

Peter Sollich

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157
papers

6,118
citations

37
h-index

75
g-index

173
ext. papers

6,699
ext. citations

3.6
avg, IF

6.21
L-index

#	Paper	IF	Citations
157	Rheology of Soft Glassy Materials. <i>Physical Review Letters</i> , 1997 , 78, 2020-2023	7.4	872
156	Rheological constitutive equation for a model of soft glassy materials. <i>Physical Review E</i> , 1998 , 58, 738-752	7.4	569
155	Glassy dynamics of kinetically constrained models. <i>Advances in Physics</i> , 2003 , 52, 219-342	18.4	542
154	Aging and rheology in soft materials. <i>Journal of Rheology</i> , 2000 , 44, 323-369	4.1	318
153	Unified study of glass and jamming rheology in soft particle systems. <i>Physical Review Letters</i> , 2012 , 109, 018301	7.4	174
152	Large Deviations and Ensembles of Trajectories in Stochastic Models. <i>Progress of Theoretical Physics Supplement</i> , 2010 , 184, 304-317		164
151	Predicting phase equilibria in polydisperse systems. <i>Journal of Physics Condensed Matter</i> , 2002 , 14, R79-R187	18.7	144
150	Accurate interatomic force fields via machine learning with covariant kernels. <i>Physical Review B</i> , 2017 , 95,	3.3	140
149	Model selection for support vector machine classification. <i>Neurocomputing</i> , 2003 , 55, 221-249	5.4	113
148	Shear banding, aging and noise dynamics in soft glassy materials. <i>Soft Matter</i> , 2009 , 5, 2378-2382	3.6	109
147	Glassy Time-Scale Divergence and Anomalous Coarsening in a Kinetically Constrained Spin Chain. <i>Physical Review Letters</i> , 1999 , 83, 3238-3241	7.4	103
146	Equilibrium phase behavior of polydisperse hard spheres. <i>Physical Review Letters</i> , 2003 , 91, 068301	7.4	98
145	Bayesian Methods for Support Vector Machines: Evidence and Predictive Class Probabilities. <i>Machine Learning</i> , 2002 , 46, 21-52	4	96
144	Disentangling glass and jamming physics in the rheology of soft materials. <i>Soft Matter</i> , 2013 , 9, 7669	3.6	88
143	Observable dependence of fluctuation-dissipation relations and effective temperatures. <i>Physical Review Letters</i> , 2002 , 88, 050603	7.4	88
142	Hyperuniformity and phase separation in biased ensembles of trajectories for diffusive systems. <i>Physical Review Letters</i> , 2015 , 114, 060601	7.4	83
141	Statistical mechanics of ensemble learning. <i>Physical Review E</i> , 1997 , 55, 811-825	2.4	81

