## Peter Harrowell

## List of Publications by Year in descending order

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101543 76900 5,795 152 36 74 citations h-index g-index papers 158 158 158 3552 docs citations times ranked citing authors all docs

#	Article	IF	CITATIONS
1	The structural difference between strong and fragile liquids. Journal of Non-Crystalline Solids: X, 2022, 13, 100080.	1.2	4
2	Local symmetry predictors of mechanical stability in glasses. Science Advances, 2022, 8, eabn0681.	10.3	9
3	Influence on crystal nucleation of an order-disorder transition among the subcritical clusters. Physical Review E, 2022, 105, .	2.1	1
4	A general structural order parameter for the amorphous solidification of a supercooled liquid. Journal of Chemical Physics, 2022, $157$ , .	3.0	4
5	How a supercooled liquid borrows structure from the crystal. Journal of Chemical Physics, 2021, 154, 054503.	3.0	6
6	How real are liquid groundstates? Ultra-fast crystal growth and the susceptibility of energy minima in liquids. Journal of Chemical Physics, 2021, 154, 154503.	3.0	0
7	Translational–rotational coupling during the scattering of a frictional sphere from a flat surface. Journal of Chemical Physics, 2021, 155, 054303.	3.0	1
8	Deposition control of model glasses with surface-mediated orientational order. Journal of Chemical Physics, 2021, 155, 124502.	3.0	1
9	Crystal growth rates and liquid dynamics at the crossover between stable crystal phases. Journal of Chemical Physics, 2020, 152, 164505.	3.0	1
10	The displacement field associated with the freezing of a melt and its role in determining crystal growth kinetics. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 3421-3426.	7.1	11
11	Orientationally ordered glasses via controlled deposition. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 21341-21342.	7.1	4
12	Assessing the utility of structure in amorphous materials. Journal of Chemical Physics, 2019, 150, 114502.	3.0	34
13	Formation of Ultrastable Glasses via Precipitation: A Modeling Study. Physical Review Letters, 2019, 122, 088003.	7.8	3
14	Role of interfacial inherent structures in the fast crystal growth from molten salts and metals. Physical Review Materials, 2019, 3, .	2.4	12
15	Chemical ordering and crystal nucleation at the liquid surface: A comparison of Cu50Zr50 and Ni50Al50 alloys. Journal of Chemical Physics, 2018, 148, 044509.	3.0	6
16	Kinetics of Dissolution of an Amorphous Solid. Journal of Physical Chemistry B, 2018, 122, 2425-2433.	2.6	17
17	The mechanism of the ultrafast crystal growth of pure metals from their melts. Nature Materials, 2018, 17, 881-886.	27.5	67
18	Composition susceptibility and the role of one, two, and three-body interactions in glass forming alloys: Cu50Zr50 vs Ni50Al50. Journal of Chemical Physics, 2018, 148, 224502.	3.0	1

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19	The stabilization of tubular crystals in mixtures of spherical particles. Soft Matter, 2017, 13, 1344-1351.	2.7	5
20	Suppression of crystalline fluctuations by competing structures in a supercooled liquid. Physical Review E, 2017, 96, 042602.	2.1	16
21	Structural Origin of Enhanced Dynamics at the Surface of a Glassy Alloy. Physical Review Letters, 2017, 119, 245501.	7.8	14
22	Density and glass forming ability in amorphous atomic alloys: The role of the particle softness. Journal of Chemical Physics, 2016, 144, 144502.	3.0	4
23	The free energy of a liquid when viewed as a population of overlapping clusters. Molecular Simulation, 2016, 42, 1149-1156.	2.0	2
24	Long range stress correlations in the inherent structures of liquids at rest. Journal of Chemical Physics, 2016, 144, 124508.	3.0	29
25	From liquid structure to configurational entropy: introducing structural covariance. Journal of Statistical Mechanics: Theory and Experiment, 2016, 2016, 084002.	2.3	7
26	Nonaffine displacements and the nonlinear response of a strained amorphous solid. Physical Review E, 2016, 94, 022606.	2.1	9
27	Shear melting at the crystal-liquid interface: Erosion and the asymmetric suppression of interface fluctuations. Physical Review E, 2016, 93, 042608.	2.1	4
28	Rigidity in Condensed Matter and Its Origin in Configurational Constraint. Physical Review Letters, 2016, 116, 137801.	7.8	23
29	The geometric mean squared displacement and the Stokes-Einstein scaling in a supercooled liquid. Journal of Chemical Physics, 2015, 143, 244502.	3.0	1
30	Packing concave molecules in crystals and amorphous solids: on the connection between shape and local structure. Molecular Physics, 2015, 113, 2755-2769.	1.7	5
31	Favoured local structures in liquids and solids: a 3D lattice model. Soft Matter, 2015, 11, 3322-3331.	2.7	10
32	Multiple Ordering Transitions in a Liquid Stabilized by Low Symmetry Structures. Physical Review Letters, 2014, 112, 017801.	7.8	6
33	Defect-mediated relaxation in the random tiling phase of a binary mixture: Birth, death and mobility of an atomic zipper. Journal of Chemical Physics, 2014, 140, 104503.	3.0	3
34	Anomalously slow crystal growth of the glass-forming alloy CuZr. Nature Materials, 2013, 12, 507-511.	27.5	188
35	Influence of liquid structure on the thermodynamics of freezing. Physical Review E, 2013, 87, 052313.	2.1	5
36	Can a stable glass be superheated? Modelling the kinetic stability of coated glassy films. Journal of Chemical Physics, 2013, 138, 12A516.	3.0	13

