Florent Krzakala

List of Publications by Year
in descending order

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131 papers	6,042 citations	101543 36 h-index	85541 71 g-index
131 all docs	131 docs citations	131 times ranked	2852 citing authors

#	Article	IF	Citations
1	The Spiked Matrix Model With Generative Priors. IEEE Transactions on Information Theory, 2021, 67, 1156-1181.	2.4	6
2	Epidemic mitigation by statistical inference from contact tracing data. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	15
3	Dynamical mean-field theory for stochastic gradient descent in Gaussian mixture classification*. Journal of Statistical Mechanics: Theory and Experiment, 2021, 2021, 124008.	2.3	4
4	Generalisation error in learning with random features and the hidden manifold model*. Journal of Statistical Mechanics: Theory and Experiment, 2021, 2021, 124013.	2.3	14
5	Optical Reservoir Computing Using Multiple Light Scattering for Chaotic Systems Prediction. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-12.	2.9	58
6	Large-Scale Optical Reservoir Computing for Spatiotemporal Chaotic Systems Prediction. Physical Review X, 2020, 10, .	8.9	67
7	Modeling the Influence of Data Structure on Learning in Neural Networks: The Hidden Manifold Model. Physical Review X, 2020, 10, .	8.9	40
8	Kernel Computations from Large-Scale Random Features Obtained by Optical Processing Units. , 2020, , .		5
9	Marvels and Pitfalls of the Langevin Algorithm in Noisy High-Dimensional Inference. Physical Review X, 2020, 10, .	8.9	13
10	On the universality of noiseless linear estimation with respect to the measurement matrix. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 164001.	2.1	4
11	Blind calibration for compressed sensing: state evolution and an online algorithm. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 334004.	2.1	0
12	Dynamics of stochastic gradient descent for two-layer neural networks in the teacherâ€“student setup*. Journal of Statistical Mechanics: Theory and Experiment, 2020, 2020, 124010.	2.3	16
13	Mutual Information and Optimality of Approximate Message-Passing in Random Linear Estimation. IEEE Transactions on Information Theory, 2020, 66, 4270-4303.	2.4	34
14	Optical reservoir computing for high-dimensional spatio-temporal chaotic systems prediction (Conference Presentation). , 2020, , .		1
15	Fundamental limits of detection in the spiked Wigner model. Annals of Statistics, 2020, 48, .	2.6	11
16	Spectral Method for Multiplexed Phase Retrieval and Application in Optical Imaging in Complex Media. , 2019, , .		2
17	Approximate survey propagation for statistical inference. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 023401.	2.3	15
18	Optimal errors and phase transitions in high-dimensional generalized linear models. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 5451-5460.	7.1	88

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19	Decoding from Pooled Data: Sharp Information-Theoretic Bounds. SIAM Journal on Mathematics of Data Science, 2019, 1, 161-188.	1.8	4
20	Blind Calibration for Sparse Regression: A State Evolution Analysis. , 2019, , .		0
21	The committee machine: computational to statistical gaps in learning a two-layers neural network. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 124023.	2.3	12
22	High-temperature expansions and message passing algorithms. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 113301.	2.3	17
23	Entropy and mutual information in models of deep neural networks*. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 124014.	2.3	34
24	Decoding From Pooled Data: Phase Transitions of Message Passing. IEEE Transactions on Information Theory, 2019, 65, 572-585.	2.4	8
25	Estimation in the Spiked Wigner Model: A Short Proof of the Replica Formula. , 2018, , .		19
26	The Mutual Information in Random Linear Estimation Beyond i.i.d. Matrices. , 2018, , .		32
27	Deterministic and Generalized Framework for Unsupervised Learning with Restricted Boltzmann Machines. Physical Review X, 2018, 8, .	8.9	14
28	Scaling Up Echo-State Networks With Multiple Light Scattering. , 2018, , .		14
29	Information-theoretic thresholds from the cavity method. Advances in Mathematics, 2018, 333, 694-795.	1.1	44
30	Fast Randomized Semi-Supervised Clustering. Journal of Physics: Conference Series, 2018, 1036, 012015.	0.4	1
31	Performance Limits for Noisy Multimeasurement Vector Problems. IEEE Transactions on Signal Processing, 2017, 65, 2444-2454.	5.3	13
32	Statistical and computational phase transitions in spiked tensor estimation. , 2017, , .		44
33	Approximate Message-Passing Decoder and Capacity Achieving Sparse Superposition Codes. IEEE Transactions on Information Theory, 2017, 63, 4894-4927.	2.4	72
34	Constrained low-rank matrix estimation: phase transitions, approximate message passing and applications. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 073403.	2.3	52
35	Multi-layer generalized linear estimation. , 2017, , .		24
36	Spectral bounds for the Ising ferromagnet on an arbitrary given graph. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 053403.	2.3	2