140	Projected Free Energies for Polydisperse Phase Equilibria. <i>Physical Review Letters</i> , 1998 , 80, 1365-1368	7.4	80
139	Simplified Onsager theory for isotropic-nematic phase equilibria of length polydisperse hard rods. <i>Journal of Chemical Physics</i> , 2002 , 117, 5421-5436	3.9	79
138	Crystalline phases of polydisperse spheres. <i>Physical Review Letters</i> , 2010 , 104, 118302	7.4	69
137	Heterogeneous dynamics of coarsening systems. <i>Physical Review Letters</i> , 2004 , 93, 115701	7.4	69
136	Suppressed compressibility at large scale in jammed packings of size-disperse spheres. <i>Physical Review Letters</i> , 2011 , 106, 120601	7.4	64
135	Glass transitions and shear thickening suspension rheology. <i>Journal of Rheology</i> , 2005 , 49, 237-269	4.1	64
134	Fractionation effects in phase equilibria of polydisperse hard-sphere colloids. <i>Physical Review E</i> , 2004 , 70, 041410	2.4	62
133	Fluctuation-dissipation relations in the nonequilibrium critical dynamics of Ising models. <i>Physical Review E</i> , 2003 , 68, 016116	2.4	56
132	Isotropic-nematic phase equilibria in the Onsager theory of hard rods with length polydispersity. <i>Physical Review E</i> , 2003 , 67, 061702	2.4	50
131	Bayesian approach to feature selection and parameter tuning for support vector machine classifiers. <i>Neural Networks</i> , 2005 , 18, 693-701	9.1	49
130	Phase diagram of restricted Boltzmann machines and generalized Hopfield networks with arbitrary priors. <i>Physical Review E</i> , 2018 , 97, 022310	2.4	45
129	Tensorial constitutive models for disordered foams, dense emulsions, and other soft nonergodic materials. <i>Journal of Rheology</i> , 2004 , 48, 193-207	4.1	45
128	Isotropic-nematic phase equilibria of polydisperse hard rods: The effect of fat tails in the length distribution. <i>Journal of Chemical Physics</i> , 2003 , 118, 5213-5223	3.9	45
127	Signalling entropy: A novel network-theoretical framework for systems analysis and interpretation of functional omic data. <i>Methods</i> , 2014 , 67, 282-93	4.6	44
126	Grand canonical ensemble simulation studies of polydisperse fluids. <i>Journal of Chemical Physics</i> , 2002 , 116, 7116-7126	3.9	44
125	The large amplitude oscillatory strain response of aqueous foam: Strain localization and full stress Fourier spectrum. <i>European Physical Journal E</i> , 2008 , 27, 309-321	1.5	43
124	Extensive parallel processing on scale-free networks. <i>Physical Review Letters</i> , 2014 , 113, 238106	7.4	42
123	Phase equilibria in the polydisperse Zwanzig model of hard rods. <i>Journal of Chemical Physics</i> , 2000 , 113, 5817-5829	3.9	41

122	Effects of colloid polydispersity on the phase behavior of colloid-polymer mixtures. <i>Journal of Chemical Physics</i> , 2005 , 122, 074904	3.9	40
121	Fluctuation-dissipation relations and effective temperatures in simple non-mean field systems. <i>Journal of Physics Condensed Matter</i> , 2002 , 14, 1683-1696	1.8	37
120	Moment Free Energies for Polydisperse Systems. <i>Advances in Chemical Physics</i> , 2007 , 265-336		36
119	Glassy dynamics in the asymmetrically constrained kinetic Ising chain. <i>Physical Review E</i> , 2003 , 68, 031504	4.4	35
118	Phase transitions in restricted Boltzmann machines with generic priors. <i>Physical Review E</i> , 2017 , 96, 042156	1.5	33
117	Increased signaling entropy in cancer requires the scale-free property of protein interaction networks. <i>Scientific Reports</i> , 2015 , 5, 9646	4.9	32
116	Nonaffine displacements in crystalline solids in the harmonic limit. <i>Physical Review E</i> , 2013 , 87, 042801	2.4	32
115	Polydispersity induced solid-solid transitions in model colloids. <i>Soft Matter</i> , 2011 , 7, 4472	3.6	32
114	Multicomponent adhesive hard sphere models and short-ranged attractive interactions in colloidal or micellar solutions. <i>Physical Review E</i> , 2006 , 74, 051407	2.4	29
113	Singular features in noise-induced transport with dry friction. <i>Europhysics Letters</i> , 2012 , 97, 20001	1.6	27
112	Path integral methods for the dynamics of stochastic and disordered systems. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017 , 50, 033001	2	26
111	Large deviations of the dynamical activity in the East model: analysing structure in biased trajectories. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2014 , 47, 015003	2	26
110	Thermodynamic interpretation of soft glassy rheology models. <i>Physical Review E</i> , 2012 , 85, 031127	2.4	26
109	Activated aging dynamics and negative fluctuation-dissipation ratios. <i>Physical Review Letters</i> , 2006 , 96, 030602	7.4	26
108	General solutions for multispin two-time correlation and response functions in the Glauber-Ising chain. <i>Journal of Physics A</i> , 2004 , 37, 9-49		26
107	Effects of polymer polydispersity on the phase behaviour of colloid-polymer mixtures. <i>Journal of Physics Condensed Matter</i> , 2005 , 17, 797-812	1.8	26
106	Phase behavior of polydisperse spheres: simulation strategies and an application to the freezing transition. <i>Journal of Chemical Physics</i> , 2010 , 133, 224102	3.9	25
105	Spin, bond and global fluctuation-dissipation relations in the non-equilibrium spherical ferromagnet. <i>Journal of Physics A</i> , 2006 , 39, 2853-2907		25

