

Riccardo Zecchina

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

125 papers	7,568 citations	40 h-index	85 g-index
134 ext. papers	9,362 ext. citations	4.7 avg, IF	5.96 L-index

#	Paper	IF	Citations
125	Direct-coupling analysis of residue coevolution captures native contacts across many protein families. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, E1293-301	11.5	837
124	Protein 3D structure computed from evolutionary sequence variation. <i>PLoS ONE</i> , 2011 , 6, e28766	3.7	709
123	Analytic and algorithmic solution of random satisfiability problems. <i>Science</i> , 2002 , 297, 812-5	33.3	660
122	Determining computational complexity from characteristic phase transitions. <i>Nature</i> , 1999 , 400, 133-137	50.4	482
121	Random K-satisfiability problem: from an analytic solution to an efficient algorithm. <i>Physical Review E</i> , 2002 , 66, 056126	2.4	257
120	Integrated transcriptional and competitive endogenous RNA networks are cross-regulated in permissive molecular environments. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013 , 110, 7154-9	11.5	239
119	Survey propagation: An algorithm for satisfiability. <i>Random Structures and Algorithms</i> , 2005 , 27, 201-226	0.8	235
118	Statistical mechanics of systems with heterogeneous agents: minority games. <i>Physical Review Letters</i> , 2000 , 84, 1824-7	7.4	195
117	Ferromagnetic ordering in graphs with arbitrary degree distribution. <i>European Physical Journal B</i> , 2002 , 28, 191-197	1.2	149
116	Statistical mechanics of the random K-satisfiability model. <i>Physical Review E</i> , 1997 , 56, 1357-1370	2.4	138
115	Two Solutions to Diluted p-Spin Models and XORSAT Problems. <i>Journal of Statistical Physics</i> , 2003 , 111, 505-533	1.5	137
114	Coloring random graphs. <i>Physical Review Letters</i> , 2002 , 89, 268701	7.4	129
113	Inverse statistical problems: from the inverse Ising problem to data science. <i>Advances in Physics</i> , 2017 , 66, 197-261	18.4	125
112	Genome-wide analysis identifies a functional association of Tet1 and Polycomb repressive complex 2 in mouse embryonic stem cells. <i>Genome Biology</i> , 2013 , 14, R91	18.3	115
111	Statistical mechanics methods and phase transitions in optimization problems. <i>Theoretical Computer Science</i> , 2001 , 265, 3-67	1.1	111
110	Threshold values of random K-SAT from the cavity method. <i>Random Structures and Algorithms</i> , 2006 , 28, 340-373	0.8	110
109	Entropy of the K-satisfiability problem. <i>Physical Review Letters</i> , 1996 , 76, 3881-3885	7.4	106

108	Bayesian inference of epidemics on networks via belief propagation. <i>Physical Review Letters</i> , 2014 , 112, 118701	7.4	103
107	Perturbation biology: inferring signaling networks in cellular systems. <i>PLoS Computational Biology</i> , 2013 , 9, e1003290	5	98
106	Learning by message passing in networks of discrete synapses. <i>Physical Review Letters</i> , 2006 , 96, 030201	7.4	96
105	Finding undetected protein associations in cell signaling by belief propagation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, 882-7	11.5	91
104	Exact solution of a modified El Farol's bar problem: Efficiency and the role of market impact. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2000 , 280, 522-553	3.3	90
103	Clustering of solutions in the random satisfiability problem. <i>Physical Review Letters</i> , 2005 , 94, 197205	7.4	89
102	Fast and accurate multivariate Gaussian modeling of protein families: predicting residue contacts and protein-interaction partners. <i>PLoS ONE</i> , 2014 , 9, e92721	3.7	89
101	Modelling Competing Endogenous RNA Networks. <i>PLoS ONE</i> , 2013 , 8, e66609	3.7	88
100	Simultaneous reconstruction of multiple signaling pathways via the prize-collecting steiner forest problem. <i>Journal of Computational Biology</i> , 2013 , 20, 124-36	1.7	78
99	A ferromagnet with a glass transition. <i>Europhysics Letters</i> , 2001 , 55, 465-471	1.6	76
98	Optimizing searches via rare events. <i>Physical Review Letters</i> , 2002 , 88, 178701	7.4	75
97	Simplest random K-satisfiability problem. <i>Physical Review E</i> , 2001 , 63, 026702	2.4	73
96	Shape similarity, better than semantic membership, accounts for the structure of visual object representations in a population of monkey inferotemporal neurons. <i>PLoS Computational Biology</i> , 2013 , 9, e1003167	5	67
95	Unreasonable effectiveness of learning neural networks: From accessible states and robust ensembles to basic algorithmic schemes. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, E7655-E7662	11.5	61
94	Polynomial iterative algorithms for coloring and analyzing random graphs. <i>Physical Review E</i> , 2003 , 68, 036702	2.4	60
93	Weight space structure and internal representations: A direct approach to learning and generalization in multilayer neural networks. <i>Physical Review Letters</i> , 1995 , 75, 2432-2435	7.4	56
92	Optimizing spread dynamics on graphs by message passing. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2013 , 2013, P09011	1.9	55
91	Efficient supervised learning in networks with binary synapses. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007 , 104, 11079-84	11.5	55