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37	Decoding from pooled data: Phase transitions of message passing. , 2017, , .		1
38	Streaming Bayesian inference: Theoretical limits and mini-batch approximate message-passing. , 2017, , .		5
39	Information-theoretic thresholds from the cavity method. , 2017, , .		13
40	Approximate message passing with restricted Boltzmann machine priors. Journal of Statistical Mechanics: Theory and Experiment, 2016, 2016, 073401.	2.3	18
41	Inferring sparsity: Compressed sensing using generalized restricted Boltzmann machines. , 2016, , .		10
42	Mutual information in rank-one matrix estimation. , 2016, , .		34
43	Intensity-only optical compressive imaging using a multiply scattering material and a double phase retrieval approach. , 2016, , .		16
44	Random projections through multiple optical scattering: Approximating Kernels at the speed of light. , 2016, , .		45
45	Statistical physics of inference: thresholds and algorithms. Advances in Physics, 2016, 65, 453-552.	14.4	211
46	Fast Phase Retrieval for High Dimensions: A Block-Based Approach. IEEE Signal Processing Letters, 2016, 23, 1179-1182.	3.6	5
47	Phase transitions and optimal algorithms in high-dimensional Gaussian mixture clustering. , 2016, , .		15
48	The mutual information in random linear estimation. , 2016, , .		52
49	Clustering from sparse pairwise measurements. , 2016, , .		4
50	Phase Transitions and Sample Complexity in Bayes-Optimal Matrix Factorization. IEEE Transactions on Information Theory, 2016, 62, 4228-4265.	2.4	58
51	Scampi: a robust approximate message-passing framework for compressive imaging. Journal of Physics: Conference Series, 2016, 699, 012013.	0.4	1
52	Spectral detection on sparse hypergraphs. , 2015, , .		28
53	Phase recovery from a Bayesian point of view: The variational approach. , 2015, , .		17
54	Spectral detection in the censored block model. , 2015, , .		24

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55	MMSE of probabilistic low-rank matrix estimation: Universality with respect to the output channel. , 2015, , .		39
56	Approximate message-passing with spatially coupled structured operators, with applications to compressed sensing and sparse superposition codes. Journal of Statistical Mechanics: Theory and Experiment, 2015, 2015, P05013.	2.3	36
57	Phase transitions in sparse PCA. , 2015, , .		31
58	Adaptive damping and mean removal for the generalized approximate message passing algorithm. , 2015, , .		92
59	Reference-less measurement of the transmission matrix of a highly scattering material using a DMD and phase retrieval techniques. Optics Express, 2015, 23, 11898.	3.4	176
60	Statistical Physics, Optimization, Inference, and Message-Passing Algorithms. , 2015, , .		6
61	Reweighted Belief Propagation and Quiet Planting for Random K-SAT. Journal of Satisfiability, Boolean Modeling and Computation, 2014, 8, 149-171.	1.2	9
62	Model selection for degree-corrected block models. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P05007.	2.3	69
63	Variational free energies for compressed sensing. , 2014, , .		28
64	Belief-propagation-guided Monte-Carlo sampling. Physical Review B, 2014, 89, .	3.2	7
65	On convergence of approximate message passing. , 2014, , .		70
66	Replica analysis and approximate message passing decoder for superposition codes. , 2014, , .		33
67	Spectral density of the non-backtracking operator on random graphs. Europhysics Letters, 2014, 107, 50005.	2.0	14
68	The quantum adiabatic algorithm applied to random optimization problems: The quantum spin glass perspective. Physics Reports, 2013, 523, 127-205.	25.6	103
69	Robust error correction for real-valued signals via message-passing decoding and spatial coupling. , 2013, , .		4
70	Spectral redemption in clustering sparse networks. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 20935-20940.	7.1	392
71	Fragility and hysteretic creep in frictional granular jamming. Physical Review E, 2013, 87, 042205.	2.1	28
72	Compressed sensing under matrix uncertainty: Optimum thresholds and robust approximate message passing. , 2013, , .		9