104	Non-equilibrium dynamics of spin facilitated glass models. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2007 , 2007, P07017-P07017	1.9	25
103	Finite-size scaling and particle-size cutoff effects in phase-separating polydisperse fluids. <i>Physical Review Letters</i> , 2005 , 95, 155701	7.4	25
102	A Monte Carlo method for chemical potential determination in single and multiple occupancy crystals. <i>Europhysics Letters</i> , 2013 , 101, 10004	1.6	24
101	Simulation estimates of cloud points of polydisperse fluids. <i>Physical Review E</i> , 2006 , 73, 046110	2.4	24
100	Query construction, entropy, and generalization in neural-network models. <i>Physical Review E</i> , 1994 , 49, 4637-4651	2.4	23
99	Diffusion and rheology in a model of glassy materials. <i>European Physical Journal B</i> , 1999 , 10, 705-718	1.2	19
98	The Ginzburg interval in soft-mode phase transitions: consequences of the rigid unit mode picture. <i>Journal of Physics Condensed Matter</i> , 1994 , 6, 3171-3196	1.8	19
97	Statistics of non-affine defect precursors: tailoring defect densities in colloidal crystals using external fields. <i>Soft Matter</i> , 2015 , 11, 4517-26	3.6	18
96	Phase behavior and particle size cutoff effects in polydisperse fluids. <i>Journal of Chemical Physics</i> , 2006 , 125, 014908	3.9	18
95	Liquid-gas coexistence and critical point shifts in size-disperse fluids. <i>Journal of Chemical Physics</i> , 2004 , 121, 6887-99	3.9	18
94	Phase equilibria and fractionation in a polydisperse fluid. <i>Europhysics Letters</i> , 2004 , 67, 219-225	1.6	18
93	Finite-size effects in learning and generalization in linear perceptrons. <i>Journal of Physics A</i> , 1994 , 27, 7771-7784		18
92	Demixing cascades in cluster crystals. <i>Journal of Chemical Physics</i> , 2014 , 141, 094903	3.9	17
91	Mappings between reaction-diffusion and kinetically constrained systems: $A+A \leftarrow A$ and the Fredrickson-Andersen model have upper critical dimension $d_c = 2$. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2006 , 2006, P03006-P03006	1.9	17
90	On the existence of thermodynamically stable rigid solids. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018 , 115, E4322-E4329	11.5	16
89	Phase behavior of weakly polydisperse sticky hard spheres: perturbation theory for the Percus-Yevick solution. <i>Journal of Chemical Physics</i> , 2006 , 125, 164504	3.9	16
88	Finite-size effects in on-line learning of multilayer neural networks. <i>Europhysics Letters</i> , 1996 , 34, 151-156	6	16
87	Duality symmetries and effective dynamics in disordered hopping models. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2009 , 2009, P11011	1.9	15