90	Exact solutions for diluted spin glasses and optimization problems. <i>Physical Review Letters</i> , 2001 , 87, 127209	7.4	54
89	Are financial markets efficient? Phase transition in the aggregation of information. <i>Complexity</i> , 2002 , 8, 20-23	1.6	49
88	2+p-SAT: Relation of typical-case complexity to the nature of the phase transition. <i>Random Structures and Algorithms</i> , 1999 , 15, 414-435	0.8	49
87	Hiding solutions in random satisfiability problems: a statistical mechanics approach. <i>Physical Review Letters</i> , 2002 , 88, 188701	7.4	45
86	Subdominant Dense Clusters Allow for Simple Learning and High Computational Performance in Neural Networks with Discrete Synapses. <i>Physical Review Letters</i> , 2015 , 115, 128101	7.4	44
85	Survey propagation as local equilibrium equations. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2004 , 2004, P06007	1.9	40
84	Entropy landscape and non-Gibbs solutions in constraint satisfaction problems. <i>Physical Review E</i> , 2008 , 77, 031118	2.4	38
83	Large deviations of cascade processes on graphs. <i>Physical Review E</i> , 2013 , 87, 062115	2.4	35
82	Belief Propagation for Weighted b-Matchings on Arbitrary Graphs and its Relation to Linear Programs with Integer Solutions. <i>SIAM Journal on Discrete Mathematics</i> , 2011 , 25, 989-1011	0.7	35
81	Statistical mechanics of steiner trees. <i>Physical Review Letters</i> , 2008 , 101, 037208	7.4	33
80	Inference of sparse combinatorial-control networks from gene-expression data: a message passing approach. <i>BMC Bioinformatics</i> , 2010 , 11, 355	3.6	32
79	Bridging the gaps in systems biology. <i>Molecular Genetics and Genomics</i> , 2014 , 289, 727-34	3.1	31
78	Containing Epidemic Outbreaks by Message-Passing Techniques. <i>Physical Review X</i> , 2014 , 4,	9.1	31
77	Entropy-SGD: biasing gradient descent into wide valleys. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2019 , 2019, 124018	1.9	30
76	Tricritical points in random combinatorics: the -SAT case. <i>Journal of Physics A</i> , 1998 , 31, 9209-9217		29
75	RNAs competing for microRNAs mutually influence their fluctuations in a highly non-linear microRNA-dependent manner in single cells. <i>Genome Biology</i> , 2017 , 18, 37	18.3	28
74	Local entropy as a measure for sampling solutions in constraint satisfaction problems. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2016 , 2016, 023301	1.9	28
73	Glassy dynamics near zero temperature. <i>Physical Review E</i> , 2000 , 62, R7567-70	2.4	27

