

# Adriano Barra

## List of Publications by Year in descending order

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93  
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236925  
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38  
g-index

95  
all docs

95  
docs citations

95  
times ranked

1072  
citing authors

#	ARTICLE	IF	CITATIONS
1	Multitasking Associative Networks. Physical Review Letters, 2012, 109, 268101.	7.8	90
2	On the equivalence of Hopfield networks and Boltzmann Machines. Neural Networks, 2012, 34, 1-9.	5.9	88
3	Towards the development of human immune-system-on-a-chip platforms. Drug Discovery Today, 2019, 24, 517-525.	6.4	75
4	Organs on chip approach: a tool to evaluate cancer-immune cells interactions. Scientific Reports, 2017, 7, 12737.	3.3	69
5	Cancer-driven dynamics of immune cells in a microfluidic environment. Scientific Reports, 2014, 4, 6639.	3.3	68
6	Phase diagram of restricted Boltzmann machines and generalized Hopfield networks with arbitrary priors. Physical Review E, 2018, 97, 022310.	2.1	54
7	Equilibrium statistical mechanics of bipartite spin systems. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 245002.	2.1	53
8	The Mean Field Ising Model through Interpolating Techniques. Journal of Statistical Physics, 2008, 132, 787.	1.2	52
9	Multi-Species Mean Field Spin Glasses. Rigorous Results. Annales Henri Poincare, 2015, 16, 691-708.	1.7	49
10	The Replica Symmetric Approximation of the Analogical Neural Network. Journal of Statistical Physics, 2010, 140, 784-796.	1.2	46
11	Extensive Parallel Processing on Scale-Free Networks. Physical Review Letters, 2014, 113, 238106.	7.8	46
12	Retrieval Capabilities of Hierarchical Networks: From Dyson to Hopfield. Physical Review Letters, 2015, 114, 028103.	7.8	46
13	PARAMETER EVALUATION OF A SIMPLE MEAN-FIELD MODEL OF SOCIAL INTERACTION. Mathematical Models and Methods in Applied Sciences, 2009, 19, 1427-1439.	3.3	43
14	Immune networks: multitasking capabilities near saturation. Journal of Physics A: Mathematical and Theoretical, 2013, 46, 415003.	2.1	43
15	Phase transitions in restricted Boltzmann machines with generic priors. Physical Review E, 2017, 96, 042156.	2.1	40
16	Dreaming neural networks: Forgetting spurious memories and reinforcing pure ones. Neural Networks, 2019, 112, 24-40.	5.9	39
17	A mechanical approach to mean field spin models. Journal of Mathematical Physics, 2009, 50, .	1.1	36
18	An analysis of a large dataset on immigrant integration in Spain. The Statistical Mechanics perspective on Social Action. Scientific Reports, 2014, 4, 4174.	3.3	35

#	ARTICLE	IF	CITATIONS
19	Irreducible Free Energy Expansion and Overlaps Locking in Mean Field Spin Glasses. Journal of Statistical Physics, 2006, 123, 601-614.	1.2	34
20	A thermodynamic perspective of immune capabilities. Journal of Theoretical Biology, 2011, 287, 48-63.	1.7	34
21	Detecting cardiac pathologies via machine learning on heart-rate variability time series and related markers. Scientific Reports, 2020, 10, 8845.	3.3	34
22	A Hebbian approach to complex-network generation. Europhysics Letters, 2011, 94, 10002.	2.0	32
23	How glassy are neural networks?. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P07009.	2.3	32
24	Energy in self-directed B lymphocytes: A statistical mechanics perspective. Journal of Theoretical Biology, 2015, 375, 21-31.	1.7	28
25	Parallel retrieval of correlated patterns: From Hopfield networks to Boltzmann machines. Neural Networks, 2013, 38, 52-63.	5.9	27
26	A new mechanical approach to handle generalized Hopfield neural networks. Neural Networks, 2018, 106, 205-222.	5.9	27
27	Replica symmetry breaking in mean-field spin glasses through the Hamilton-Jacobi technique. Journal of Statistical Mechanics: Theory and Experiment, 2010, 2010, P09006.	2.3	26
28	Mean field spin glasses treated with PDE techniques. European Physical Journal B, 2013, 86, 1.	1.5	26
29	A statistical mechanics approach to autopoietic immune networks. Journal of Statistical Mechanics: Theory and Experiment, 2010, 2010, P07004.	2.3	25
30	A statistical mechanics approach to Granovetter theory. Physica A: Statistical Mechanics and Its Applications, 2012, 391, 3017-3026.	2.6	24
31	Mean field bipartite spin models treated with mechanical techniques. European Physical Journal B, 2014, 87, 1.	1.5	21
32	Stochastic dynamics for idiotypic immune networks. Physica A: Statistical Mechanics and Its Applications, 2010, 389, 5903-5911.	2.6	20
33	Notes on stochastic (bio)-logic gates: computing with allosteric cooperativity. Scientific Reports, 2015, 5, 9415.	3.3	20
34	Neural Networks Retrieving Boolean Patterns in a Sea of Gaussian Ones. Journal of Statistical Physics, 2017, 168, 1085-1104.	1.2	19
35	Neural Networks with a Redundant Representation: Detecting the Undetectable. Physical Review Letters, 2020, 124, 028301.	7.8	19
36	About the ergodic regime in the analogical Hopfield neural networks: Moments of the partition function. Journal of Mathematical Physics, 2008, 49, 125217.	1.1	18