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73	Phase diagram and approximate message passing for blind calibration and dictionary learning. , 2013, , .		17
74	Belief-propagation reconstruction for discrete tomography. Inverse Problems, 2013, 29, 035003.	2.0	20
75	Non-adaptive pooling strategies for detection of rare faulty items. , 2013, , .		3
76	The hard-core model on random graphs revisited. Journal of Physics: Conference Series, 2013, 473, 012021.	0.4	19
77	Performance of simulated annealing inp-spin glasses. Journal of Physics: Conference Series, 2013, 473, 012022.	0.4	11
78	Compressed sensing of approximately-sparse signals: Phase transitions and optimal reconstruction. , 2012, , .		10
79	Ultrametric probe of the spin-glass state in a field. Physical Review B, 2012, 86, .	3.2	11
80	Comparative study for inference of hidden classes in stochastic block models. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P12021.	2.3	24
81	The nature of the different zero-temperature phases in discrete two-dimensional spin glasses: entropy, universality, chaos and cascades in the renormalization group flow. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, L01001.	2.3	18
82	Following states in temperature in the sphericals+p-spin glass model. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P07002.	2.3	9
83	Probabilistic reconstruction in compressed sensing: algorithms, phase diagrams, and threshold achieving matrices. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P08009.	2.3	178
84	On the relation between kinetically constrained models of glass dynamics and the random first-order transition theory. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P06013.	2.3	12
85	Statistical-Physics-Based Reconstruction in Compressed Sensing. Physical Review X, 2012, 2, .	8.9	169
86	Quiet Planting in the Locked Constraint Satisfaction Problems. SIAM Journal on Discrete Mathematics, 2011, 25, 750-770.	0.8	24
87	On melting dynamics and the glass transition. I. Glassy aspects of melting dynamics. Journal of Chemical Physics, 2011, 134, 034512.	3.0	18
88	No spin glass phase in the ferromagnetic random-field random-temperature scalar Ginzburgâ€“Landau model. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 042003.	2.1	18
89	Random-fieldp-spin-glass model on regular random graphs. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 185002.	2.1	8
90	Asymptotic analysis of the stochastic block model for modular networks and its algorithmic applications. Physical Review E, 2011, 84, 066106.	2.1	427

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91	Inference and Phase Transitions in the Detection of Modules in Sparse Networks. Physical Review Letters, 2011, 107, 065701.	7.8	248
92	On melting dynamics and the glass transition. II. Glassy dynamics as a melting process. Journal of Chemical Physics, 2011, 134, 034513.	3.0	25
93	Energy gaps in quantum first-order mean-fieldâ€“like transitions: The problems that quantum annealing cannot solve. Europhysics Letters, 2010, 89, 40004.	2.0	94
94	Quantum Annealing of Hard Problems. Progress of Theoretical Physics Supplement, 2010, 184, 290-303.	0.1	9
95	First-Order Transitions and the Performance of Quantum Algorithms in Random Optimization Problems. Physical Review Letters, 2010, 104, 207206.	7.8	74
96	Generalization of the cavity method for adiabatic evolution of Gibbs states. Physical Review B, 2010, 81, .	3.2	57
97	Inference in particle tracking experiments by passing messages between images. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 7663-7668.	7.1	40
98	Following Gibbs states adiabatically â€"The energy landscape of mean-field glassy systems. Europhysics Letters, 2010, 90, 66002.	2.0	46
99	Elusive Spin-Glass Phase in the Random Field Ising Model. Physical Review Letters, 2010, 104, 207208.	7.8	49
100	Hiding Quiet Solutions in Random Constraint Satisfaction Problems. Physical Review Letters, 2009, 102, 238701.	7.8	87
101	Jamming versus Glass Transitions. Physical Review Letters, 2009, 103, 025701.	7.8	131
102	Constraint optimisation and landscapes. European Physical Journal B, 2008, 64, 563-565.	1.5	2
103	Lattice Model for Colloidal Gels and Glasses. Physical Review Letters, 2008, 101, 165702.	7.8	33
104	Simple Glass Models and Their Quantum Annealing. Physical Review Letters, 2008, 101, 147204.	7.8	92
105	Behavior of Ising Spin Glasses in a Magnetic Field. Physical Review Letters, 2008, 100, 197202.	7.8	60
106	Potts glass on random graphs. Europhysics Letters, 2008, 81, 57005.	2.0	42
107	Path-integral representation for quantum spin models: Application to the quantum cavity method and Monte Carlo simulations. Physical Review B, 2008, 78, .	3.2	60
108	Comment on â€œUltrametricity in the Edwards-Anderson Modelâ€• Physical Review Letters, 2008, 100, 159701; discussion 159702.	7.8	5