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37	Molecular shape and the energetics of chemisorption: From simple to complex energy landscapes. Physical Review E, 2012, 86, 011606.	2.1	О
38	Predicting the solid state phase diagram for glass-forming alloys of copper and zirconium. Journal of Physics Condensed Matter, 2012, 24, 245102.	1.8	17
39	Perspective: Supercooled liquids and glasses. Journal of Chemical Physics, 2012, 137, 080901.	3.0	427
40	Geometry and the entropic cost of locally favoured structures in a liquid. Journal of Chemical Physics, 2012, 136, 134504.	3.0	9
41	Structurally determined directionality identifies the boundary between mobile and immobile domains in a disordered material. Journal of Chemical Physics, 2012, 136, 054507.	3.0	1
42	The origin of persistent shear stress in supercooled liquids. Journal of Chemical Physics, 2012, 137, 014506.	3.0	30
43	Molecular Engineering of the Glass Transition: Glass-Forming Ability across a Homologous Series of Cyclic Stilbenes. Journal of Physical Chemistry B, 2011, 115, 4696-4702.	2.6	38
44	Controlling Adsorbate Diffusion on a High-Symmetry Surface through Molecular Shape Selection. Journal of Physical Chemistry C, 2011, 115, 9526-9534.	3.1	4
45	Factors Contributing to the Glass-Forming Ability of a Simulated Molecular Liquid. Journal of Physical Chemistry B, 2011, 115, 14205-14209.	2.6	10
46	Fast and Slow Components in the Crystallization of a Model Multicomponent System, NaKCa(NO3): The Role of Composition Fluctuations. Journal of Physical Chemistry A, 2011, 115, 6260-6268.	2.5	7
47	Structural searches using isopointal sets as generators: densest packings for binary hard sphere mixtures. Journal of Physics Condensed Matter, 2011, 23, 194103.	1.8	13
48	The variety of ordering transitions in liquids characterized by a locally favoured structure. Europhysics Letters, 2011, 96, 36005.	2.0	15
49	Structural phases in non-additive soft-disk mixtures: Glasses, substitutional order, and random tilings. Journal of Chemical Physics, 2011, 135, 224515.	3.0	6
50	Length scales of dynamic heterogeneities in a network of fluctuating mechanical constraints. Physical Review E, 2011, 83, 011501.	2.1	3
51	The chemically ordered glass: the limiting composition for chemical order in amorphous packings of hard-sphere mixtures. Molecular Simulation, 2011, 37, 293-298.	2.0	0
52	Crystallization of the Lewis–Wahnströmortho-terphenyl model. Journal of Chemical Physics, 2011, 134, 114501.	3.0	12
53	The influence of overconstraint on the spatial distribution of mobility in an amorphous network. Journal of Chemical Physics, 2011, 135, 194505.	3.0	0
54	Spatiotemporal Hierarchy of Relaxation Events, Dynamical Heterogeneities, and Structural Reorganization in a Supercooled Liquid. Physical Review Letters, 2010, 105, 135702.	7.8	149

