Florent Krzakala

List of Publications by Year
in descending order

Version: 2024-02-01

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	Asymptotic analysis of the stochastic block model for modular networks and its algorithmic applications. Physical Review E, 2011, 84, 066106.	2.1	427
2	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
3	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
4	Inference and Phase Transitions in the Detection of Modules in Sparse Networks. Physical Review Letters, 2011, 107, 065701.	7.8	248
5	Phase transitions in the coloring of random graphs. Physical Review E, 2007, 76, 031131.	2.1	227
6	Statistical physics of inference: thresholds and algorithms. Advances in Physics, 2016, 65, 453-552.	14.4	211
7	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
8	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
9	Statistical-Physics-Based Reconstruction in Compressed Sensing. Physical Review X, 2012, 2, .	8.9	169
10	Spin and Link Overlaps in Three-Dimensional Spin Glasses. Physical Review Letters, 2000, 85, 3013-3016.	7.8	136
11	Jamming versus Glass Transitions. Physical Review Letters, 2009, 103, 025701.	7.8	131
12	Landscape analysis of constraint satisfaction problems. Physical Review E, 2007, 76, 021122.	2.1	121
13	The quantum adiabatic algorithm applied to random optimization problems: The quantum spin glass perspective. Physics Reports, 2013, 523, 127-205.	25.6	103
14	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
15	Simple Glass Models and Their Quantum Annealing. Physical Review Letters, 2008, 101, 147204.	7.8	92
16	Adaptive damping and mean removal for the generalized approximate message passing algorithm. , 2015, , .		92
17	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
18	Hiding Quiet Solutions in Random Constraint Satisfaction Problems. Physical Review Letters, 2009, 102, 238701.	7.8	87

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19	Energy exponents and corrections to scaling in Ising spin glasses. Physical Review B, 2003, 68, .	3.2	84
20	First-Order Transitions and the Performance of Quantum Algorithms in Random Optimization Problems. Physical Review Letters, 2010, 104, 207206.	7.8	74
21	Approximate Message-Passing Decoder and Capacity Achieving Sparse Superposition Codes. IEEE Transactions on Information Theory, 2017, 63, 4894-4927.	2.4	72
22	On convergence of approximate message passing. , 2014, , .		70
23	Model selection for degree-corrected block models. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P05007.	2.3	69
24	Large-Scale Optical Reservoir Computing for Spatiotemporal Chaotic Systems Prediction. Physical Review X, 2020, 10, .	8.9	67
25	Behavior of Ising Spin Glasses in a Magnetic Field. Physical Review Letters, 2008, 100, 197202.	7.8	60
26	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
27	Phase Transitions and Sample Complexity in Bayes-Optimal Matrix Factorization. IEEE Transactions on Information Theory, 2016, 62, 4228-4265.	2.4	58
28	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
29	Generalization of the cavity method for adiabatic evolution of Gibbs states. Physical Review B, 2010, 81, .	3.2	57
30	Temperature and Disorder Chaos in Three-Dimensional Ising Spin Glasses. Physical Review Letters, 2007, 98, 017201.	7.8	53
31	Threshold values, stability analysis, and high-qasymptotics for the coloring problem on random graphs. Physical Review E, 2004, 70, 046705.	2.1	52
32	The mutual information in random linear estimation. , 2016, , .		52
33	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
34	Elusive Spin-Glass Phase in the Random Field Ising Model. Physical Review Letters, 2010, 104, 207208.	7.8	49
35	Following Gibbs states adiabatically â€"The energy landscape of mean-field glassy systems. Europhysics Letters, 2010, 90, 66002.	2.0	46
36	Random projections through multiple optical scattering: Approximating Kernels at the speed of light. , 2016, , .		45

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37	Statistical and computational phase transitions in spiked tensor estimation. , 2017, , .		44
38	Information-theoretic thresholds from the cavity method. Advances in Mathematics, 2018, 333, 694-795.	1.1	44
39	Potts glass on random graphs. Europhysics Letters, 2008, 81, 57005.	2.0	42
40	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
41	Modeling the Influence of Data Structure on Learning in Neural Networks: The Hidden Manifold Model. Physical Review X, 2020, 10, .	8.9	40
42	MMSE of probabilistic low-rank matrix estimation: Universality with respect to the output channel. , 2015, , .		39
43	Zero-Temperature Responses of a 3D Spin Glass in a Magnetic Field. Physical Review Letters, 2001, 87, 197204.	7.8	36
44	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
45	Chaotic temperature dependence in a model of spin glasses. European Physical Journal B, 2002, 28, 199-208.	1.5	34
46	The secondary structure of RNA under tension. European Physical Journal E, 2002, 9, 67-77.	1.6	34
47	Mutual information in rank-one matrix estimation. , 2016, , .		34
48	Entropy and mutual information in models of deep neural networks*. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 124014.	2.3	34
49	Mutual Information and Optimality of Approximate Message-Passing in Random Linear Estimation. IEEE Transactions on Information Theory, 2020, 66, 4270-4303.	2.4	34
50	Lattice Model for Colloidal Gels and Glasses. Physical Review Letters, 2008, 101, 165702.	7.8	33
51	Replica analysis and approximate message passing decoder for superposition codes. , 2014, , .		33
52	The Mutual Information in Random Linear Estimation Beyond i.i.d. Matrices. , 2018, , .		32
53	Phase transitions in sparse PCA. , 2015, , .		31
54	Large-scale low-energy excitations in 3-d spin glasses. European Physical Journal B, 2000, 18, 467-477.	1.5	30