86	Ageing in one-dimensional coagulation-diffusion processes and the Fredrickson-Andersen model. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2007 , 40, 5823-5856	2	15
85	Universality of fluctuation-dissipation ratios: the ferromagnetic model. <i>Physical Review E</i> , 2005 , 72, 056114	1.4	15
84	Polydisperse lattice-gas model. <i>Physical Review E</i> , 2008 , 77, 011501	2.4	14
83	Reply to Comment on Fluctuation-dissipation relations in the nonequilibrium critical dynamics of Ising models. <i>Physical Review E</i> , 2004 , 70,	2.4	14
82	Learning curves for Gaussian process regression: approximations and bounds. <i>Neural Computation</i> , 2002 , 14, 1393-428	2.9	14
81	Understanding Gaussian Process Regression Using the Equivalent Kernel. <i>Lecture Notes in Computer Science</i> , 2005 , 211-228	0.9	13
80	Fluctuation-dissipation relations in trap models. <i>Journal of Physics A</i> , 2003 , 36, 10807-10818		12
79	Memory functions reveal structural properties of gene regulatory networks. <i>PLoS Computational Biology</i> , 2018 , 14, e1006003	5	12
78	Equivalence of driven and aging fluctuation-dissipation relations in the trap model. <i>Physical Review E</i> , 2003 , 67, 011101	2.4	11
77	Precision of tissue patterning is controlled by dynamical properties of gene regulatory networks. <i>Development (Cambridge)</i> , 2021 , 148,	6.6	11
76	Memory effects in biochemical networks as the natural counterpart of extrinsic noise. <i>Journal of Theoretical Biology</i> , 2014 , 357, 245-67	2.3	10
75	High-order jamming crossovers and density anomalies. <i>Soft Matter</i> , 2013 , 9, 9557-61	3.6	9
74	Equilibrium and dynamic pleating of a crystalline bonded network. <i>Journal of Chemical Physics</i> , 2017 , 146, 124501	3.9	9
73	Non-affine fluctuations and the statistics of defect precursors in the planar honeycomb lattice. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2015 , 2015, P06025	1.9	9
72	The average number of distinct sites visited by a random walker on random graphs. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2015 , 48, 205004	2	9
71	. <i>IEEE Transactions on Audio Speech and Language Processing</i> , 2011 , 19, 1396-1407		9
70	Dynamic heterogeneities in critical coarsening: exact results for correlation and response fluctuations in finite-sized spherical models. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2009 , 2009, P02064	1.9	9
69	On-line learning from finite training sets. <i>Europhysics Letters</i> , 1997 , 38, 477-482	1.6	9

68	Online learning from finite training sets and robustness to input bias. <i>Neural Computation</i> , 1998 , 10, 2201-21	4.7	9
67	Multiple Types of Aging in Active Glasses. <i>Physical Review Letters</i> , 2020 , 125, 218001	7.4	9
66	Phase separation dynamics of polydisperse colloids: a mean-field lattice-gas theory. <i>Physical Chemistry Chemical Physics</i> , 2017 , 19, 22509-22527	3.6	8
65	Fluid phase coexistence and critical behavior from simulations in the restricted Gibbs ensemble. <i>Journal of Chemical Physics</i> , 2010 , 132, 074111	3.9	8
64	Nematic-nematic demixing in polydisperse thermotropic liquid crystals. <i>Journal of Chemical Physics</i> , 2005 , 122, 214911	3.9	8
63	Dynamic heterogeneity in the Glauber-Ising chain. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2005 , 2005, P05002	1.9	8
62	Soft Glassy Rheology 2006 , 161-192		8
61	Phase equilibria in polydisperse colloidal systems. <i>Reactive and Functional Polymers</i> , 2004 , 58, 187-196	4.6	8
60	Aging in a mean field elastoplastic model of amorphous solids. <i>Physics of Fluids</i> , 2020 , 32, 127104	4.4	8
59	Nucleation Theory for Yielding of Nearly Defect-Free Crystals: Understanding Rate Dependent Yield Points. <i>Physical Review Letters</i> , 2020 , 124, 025503	7.4	7
58	Critical phase behavior in multi-component fluid mixtures: Complete scaling analysis. <i>Journal of Chemical Physics</i> , 2018 , 149, 204902	3.9	7
57	The first jamming crossover: geometric and mechanical features. <i>Journal of Chemical Physics</i> , 2013 , 138, 12A529	3.9	6
56	Machine learning and statistical physics: preface. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2020 , 53, 500401	2	6
55	Plastic deformation of a permanently bonded network: Stress relaxation by pleats. <i>Journal of Chemical Physics</i> , 2018 , 149, 184503	3.9	6
54	Regional September Sea Ice Forecasting with Complex Networks and Gaussian Processes. <i>Weather and Forecasting</i> , 2020 , 35, 793-806	2.1	5
53	Duality between random trap and barrier models. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008 , 41, 324001	2	5
52	Observable dependent quasi-equilibrium in slow dynamics. <i>Physical Review E</i> , 2005 , 71, 046113	2.4	5
51	On-line learning with restricted training sets: An exactly solvable case. <i>Journal of Physics A</i> , 1999 , 32, 3321-3339		5