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55	On the existence of a structural instability in sub-critical crystalline fluctuations in a supercooled liquid. Journal of Physics Condensed Matter, 2010, 22, 364106.	1.8	6
56	Macroscopic facilitation of glassy relaxation kinetics: Ultrastable glass films with frontlike thermal response. Journal of Chemical Physics, 2010, 133, 244502.	3.0	82
57	Geometry of Slow Structural Fluctuations in a Supercooled Binary Alloy. Physical Review Letters, 2010, 104, 105701.	7.8	100
58	Unconstrained motions, dynamic heterogeneities, and relaxation in disordered solids. Physical Review E, 2009, 80, 041503.	2.1	8
59	Central role of thermal collective strain in the relaxation of structure in a supercooled liquid. Physical Review E, 2009, 80, 061501.	2.1	15
60	Rigidity percolation and the spatial heterogeneity of soft modes in disordered materials. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 15136-15141.	7.1	19
61	Localized soft modes and the supercooled liquid's irreversible passage through its configuration space. Journal of Chemical Physics, 2009, 131, 194508.	3.0	83
62	Noncrystalline compact packings of hard spheres of two sizes: Bipyramids and the geometry of common neighbors. Journal of Chemical Physics, 2009, 130, 114505.	3.0	6
63	Composition dependence of the solid state transitions in NaNO3/KNO3 mixtures. Thermochimica Acta, 2009, 486, 27-31.	2.7	13
64	Spatial Dependence of Viscosity and Thermal Conductivity through a Planar Interface. Journal of Physical Chemistry B, 2009, 113, 2059-2065.	2.6	15
65	Irreversible reorganization in a supercooled liquid originates from localized soft modes. Nature Physics, 2008, 4, 711-715.	16.7	367
66	The Structure and Thermodynamic Stability of Reverse Micelles in Dry AOTâ^•Alkane Mixtures. AIP Conference Proceedings, 2008, , .	0.4	7
67	Dense amorphous packing of binary hard sphere mixtures with chemical order: The stability of a solute ordered approximant. Journal of Non-Crystalline Solids, 2008, 354, 3171-3178.	3.1	6
68	Dense Packings of Hard Spheres of Different Sizes Based on Filling Interstices in Uniform Three-Dimensional Tilings. Journal of Physical Chemistry B, 2008, 112, 8139-8143.	2.6	19
69	The Densest Packing of AB Binary Hard-Sphere Homogeneous Compounds across all Size Ratios. Journal of Physical Chemistry B, 2008, 112, 10773-10776.	2.6	54
70	Crystal growth kinetics exhibit a fragility-dependent decoupling from viscosity. Journal of Chemical Physics, 2008, 128, 034709.	3.0	272
71	Equilibrium calculations of viscosity and thermal conductivity across a solid-liquid interface using boundary fluctuations. Journal of Chemical Physics, 2008, 128, 194710.	3.0	11
72	A systematic enumeration of local topological relaxation mechanisms in amorphous networks and their efficiency in network relaxation. Journal of Chemical Physics, 2007, 126, 184502.	3.0	4

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73	On the study of collective dynamics in supercooled liquids through the statistics of the isoconfigurational ensemble. Journal of Chemical Physics, 2007, 126, 154503.	3.0	88
74	On the equilibrium calculation of the friction coefficient for liquid slip against a wall. Journal of Chemical Physics, 2007, 127, 174706.	3.0	58
75	Crystal Bridges, Tetratic Order, and Elusive Equilibria:Â The Role of Structure in Lubrication Films. Journal of Physical Chemistry B, 2007, 111, 11354-11365.	2.6	25
76	The structural origin of the complex rheology in thin dodecane films: Three routes to low friction. Tribology International, 2007, 40, 1574-1586.	5.9	34
77	Predicting the Long-Time Dynamic Heterogeneity in a Supercooled Liquid on the Basis of Short-Time Heterogeneities. Physical Review Letters, 2006, 96, 185701.	7.8	257
78	Low friction lubrication between amorphous walls: Unraveling the contributions of surface roughness and in-plane disorder. Journal of Chemical Physics, 2006, 125, 034703.	3.0	37
79	Free volume cannot explain the spatial heterogeneity of Debye–Waller factors in a glass-forming binary alloy. Journal of Non-Crystalline Solids, 2006, 352, 5098-5102.	3.1	64
80	Glass transitions in plane view. Nature Physics, 2006, 2, 157-158.	16.7	10
81	An equilibrium calculation of the thermal transport coefficients between two planes of arbitrary separation in a condensed phase. Journal of Chemical Physics, 2006, 124, 044512.	3.0	6
82	What Stabilizes the Intermediate Structure of an Amorphous Alloy?. AIP Conference Proceedings, 2006, , .	0.4	1
83	Crystal-melt coexistence under shear: Interpreting the nonlinear rheology. Journal of Chemical Physics, 2006, 125, 124502.	3.0	2
84	The boundary fluctuation theory of transport coefficients in the linear-response limit. Journal of Chemical Physics, 2006, 124, 014103.	3.0	24
85	Crystal Bridge Formation Marks the Transition to Rigidity in a Thin Lubrication Film. Physical Review Letters, 2006, 96, 206102.	7.8	38
86	Inversion of defect interactions due to ordering inSr1â^3xâ^•2LaxTiO3perovskites: An atomistic simulation study. Physical Review B, 2006, 74, .	3.2	12
87	On the relationship between structure and dynamics in a supercooled liquid. Journal of Physics Condensed Matter, 2005, 17, S4025-S4034.	1.8	62
88	Linear response theory for thermal conductivity and viscosity in terms of boundary fluctuations. Physical Review E, 2005, 71, 061201.	2.1	28
89	Very Low Friction State of a Dodecane Film Confined between Mica Surfaces. Physical Review Letters, 2005, 94, 126103.	7.8	61
90	How reproducible is the structure of dynamic heterogeneity in glass forming liquids?. AIP Conference Proceedings, 2004, , .	0.4	0