72	Symmetry breaking in nonmonotonic neural networks. <i>Journal of Physics A</i> , 1993 , 26, L507-L513		27
71	Survey-propagation decimation through distributed local computations. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2005 , 2005, P11016-P11016	1.9	26
70	Combinatorial and topological approach to the 3D Ising model. <i>Journal of Physics A</i> , 2000 , 33, 741-761		26
69	Time scale separation and heterogeneous off-equilibrium dynamics in spin models over random graphs. <i>Physical Review E</i> , 1999 , 59, R1299-R1302	2.4	25
68	Efficiency of quantum vs. classical annealing in nonconvex learning problems. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018 , 115, 1457-1462	11.5	23
67	Core percolation and onset of complexity in boolean networks. <i>Physical Review Letters</i> , 2006 , 96, 018107	7.4	22
66	Stochastic matching problem. <i>Physical Review Letters</i> , 2011 , 106, 190601	7.4	21
65	Lossy data compression with random gates. <i>Physical Review Letters</i> , 2005 , 95, 038701	7.4	21
64	Exact solution of the Ising model on group lattices of genus $g > 1$. <i>Journal of Mathematical Physics</i> , 1996 , 37, 2796-2814	1.2	21
63	The patient-zero problem with noisy observations. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2014 , 2014, P10016	1.9	20
62	On the exactness of the cavity method for weighted b-matchings on arbitrary graphs and its relation to linear programs. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2008 , 2008, L06001	1.9	20
61	Comment on "Thermal model for adaptive competition in a market". <i>Physical Review Letters</i> , 2000 , 85, 5008	7.4	19
60	Properties of the Geometry of Solutions and Capacity of Multilayer Neural Networks with Rectified Linear Unit Activations. <i>Physical Review Letters</i> , 2019 , 123, 170602	7.4	18
59	Shaping the learning landscape in neural networks around wide flat minima. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020 , 117, 161-170	11.5	18
58	Aligning graphs and finding substructures by a cavity approach. <i>Europhysics Letters</i> , 2010 , 89, 37009	1.6	18
57	Inference algorithms for gene networks: a statistical mechanics analysis. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2008 , 2008, P12001	1.9	18
56	Pairs of SAT-assignments in random Boolean formula. <i>Theoretical Computer Science</i> , 2008 , 393, 260-279	1.1	18
55	Minimizing energy below the glass thresholds. <i>Physical Review E</i> , 2004 , 70, 036107	2.4	17

54	. <i>International Journal of Modern Physics B</i> , 2000 , 14, 943	1.1	17
53	Inference and learning in sparse systems with multiple states. <i>Physical Review E</i> , 2011 , 83, 056114	2.4	16
52	Learning to coordinate in a complex and nonstationary world. <i>Physical Review Letters</i> , 2001 , 87, 208701	7.4	16
51	Phase coexistence and finite-size scaling in random combinatorial problems. <i>Journal of Physics A</i> , 2001 , 34, 4615-4626		15
50	A rigorous analysis of the cavity equations for the minimum spanning tree. <i>Journal of Mathematical Physics</i> , 2008 , 49, 125206	1.2	14
49	Statistical mechanics of asset markets with private information. <i>Quantitative Finance</i> , 2001 , 1, 203-211	1.6	14
48	Analytical and numerical study of internal representations in multilayer neural networks with binary weights. <i>Physical Review E</i> , 1996 , 54, 717-736	2.4	14
47	A Three-Threshold Learning Rule Approaches the Maximal Capacity of Recurrent Neural Networks. <i>PLoS Computational Biology</i> , 2015 , 11, e1004439	5	13
46	An externally modulated, noise-driven switch for the regulation of SPI1 in <i>Salmonella enterica</i> serovar Typhimurium. <i>Journal of Mathematical Biology</i> , 2011 , 63, 637-62	2	12
45	Learning may need only a few bits of synaptic precision. <i>Physical Review E</i> , 2016 , 93, 052313	2.4	11
44	Performance of a cavity-method-based algorithm for the prize-collecting Steiner tree problem on graphs. <i>Physical Review E</i> , 2012 , 86, 026706	2.4	11
43	The computational core and fixed point organization in Boolean networks. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2006 , 2006, P03002-P03002	1.9	11
42	Encoding for the Blackwell Channel with Reinforced Belief Propagation 2007 ,		11
41	Message-Passing Algorithms for Non-Linear Nodes and Data Compression. <i>Complexus</i> , 2006 , 3, 58-65		11
40	Bicolouring random hypergraphs. <i>Journal of Physics A</i> , 2003 , 36, 11037-11053		10
39	Role of Synaptic Stochasticity in Training Low-Precision Neural Networks. <i>Physical Review Letters</i> , 2018 , 120, 268103	7.4	10
38	Stochastic optimization by message passing. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2011 , 2011, P11009	1.9	9
37	Complexity transitions in global algorithms for sparse linear systems over finite fields. <i>Journal of Physics A</i> , 2002 , 35, 7559-7574		9

