscience, 2010, 11, .	0.8	0
77	Subthreshold Membrane Conductances Enhance Directional Selectivity in Vertebrate Sensory Neurons. Journal of Neurophysiology, 2010, 104, 449-462.	0.9	28
78	Noise Shaping in Neural Populations with Global Delayed Feedback. Mathematical Modelling of Natural Phenomena, 2010, 5, 100-124.	0.9	4
79	Neural heterogeneities and stimulus properties affect burst coding in vivo. Neuroscience, 2010, 168, 300-313.	1.1	43
80	Differences in the Time Course of Short-Term Depression Across Receptive Fields Are Correlated With Directional Selectivity in Electrosensory Neurons. Journal of Neurophysiology, 2009, 102, 3270-3279.	0.9	40
81	Noise shaping in neural populations. Physical Review E, 2009, 79, 011914.	0.8	13
82	From Molecules to Behavior: Organismal-Level Regulation of Ion Channel Trafficking. PLoS Biology, 2009, 7, e1000211.	2.6	3
83	SK Channels Gate Information Processing In Vivo by Regulating an Intrinsic Bursting Mechanism Seen In Vitro. Journal of Neurophysiology, 2009, 102, 2273-2287.	0.9	52
84	Effects of Restraint and Immobilization on Electrosensory Behaviors of Weakly Electric Fish. ILAR Journal, 2009, 50, 361-372.	1.8	73
85	Sparse coding of natural communication signals in midbrain neurons. BMC Neuroscience, 2009, 10, .	0.8	8
86	Burst firing regulates correlated activity in neurons. BMC Neuroscience, 2009, 10, .	0.8	0
87	One cell, two bursting mechanisms. In vivo conditions change the in vitroburst in pyramidal cells of the ElectroLateral Lobe (ELL) of electric fish. BMC Neuroscience, 2008, 9, .	0.8	0
88	Ionic and neuromodulatory regulation of burst discharge controls frequency tuning. Journal of Physiology (Paris), 2008, 102, 195-208.	2.1	29
89	Temporal Processing Across Multiple Topographic Maps in the Electrosensory System. Journal of Neurophysiology, 2008, 100, 852-867.	0.9	102
90	Population Coding by Electrosensory Neurons. Journal of Neurophysiology, 2008, 99, 1825-1835.	0.9	79

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91	Neural Variability, Detection Thresholds, and Information Transmission in the Vestibular System. Journal of Neuroscience, 2007, 27, 771-781.	1.7	217
92	Muscarinic Receptors Control Frequency Tuning Through the Downregulation of an A-Type Potassium Current. Journal of Neurophysiology, 2007, 98, 1526-1537.	0.9	35
93	Threshold fatigue and information transfer. Journal of Computational Neuroscience, 2007, 23, 301-311.	0.6	58
94	Nonlinear Information Processing in a Model Sensory System. Journal of Neurophysiology, 2006, 95, 2933-2946.	0.9	83
95	Experimental and theoretical demonstration of noise shaping by interspike interval correlations (Invited Paper). , 2005, 5841, 150.		9
96	Electroreceptor neuron dynamics shape information transmission. Nature Neuroscience, 2005, 8, 673-678.	7.1	110
97	Delayed excitatory and inhibitory feedback shape neural information transmission. Physical Review E, 2005, 72, 051917.	0.8	49
98	Integrate-and-fire neurons with threshold noise: A tractable model of how interspike interval correlations affect neuronal signal transmission. Physical Review E, 2005, 72, 021911.	0.8	77
99	Feedback and Feedforward Control of Frequency Tuning to Naturalistic Stimuli. Journal of Neuroscience, 2005, 25, 5521-5532.	1.7	81
100	Noise Shaping by Interval Correlations Increases Information Transfer. Physical Review Letters, 2004, 92, 080601.	2.9	111
101	ISI CORRELATIONS AND INFORMATION TRANSFER. Fluctuation and Noise Letters, 2004, 04, L195-L205.	1.0	9
102	Parallel Processing of Sensory Input by Bursts and Isolated Spikes. Journal of Neuroscience, 2004, 24, 4351-4362.	1.7	179
103	To Burst or Not to Burst?. Journal of Computational Neuroscience, 2004, 17, 127-136.	0.6	44
104	Chaotic firing in the sinusoidally forced leaky integrate-and-fire model with threshold fatigue. Physica D: Nonlinear Phenomena, 2004, 192, 138-160.	1.3	27
105	Plastic and Nonplastic Pyramidal Cells Perform Unique Roles in a Network Capable of Adaptive Redundancy Reduction. Neuron, 2004, 41, 767-779.	3.8	130
106	Inhibitory feedback required for network oscillatory responses to communication but not prey stimuli. Nature, 2003, 421, 539-543.	13.7	152
107	Non-classical receptive field mediates switch in a sensory neuron's frequency tuning. Nature, 2003, 423, 77-81.	13.7	168
108	Interspike Interval Correlations, Memory, Adaptation, and Refractoriness in a Leaky Integrate-and-Fire Model with Threshold Fatigue. Neural Computation, 2003, 15, 253-278.	1.3	86

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109	The effects of spontaneous activity, background noise, and the stimulus ensemble on information transfer in neurons. Network: Computation in Neural Systems, 2003, 14, 803-824.	2.2	33
110	Correlations and Memory in Neurodynamical Systems. Lecture Notes in Physics, 2003, , 286-308.	0.3	8
111	The effects of spontaneous activity, background noise, and the stimulus ensemble on information transfer in neurons. Network: Computation in Neural Systems, 2003, 14, 803-24.	2.2	16
112	Receptive Field Organization Determines Pyramidal Cell Stimulus-Encoding Capability and Spatial Stimulus Selectivity. Journal of Neuroscience, 2002, 22, 4577-4590.	1.7	114
113	Negative Interspike Interval Correlations Increase the Neuronal Capacity for Encoding Time-Dependent Stimuli. Journal of Neuroscience, 2001, 21, 5328-5343.	1.7	191
114	Simple models of bursting and non-bursting P-type electroreceptors. Neurocomputing, 2001, 38-40, 129-139.	3.5	24
115	Suprathreshold Stochastic Firing Dynamics with Memory inP-Type Electroreceptors. Physical Review Letters, 2000, 85, 1576-1579.	2.9	110
116	The effects of spontaneous activity, background noise, and the stimulus ensemble on information transfer in neurons. , 0, .		19