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91	Polyhedral ground states in clusters of asymmetric hard sphere ions. Journal of Chemical Physics, 2004, 121, 7440-7442.	3.0	2
92	How Reproducible Are Dynamic Heterogeneities in a Supercooled Liquid? Physical Review Letters, 2004, 93, 135701.	7.8	322
93	Ordered binary crystal phases of Lennard-Jones mixtures. Journal of Chemical Physics, 2004, 120, 9222-9232.	3.0	25
94	Folding behavior of model proteins with weak energetic frustration. Journal of Chemical Physics, 2004, 120, 11292-11303.	3.0	11
95	Crystallisation and Local Order in Glass-Forming Binary Mixtures. AIP Conference Proceedings, 2004, ,	0.4	1
96	Inorganic Nanotubes Stabilized by Ion Size Asymmetry:  Energy Calculations for AgI Clusters. Journal of Physical Chemistry B, 2004, 108, 8412-8418.	2.6	22
97	Organization of Coordination Polyhedra in an Amorphous Binary Alloy. Journal of Physical Chemistry B, 2004, 108, 6850-6855.	2.6	12
98	Crystal phases of a glass-forming Lennard-Jones mixture. Physical Review E, 2003, 67, 011403.	2.1	51
99	Simulation of the coexistence of a shearing liquid and a strained crystal. Journal of Chemical Physics, 2003, 118, 4115-4126.	3.0	33
100	Structure and stability of the interface between a strained crystal and a shearing liquid. Physical Review E, 2003, 67, 051503.	2.1	11
101	193nm photosensitivity in silica and local laser-induced femtosecond heating and cooling. , 2003, , .		0
102	Thermodynamics of a soft disk glass: The role of configurational constraints. Journal of Chemical Physics, 2002, 116, 4232-4239.	3.0	1
103	Crystal Phases of Glass-Forming Mixtures. Materials Research Society Symposia Proceedings, 2002, 754, 1.	0.1	0
104	Elementary excitations and the specific heat peak in a supercooled mixture: simulation studies. Journal of Non-Crystalline Solids, 2002, 307-310, 436-441.	3.1	4
105	Factors determining crystal–liquid coexistence under shear. Nature, 2002, 415, 1008-1011.	27.8	64
106	Density functional theory of the kinetics of crystallization of a hard sphere suspension: Coupling structure to density. Journal of Chemical Physics, 2001, 114, 9059-9068.	3.0	7
107	Radiation-induced densification in amorphous silica: A computer simulation study. Journal of Chemical Physics, 2001, 115, 3336-3341.	3.0	46
108	Theoretical problems in the crystallization of hard sphere colloidal particles. AIP Conference Proceedings, 2000, , .	0.4	0