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37	Toward a quantitative approach to migrants integration. Europhysics Letters, 2010, 89, 68001.	2.0	18
38	Generalized Guerra's interpolation schemes for dense associative neural networks. Neural Networks, 2020, 128, 254-267.	5.9	18
39	Annealing and Replica-Symmetry in Deep Boltzmann Machines. Journal of Statistical Physics, 2020, 180, 665-677.	1.2	18
40	Hierarchical neural networks perform both serial and parallel processing. Neural Networks, 2015, 66, 22-35.	5.9	17
41	The emergence of a concept in shallow neural networks. Neural Networks, 2022, 148, 232-253.	5.9	17
42	Criticality in diluted ferromagnets. Journal of Statistical Mechanics: Theory and Experiment, 2008, 2008, P10003.	2.3	16
43	Machine learning and statistical physics: preface. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 500401.	2.1	16
44	Interpolating the Sherrington-Kirkpatrick replica trick. Philosophical Magazine, 2012, 92, 78-97.	1.6	15
45	About a solvable mean field model of a Gaussian spin glass. Journal of Physics A: Mathematical and Theoretical, 2014, 47, 155002.	2.1	15
46	Stability properties and probability distributions of multi-overlaps in dilute spin glasses. Journal of Statistical Mechanics: Theory and Experiment, 2007, 2007, P08025-P08025.	2.3	14
47	Mean-field cooperativity in chemical kinetics. Theoretical Chemistry Accounts, 2012, 131, 1.	1.4	14
48	Collective behaviours: from biochemical kinetics to electronic circuits. Scientific Reports, 2013, 3, 3458.	3.3	14
49	Notes on the p-spin glass studied via Hamilton-Jacobi and smooth-cavity techniques. Journal of Mathematical Physics, 2012, 53, .	1.1	13
50	A stochastic approach for quantifying immigrant integration: the Spanish test case. New Journal of Physics, 2014, 16, 103034.	2.9	13
51	On quantum and relativistic mechanical analogues in mean-field spin models. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140589.	2.1	13
52	Exact solution of the van der Waals model in the critical region. Annals of Physics, 2015, 359, 290-299.	2.8	13
53	Metastable states in the hierarchical Dyson model drive parallel processing in the hierarchical Hopfield network. Journal of Physics A: Mathematical and Theoretical, 2015, 48, 015001.	2.1	13
54	Complete integrability of information processing by biochemical reactions. Scientific Reports, 2016, 6, 36314.	3.3	13

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55	Dreaming neural networks: rigorous results. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 083503.	2.3	13
56	Replica symmetry breaking in neural networks: a few steps toward rigorous results. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 415005.	2.1	13
57	Application of a Stochastic Modeling to Assess the Evolution of Tuberculous and Non-Tuberculous Mycobacterial Infection in Patients Treated with Tumor Necrosis Factor Inhibitors. PLoS ONE, 2013, 8, e55017.	2.5	13
58	Can persistent Epstein-Barr virus infection induce chronic fatigue syndrome as a Pavlov reflex of the immune response?. Journal of Biological Dynamics, 2012, 6, 740-762.	1.7	12
59	Parallel processing in immune networks. Physical Review E, 2013, 87, 042701.	2.1	12
60	On the effective initialisation for restricted Boltzmann machines via duality with Hopfield model. Neural Networks, 2021, 143, 314-326.	5.9	12
61	Equilibrium statistical mechanics on correlated random graphs. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P02027.	2.3	10
62	Retrieving infinite numbers of patterns in a spin-glass model of immune networks. Europhysics Letters, 2017, 117, 28003.	2.0	10
63	Positive-overlap transition and critical exponents in mean field spin glasses. Journal of Statistical Mechanics: Theory and Experiment, 2006, 2006, P11015-P11015.	2.3	9
64	Organization and evolution of synthetic idiotypic networks. Physical Review E, 2012, 85, 051909.	2.1	9
65	Free-Energy Bounds for Hierarchical Spin Models. Journal of Statistical Physics, 2014, 155, 211-222.	1.2	9
66	Topological properties of hierarchical networks. Physical Review E, 2015, 91, 062807.	2.1	9
67	Multitasking attractor networks with neuronal threshold noise. Neural Networks, 2014, 49, 19-29.	5.9	8
68	Social interaction effects on immigrant integration. Palgrave Communications, 2018, 4, .	4.7	8
69	Free energies of Boltzmann machines: self-averaging, annealed and replica symmetric approximations in the thermodynamic limit. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 033301.	2.3	8
70	A statistical inference approach to reconstruct intercellular interactions in cell migration experiments. Science Advances, 2020, 6, eaay2103.	10.3	8
71	Emerging Heterogeneities in Italian Customs and Comparison with Nearby Countries. PLoS ONE, 2015, 10, e0144643.	2.5	7
72	Fully Automated Computational Approach for Precisely Measuring Organelle Acidification with Optical pH Sensors. ACS Applied Materials & Interfaces, 2022, 14, 18133-18149.	8.0	7