50	Finite-size effects and optimal test set size in linear perceptrons. <i>Journal of Physics A</i> , 1995 , 28, 1325-1334		5
49	Learning from minimum entropy queries in a large committee machine. <i>Physical Review E</i> , 1996 , 53, R20604-R2063		
48	Phase separation of mixtures after a second quench: composition heterogeneities. <i>Soft Matter</i> , 2019 , 15, 9287-9299	3.6	5
47	Glassy dynamics on networks: local spectra and return probabilities. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2019 , 2019, 093304	1.9	4
46	Exploring the link between crystal defects and nonaffine displacement fluctuations. <i>Physical Review E</i> , 2019 , 100, 033002	2.4	4
45	Modelling the emergence of polarity patterns for the intercellular transport of auxin in plants. <i>Journal of the Royal Society Interface</i> , 2015 , 12,	4.1	4
44	Stochastic evolution in populations of ideas. <i>Scientific Reports</i> , 2017 , 7, 40580	4.9	4
43	Weakly polydisperse systems: perturbative phase diagrams that include the critical region. <i>Physical Review Letters</i> , 2008 , 100, 035701	7.4	4
42	Discriminative and generative machine learning approaches towards robust phoneme classification 2008 ,		4
41	Wetting transitions in polydisperse fluids. <i>Physical Review Letters</i> , 2006 , 97, 136104	7.4	4
40	Liquid-vapour phase behaviour of a polydisperse Lennard-Jones fluid. <i>Journal of Physics Condensed Matter</i> , 2005 , 17, S3245-S3252	1.8	4
39	Tractable nonlinear memory functions as a tool to capture and explain dynamical behaviors. <i>Physical Review Research</i> , 2020 , 2,	3.9	4
38	Nontrivial Phase Behaviour in the Infinite-Range Quantum Mattis Model. <i>Journal of the Physical Society of Japan</i> , 2000 , 69, 3200-3213	1.5	4
37	Emergence of Cooperative Long-Term Market Loyalty in Double Auction Markets. <i>PLoS ONE</i> , 2016 , 11, e0154606	3.7	4
36	Michaelis-Menten dynamics in protein subnetworks. <i>Journal of Chemical Physics</i> , 2016 , 144, 174114	3.9	4
35	Active mixtures in a narrow channel: motility diversity changes cluster sizes. <i>Soft Matter</i> , 2021 , 17, 2050-2061	3.6	4
34	Dynamical selection of Nash equilibria using reinforcement learning: Emergence of heterogeneous mixed equilibria. <i>PLoS ONE</i> , 2018 , 13, e0196577	3.7	3
33	Spectral properties of the trap model on sparse networks. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2018 , 51, 294001	2	3