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55	Nature of the glassy phase of RNA secondary structure. Europhysics Letters, 2002, 57, 752-758.	2.0	30
56	Disorder chaos in spin glasses. Europhysics Letters, 2005, 72, 472-478.	2.0	30
57	Critical ageing of Ising ferromagnets relaxing from an ordered state. Journal of Statistical Mechanics: Theory and Experiment, 2006, 2006, P06016-P06016.	2.3	30
58	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
59	Fragility and hysteretic creep in frictional granular jamming. Physical Review E, 2013, 87, 042205.	2.1	28
60	Variational free energies for compressed sensing. , 2014, , .		28
61	Spectral detection on sparse hypergraphs. , 2015, , .		28
62	On melting dynamics and the glass transition. II. Glassy dynamics as a melting process. Journal of Chemical Physics, 2011, 134, 034513.	3.0	25
63	Quiet Planting in the Locked Constraint Satisfaction Problems. SIAM Journal on Discrete Mathematics, 2011, 25, 750-770.	0.8	24
64	Comparative study for inference of hidden classes in stochastic block models. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P12021.	2.3	24
65	Spectral detection in the censored block model. , 2015, , .		24
66	Multi-layer generalized linear estimation. , 2017, , .		24
67	Belief-propagation reconstruction for discrete tomography. Inverse Problems, 2013, 29, 035003.	2.0	20
68	The hard-core model on random graphs revisited. Journal of Physics: Conference Series, 2013, 473, 012021.	0.4	19
69	Estimation in the Spiked Wigner Model: A Short Proof of the Replica Formula. , 2018, , .		19
70	On melting dynamics and the glass transition. I. Glassy aspects of melting dynamics. Journal of Chemical Physics, 2011, 134, 034512.	3.0	18
71	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
72	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

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73	Approximate message passing with restricted Boltzmann machine priors. Journal of Statistical Mechanics: Theory and Experiment, 2016, 2016, 073401.	2.3	18
74	Glassy Properties of the Kawasaki Dynamics of Two-Dimensional Ferromagnets. Physical Review Letters, 2005, 94, 077204.	7.8	17
75	Phase diagram and approximate message passing for blind calibration and dictionary learning. , 2013, , .		17
76	Phase recovery from a Bayesian point of view: The variational approach. , 2015, , .		17
77	High-temperature expansions and message passing algorithms. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 113301.	2.3	17
78	Intensity-only optical compressive imaging using a multiply scattering material and a double phase retrieval approach. , 2016, , .		16
79	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
80	Phase transitions and optimal algorithms in high-dimensional Gaussian mixture clustering. , 2016, , .		15
81	Approximate survey propagation for statistical inference. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 023401.	2.3	15
82	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
83	Spectral density of the non-backtracking operator on random graphs. Europhysics Letters, 2014, 107, 50005.	2.0	14
84	Deterministic and Generalized Framework for Unsupervised Learning with Restricted Boltzmann Machines. Physical Review X, 2018, 8, .	8.9	14
85	Scaling Up Echo-State Networks With Multiple Light Scattering. , 2018, , .		14
86	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
87	Performance Limits for Noisy Multimeasurement Vector Problems. IEEE Transactions on Signal Processing, 2017, 65, 2444-2454.	5.3	13
88	Information-theoretic thresholds from the cavity method. , 2017, , .		13
89	Marvels and Pitfalls of the Langevin Algorithm in Noisy High-Dimensional Inference. Physical Review X, 2020, 10, .	8.9	13
90	Discrete energy landscapes and replica symmetry breaking at zero temperature. Europhysics Letters, 2001, 53, 749-755.	2.0	12