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73	Overlap fluctuations from the Boltzmann random overlap structure. Journal of Mathematical Physics, 2006, 47, 103305.	1.1	6
74	Notes on ferromagnetic $p$ -spin and REM. Mathematical Methods in the Applied Sciences, 2009, 32, 783-797.	2.3	6
75	Notes on ferromagnetic diluted $p$ -spin model. Reports on Mathematical Physics, 2011, 68, 1-22.	0.8	6
76	Critical behavior of mean-field spin glasses on a dilute random graph. Journal of Physics A: Mathematical and Theoretical, 2008, 41, 215005.	2.1	5
77	The relativistic Hopfield network: Rigorous results. Journal of Mathematical Physics, 2019, 60, 033302.	1.1	4
78	New perspectives in the equilibrium statistical mechanics approach to social and economic sciences. Modeling and Simulation in Science, Engineering and Technology, 2010, , 137-174.	0.6	4
79	Outperforming RBM Feature-Extraction Capabilities by “Dreaming” Mechanism. IEEE Transactions on Neural Networks and Learning Systems, 2024, 35, 1172-1181.	11.3	4
80	On the mean-field spin glass transition. European Physical Journal B, 2008, 64, 119-124.	1.5	3
81	Dilution robustness for mean field ferromagnets. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P03028.	2.3	3
82	DRIVEN TRANSITIONS AT THE ONSET OF ERGODICITY BREAKING IN GAUGE-INVARIANT COMPLEX NETWORKS. International Journal of Modern Physics B, 2010, 24, 5995-6011.	2.0	3
83	Spin glass polynomial identities from entropic constraints. Journal of Physics A: Mathematical and Theoretical, 2012, 45, 485001.	2.1	3
84	Notes on the Polynomial Identities in Random Overlap Structures. Journal of Statistical Physics, 2012, 147, 351-374.	1.2	3
85	Assessing the role of migration as trade-facilitator using the statistical mechanics of cooperative systems. Palgrave Communications, 2016, 2, .	4.7	3
86	Complex Reaction Kinetics in Chemistry: A Unified Picture Suggested by Mechanics in Physics. Complexity, 2018, 2018, 1-16.	1.6	3
87	A NUMERICAL INVESTIGATION OF THE JAMMING TRANSITION IN TRAFFIC FLOW ON DILUTED PLANAR NETWORKS. International Journal of Modern Physics B, 2010, 24, 6351-6363.	2.0	2
88	Analogue neural networks on correlated random graphs. Journal of Physics A: Mathematical and Theoretical, 2012, 45, 365001.	2.1	2
89	On the Marchenko–Pastur law in analog bipartite spin-glasses. Journal of Physics A: Mathematical and Theoretical, 2019, 52, 254002.	2.1	2
90	FLUCTUATIONS INDUCE TRANSITIONS IN FRUSTRATED SPARSE NETWORKS. Fluctuation and Noise Letters, 2008, 08, L341-L348.	1.5	1

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91	An evolutionary game model for behavioral gambit of loyalists: Global awareness and risk-aversion. Europhysics Letters, 2018, 121, 38001.	2.0	1
92	Ferromagnetic Models for Cooperative Behavior: Revisiting Universality in Complex Phenomena. Springer INdAM Series, 2014, , 73-86.	0.5	0
93	Some Thoughts on the Ontogenesis in B-Cell Immune Networks. Springer Proceedings in Mathematics and Statistics, 2014, , 71-79.	0.2	0