36	Response functions improving performance in analog attractor neural networks. <i>Physical Review E</i> , 1994 , 49, R1823-R1826	2.4	9
35	Statistical physics approach to graphical games: local and global interactions. <i>European Physical Journal B</i> , 2011 , 81, 327-339	1.2	8
34	Sign problem in the Bethe approximation. <i>Physical Review B</i> , 2012 , 86,	3.3	8
33	ON THE GROUND STATE STRUCTURE OF P AND NP-COMPLETE RANDOM DECISION PROBLEMS. <i>Modern Physics Letters B</i> , 1999 , 13, 1-12	1.6	8
32	Statistical mechanics of budget-constrained auctions. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2009 , 2009, P07002	1.9	7
31	Clustering with shallow trees. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2009 , 2009, P12010	0.9	7
30	Gene-network inference by message passing. <i>Journal of Physics: Conference Series</i> , 2008 , 95, 012016	0.3	7
29	Source coding by efficient selection of ground-state clusters. <i>Physical Review E</i> , 2005 , 72, 015103	2.4	7
28	Efficient LDPC codes over GF(q) for lossy data compression 2009 ,		6
27	Efficient data compression from statistical physics of codes over finite fields. <i>Physical Review E</i> , 2011 , 84, 051111	2.4	6
26	Two-boson Hamiltonian for Shor's algorithm. <i>Physical Review A</i> , 1997 , 55, 2594-2597	2.6	6
25	Statistical mechanics of combinatorial auctions. <i>Physical Review Letters</i> , 2006 , 97, 128701	7.4	6
24	Generalized fullerene-like lattices, and itinerant interacting electrons. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1993 , 199, 539-570	3.3	6
23	Survey and Belief Propagation on Random K-SAT. <i>Lecture Notes in Computer Science</i> , 2004 , 519-528	0.9	6
22	Geometry, topology, and physics of non-Abelian lattices. <i>Rivista Del Nuovo Cimento</i> , 1998 , 21, 1-56	3.5	5
21	Simultaneous Reconstruction of Multiple Signaling Pathways via the Prize-Collecting Steiner Forest Problem. <i>Lecture Notes in Computer Science</i> , 2012 , 287-301	0.9	5
20	Superfluidity of the Bose-Hubbard model: su (1,1) linearization scheme. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1996 , 230, 300-312	3.3	4
19	Sharing information to reconstruct patient-specific pathways in heterogeneous diseases. <i>Pacific Symposium on Biocomputing Pacific Symposium on Biocomputing</i> , 2014 , 39-50	1.3	4

18	A Prize-Collecting Steiner Tree Approach for Transduction Network Inference. <i>Lecture Notes in Computer Science</i> , 2009 , 83-95	0.9	4
17	Theory and learning protocols for the material tempotron model. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2013 , 2013, P12013	1.9	4
16	Clustering of solutions in the symmetric binary perceptron. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2020 , 2020, 073303	1.9	4
15	Propagation of external regulation and asynchronous dynamics in random Boolean networks. <i>Chaos</i> , 2007 , 17, 026109	3.3	3
14	Counting over non-planar graphs. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2001 , 302, 100-109	3.3	3
13	Weight Space Structure and Internal Representations: A Direct Approach to Learning and Generalization in Multilayer Neural Networks. <i>Physical Review Letters</i> , 1996 , 76, 2205-2205	7.4	3
12	Wide flat minima and optimal generalization in classifying high-dimensional Gaussian mixtures. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2020 , 2020, 124012	1.9	2
11	From statistical inference to a differential learning rule for stochastic neural networks. <i>Interface Focus</i> , 2018 , 8, 20180033	3.9	2
10	From inverse problems to learning: a Statistical Mechanics approach. <i>Journal of Physics: Conference Series</i> , 2018 , 955, 012001	0.3	1
9	Cavity approach to sphere packing in Hamming space. <i>Physical Review E</i> , 2012 , 85, 021106	2.4	1
8	FROM STATISTICAL PHYSICS METHODS TO ALGORITHMS. <i>International Journal of Modern Physics B</i> , 2006 , 20, 2814-2823	1.1	1
7	Construction and VHDL Implementation of a Fully Local Network with Good Reconstruction Properties of the Inputs. <i>Lecture Notes in Computer Science</i> , 2005 , 385-394	0.9	1
6	Unveiling the Structure of Wide Flat Minima in Neural Networks.. <i>Physical Review Letters</i> , 2021 , 127, 278301	7.4	1
5	Entropic gradient descent algorithms and wide flat minima*. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2021 , 2021, 124015	1.9	1
4	Native state of natural proteins optimizes local entropy.. <i>Physical Review E</i> , 2021 , 104, 064117	2.4	0
3	Word Problem and Decimation Procedure in the Ising Model on Infinite Hyperbolic Group Lattices. <i>International Journal of Modern Physics B</i> , 1997 , 11, 2803-2831	1.1	
2	Statistical physics, optimization and source coding 2005 , 64, 1161-1173		
1	Statistical Mechanics and Combinatorial Problems 2006 , 50-55		