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91	Phase transitions and computational difficulty in random constraint satisfaction problems. Journal of Physics: Conference Series, 2008, 95, 012012.	0.4	12
92	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
93	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
94	Ultrametric probe of the spin-glass state in a field. Physical Review B, 2012, 86, .	3.2	11
95	Performance of simulated annealing inp-spin glasses. Journal of Physics: Conference Series, 2013, 473, 012022.	0.4	11
96	Fundamental limits of detection in the spiked Wigner model. Annals of Statistics, 2020, 48, .	2.6	11
97	Compressed sensing of approximately-sparse signals: Phase transitions and optimal reconstruction. , 2012, , .		10
98	Inferring sparsity: Compressed sensing using generalized restricted Boltzmann machines. , 2016, , .		10
99	Quantum Annealing of Hard Problems. Progress of Theoretical Physics Supplement, 2010, 184, 290-303.	0.1	9
100	Following states in temperature in the sphericals+p-spin glass model. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P07002.	2.3	9
101	Compressed sensing under matrix uncertainty: Optimum thresholds and robust approximate message passing. , 2013, , .		9
102	Reweighted Belief Propagation and Quiet Planting for Random K-SAT. Journal of Satisfiability, Boolean Modeling and Computation, 2014, 8, 149-171.	1.2	9
103	Absence of an Equilibrium Ferromagnetic Spin-Glass Phase in Three Dimensions. Physical Review Letters, 2002, 89, 267202.	7.8	8
104	Aging, memory and rejuvenation: some lessons from simple models. Journal of Physics: Conference Series, 2006, 40, 42-49.	0.4	8
105	Random-fieldp-spin-glass model on regular random graphs. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 185002.	2.1	8
106	Decoding From Pooled Data: Phase Transitions of Message Passing. IEEE Transactions on Information Theory, 2019, 65, 572-585.	2.4	8
107	Robust Phase Retrieval with the Swept Approximate Message Passing (prSAMP) Algorithm. Image Processing on Line, 0, 7, 43-55.	0.0	8
108	Belief-propagation-guided Monte-Carlo sampling. Physical Review B, 2014, 89, .	3.2	7

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109	Zero Temperature Phase Diagram of Finite Connectivity Spin Glasses. Progress of Theoretical Physics Supplement, 2005, 157, 77-81.	0.1	6
110	The Spiked Matrix Model With Generative Priors. IEEE Transactions on Information Theory, 2021, 67, 1156-1181.	2.4	6
111	Statistical Physics, Optimization, Inference, and Message-Passing Algorithms. , 2015, , .		6
112	Comment on â€œUltrametricity in the Edwards-Anderson Modelâ€• Physical Review Letters, 2008, 100, 159701; discussion 159702.	7.8	5
113	Fast Phase Retrieval for High Dimensions: A Block-Based Approach. IEEE Signal Processing Letters, 2016, 23, 1179-1182.	3.6	5
114	Streaming Bayesian inference: Theoretical limits and mini-batch approximate message-passing. , 2017, , .		5
115	Kernel Computations from Large-Scale Random Features Obtained by Optical Processing Units. , 2020, , .		5
116	Robust error correction for real-valued signals via message-passing decoding and spatial coupling. , 2013, , .		4
117	Clustering from sparse pairwise measurements. , 2016, , .		4
118	Decoding from Pooled Data: Sharp Information-Theoretic Bounds. SIAM Journal on Mathematics of Data Science, 2019, 1, 161-188.	1.8	4
119	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
120	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
121	Local excitations in mean-field spin glasses. Europhysics Letters, 2004, 66, 729-735.	2.0	3
122	Non-adaptive pooling strategies for detection of rare faulty items. , 2013, , .		3
123	Constraint optimisation and landscapes. European Physical Journal B, 2008, 64, 563-565.	1.5	2
124	Spectral bounds for the Ising ferromagnet on an arbitrary given graph. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 053403.	2.3	2
125	Spectral Method for Multiplexed Phase Retrieval and Application in Optical Imaging in Complex Media. , 2019, , .		2
126	Scampi: a robust approximate message-passing framework for compressive imaging. Journal of Physics: Conference Series, 2016, 699, 012013.	0.4	1

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127	Decoding from pooled data: Phase transitions of message passing. , 2017, , .		1
128	Fast Randomized Semi-Supervised Clustering. Journal of Physics: Conference Series, 2018, 1036, 012015.	0.4	1
129	Optical reservoir computing for high-dimensional spatio-temporal chaotic systems prediction (Conference Presentation). , 2020, , .		1
130	Blind Calibration for Sparse Regression: A State Evolution Analysis. , 2019, , .		0
131	Blind calibration for compressed sensing: state evolution and an online algorithm. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 334004.	2.1	0