32	Aging and linear response in the H-Braud-Dequeux model for amorphous rheology. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017 , 50, 165002	2	3
31	Notes on the Polynomial Identities in Random Overlap Structures. <i>Journal of Statistical Physics</i> , 2012 , 147, 351-374	1.5	3
30	Combined waveform-cepstral representation for robust speech recognition 2011 ,		3
29	Fluctuation-dissipation relations in critical coarsening: crossover from unmagnetized to magnetized initial states. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008 , 41, 135001	2	3
28	Test Error Fluctuations in Finite Linear Perceptrons. <i>Neural Computation</i> , 1995 , 7, 809-821	2.9	3
27	Learning unrealizable tasks from minimum entropy queries. <i>Journal of Physics A</i> , 1995 , 28, 6125-6142		3
26	Coarse graining of biochemical systems described by discrete stochastic dynamics. <i>Physical Review E</i> , 2020 , 102, 062149	2.4	3
25	Tuning support vector machines for robust phoneme classification with acoustic waveforms		3
24	Market fragmentation and market consolidation: Multiple steady states in systems of adaptive traders choosing where to trade. <i>Physical Review E</i> , 2019 , 99, 062309	2.4	2
23	Elastic models of the glass transition applied to a liquid with density anomalies. <i>Journal of Non-Crystalline Solids</i> , 2015 , 407, 23-28	3.9	2
22	Phase transition in a random minima model: mean field theory and exact solution on the Bethe lattice. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2008 , 2008, P11011	1.9	2
21	Subdiffusive motion in kinetically constrained models. <i>Physical Review E</i> , 2008 , 78, 061107	2.4	2
20	Trap models with slowly decorrelating observables. <i>Journal of Physics A</i> , 2006 , 39, 2573-2597		2
19	Coarse-grained second-order response theory. <i>Physical Review Research</i> , 2020 , 2,	3.9	2
18	Error Counting in a Quantum Error-correcting Code and the Ground-State Energy of a Spin Glass. <i>Journal of the Physical Society of Japan</i> , 2004 , 73, 2701-2707	1.5	2
17	From entropic to energetic barriers in glassy dynamics: the Barrat-Méard trap model on sparse networks. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2020 , 2020, 093302	1.9	2
16	Learning Waveform-Based Acoustic Models Using Deep Variational Convolutional Neural Networks. <i>IEEE/ACM Transactions on Audio Speech and Language Processing</i> , 2021 , 29, 2850-2863	3.6	2
15	Fragmentation in trader preferences among multiple markets: market coexistence versus single market dominance. <i>Royal Society Open Science</i> , 2021 , 8, 202233	3.3	2

14	Spontaneous Segregation of Agents Across Double Auction Markets. <i>Lecture Notes in Economics and Mathematical Systems</i> , 2015 , 79-90	0.4	1
13	Towards robust phoneme classification with hybrid features 2010 ,		1
12	High-dimensional linear representations for robust speech recognition 2010 ,		1
11	Spin glass polynomial identities from entropic constraints. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2012 , 45, 485001	2	1
10	On-line Learning from Finite Training Sets 1999 , 279-302		1
9	Memory in non-monotonic stress response of an athermal disordered solid. <i>Physical Review Research</i> , 2021 , 3,	3.9	1
8	Diversity of self-propulsion speeds reduces motility-induced clustering in confined active matter. <i>Soft Matter</i> , 2021 , 17, 9926-9936	3.6	1
7	Can Gaussian Process Regression Be Made Robust Against Model Mismatch?. <i>Lecture Notes in Computer Science</i> , 2005 , 199-210	0.9	1
6	The de Almeida– Thouless instability: when a simple description of complexity is not enough. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2016 , 49, 421005	2	1
5	Delayed elastic contributions to the viscoelastic response of foams.. <i>Journal of Chemical Physics</i> , 2022 , 156, 154901	3.9	1
4	Systematic model reduction captures the dynamics of extrinsic noise in biochemical subnetworks. <i>Journal of Chemical Physics</i> , 2020 , 153, 025101	3.9	0
3	The nonlinearity of life. <i>Europhysics News</i> , 2020 , 51, 35-37	0.2	
2	Query Learning for Maximum Information Gain in a Multi-Layer Neural Network. <i>Operations Research/ Computer Science Interfaces Series</i> , 1997 , 339-343	0.3	
1	Towards Robust Waveform-Based Acoustic Models. <i>IEEE/ACM Transactions on Audio Speech and Language Processing</i> , 2022 , 1-1	3.6	