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109	Phase transitions and computational difficulty in random constraint satisfaction problems. Journal of Physics: Conference Series, 2008, 95, 012012.	0.4	12
110	Phase transitions in the coloring of random graphs. Physical Review E, 2007, 76, 031131.	2.1	227
111	Temperature and Disorder Chaos in Three-Dimensional Ising Spin Glasses. Physical Review Letters, 2007, 98, 017201.	7.8	53
112	Gibbs states and the set of solutions of random constraint satisfaction problems. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 10318-10323.	7.1	390
113	Landscape analysis of constraint satisfaction problems. Physical Review E, 2007, 76, 021122.	2.1	121
114	Critical ageing of Ising ferromagnets relaxing from an ordered state. Journal of Statistical Mechanics: Theory and Experiment, 2006, 2006, P06016-P06016.	2.3	30
115	Aging, memory and rejuvenation: some lessons from simple models. Journal of Physics: Conference Series, 2006, 40, 42-49.	0.4	8
116	Spin glass models with ferromagnetically biased couplings on the Bethe lattice: analytic solutions and numerical simulations. European Physical Journal B, 2005, 47, 99-108.	1.5	29
117	Zero Temperature Phase Diagram of Finite Connectivity Spin Glasses. Progress of Theoretical Physics Supplement, 2005, 157, 77-81.	0.1	6
118	Disorder chaos in spin glasses. Europhysics Letters, 2005, 72, 472-478.	2.0	30
119	Glassy Properties of the Kawasaki Dynamics of Two-Dimensional Ferromagnets. Physical Review Letters, 2005, 94, 077204.	7.8	17
120	Threshold values, stability analysis, and high-qasymptotics for the coloring problem on random graphs. Physical Review E, 2004, 70, 046705.	2.1	52
121	Local excitations in mean-field spin glasses. Europhysics Letters, 2004, 66, 729-735.	2.0	3
122	Energy exponents and corrections to scaling in Ising spin glasses. Physical Review B, 2003, 68, .	3.2	84
123	Absence of an Equilibrium Ferromagnetic Spin-Glass Phase in Three Dimensions. Physical Review Letters, 2002, 89, 267202.	7.8	8
124	Nature of the glassy phase of RNA secondary structure. Europhysics Letters, 2002, 57, 752-758.	2.0	30
125	Chaotic temperature dependence in a model of spin glasses. European Physical Journal B, 2002, 28, 199-208.	1.5	34
126	The secondary structure of RNA under tension. European Physical Journal E, 2002, 9, 67-77.	1.6	34

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127	Discrete energy landscapes and replica symmetry breaking at zero temperature. Europhysics Letters, 2001, 53, 749-755.	2.0	12
128	Zero-Temperature Responses of a 3D Spin Glass in a Magnetic Field. Physical Review Letters, 2001, 87, 197204.	7.8	36
129	Large-scale low-energy excitations in 3-d spin glasses. European Physical Journal B, 2000, 18, 467-477.	1.5	30
130	Spin and Link Overlaps in Three-Dimensional Spin Glasses. Physical Review Letters, 2000, 85, 3013-3016.	7.8	136
131	Robust Phase Retrieval with the Swept Approximate Message Passing (prSAMP) Algorithm. Image Processing on Line, 0, 7, 43-55.	0.0	8