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109	Stalking the collective process: establishing a dialogue between simulation and speculation. Journal of Physics Condensed Matter, 2000, 12, 6305-6310.	1.8	6
110	Liquid crystal phase transitions in clusters of spherocylinders. Journal of Chemical Physics, 2000, 112, 465-470.	3.0	0
111	Amorphous ground states and collective dynamics in a 2D glass-forming mixture. Journal of Physics Condensed Matter, 2000, 12, A399-A402.	1.8	7
112	Fluctuations near the Onset of Rigidity in a 2D Supercooled Liquid. Progress of Theoretical Physics Supplement, 2000, 138, 199-204.	0.1	1
113	Monte Carlo simulations of smectic phase transitions in flexible–rigid–flexible molecules. Journal of Chemical Physics, 1999, 110, 12183-12192.	3.0	17
114	Relaxation dynamics and their spatial distribution in a two-dimensional glass-forming mixture. Journal of Chemical Physics, 1999, 111, 5441-5454.	3.0	104
115	Stability and structure of a supercooled liquid mixture in two dimensions. Physical Review E, 1999, 59, 5721-5743.	2.1	109
116	On the Microscopic Nature of Stick—Slip Behavior in Lubricating Films. ACS Symposium Series, 1999, , 104-126.	0.5	1
117	A two dimensional glass: microstructure and dynamics of a 2D binary mixture. Journal of Non-Crystalline Solids, 1998, 235-237, 314-319.	3.1	34
118	Solute-Enhanced Diffusion in a Dense Two-Dimensional Liquid. Physical Review Letters, 1998, 80, 4446-4449.	7.8	17
119	Origin of the Difference in the Temperature Dependences of Diffusion and Structural Relaxation in a Supercooled Liquid. Physical Review Letters, 1998, 81, 120-123.	7.8	70
120	Density-functional theory of the kinetics of crystallization of hard-sphere suspensions: Single conserved order parameter. Physical Review E, 1997, 56, 3265-3273.	2.1	10
121	Incomplete symmetry breaking and anomolous crystallization kinetics at close-packed crystal-liquid interfaces. Physical Review E, 1997, 56, 1910-1917.	2.1	4
122	Resolving the structural relaxation of a two-dimensional liquid using apertured cross correlation functions. Journal of Chemical Physics, 1997, 107, 8586-8593.	3.0	10
123	Measuring diffusion in supercooled liquids: The effect of kinetic inhomogeneities. Journal of Chemical Physics, 1996, 104, 2369-2375.	3.0	23
124	Local and global order in a simulated two-dimensional liquid under steady shear. Physical Review E, 1996, 54, 457-462.	2.1	4
125	Nonâ€Gaussian behavior and the dynamical complexity of particle motion in a dense twoâ€dimensional liquid. Journal of Chemical Physics, 1996, 105, 10521-10526.	3.0	89
126	Shear induced ordering in simulations of colloidal suspensions: Oscillatory shear and computational artefacts. Journal of Chemical Physics, 1996, 105, 605-613.	3.0	22

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127	Consequences of kinetic inhomogeneities in glasses. Physical Review E, 1996, 54, 1652-1662.	2.1	60
128	Kinetics of crystallization in a shearing colloidal suspension. Physical Review E, 1995, 52, 6424-6430.	2.1	51
129	The shear induced disordering transition in a colloidal crystal: Nonequilibrium Brownian dynamic simulations. Journal of Chemical Physics, 1995, 103, 4653-4671.	3.0	32
130	Monte Carlo simulations of a layering transition in hard parallelepipeds. Journal of Chemical Physics, 1995, 103, 6143-6150.	3.0	17
131	Kinetic structure of a two-dimensional liquid. Physical Review E, 1995, 52, 1694-1698.	2.1	264
132	The relaxation of structural fluctuations in a lattice model of a simple liquid. Journal of Chemical Physics, 1994, 101, 9894-9902.	3.0	7
133	Dynamic Monte Carlo simulations of freezing and melting at the 100 and 111 surfaces of the simple cubic phase in the faceâ€centeredâ€cubic lattice gas. Journal of Chemical Physics, 1994, 100, 7630-7639.	3.0	14
134	Visualizing the collective motions responsible for the $\hat{l}_{\pm}$ and $\hat{l}_{\pm}^2$ relaxations in a model glass. Physical Review E, 1993, 48, 4359-4363.	2.1	55
135	Orientation dependent interface mobilities in a kinetic mean field theory of freezing and melting. Journal of Chemical Physics, 1993, 99, 3998-4010.	3.0	9
136	The spatial distribution of relaxation times in a model glass. Journal of Chemical Physics, 1993, 98, 5069-5073.	3.0	33
137	Rotational relaxation in a 2D crystal of soft-core diatomic molecules. The Journal of Physical Chemistry, 1992, 96, 4040-4046.	2.9	1
138	Selection of interfacial velocity in the presence of multiple relaxation rates. Physical Review A, 1992, 46, 5284-5287.	2.5	1
139	The effect of density change on crystal growth rates from the melt. Journal of Chemical Physics, 1992, 96, 3834-3843.	3.0	58
140	On the importance of kinetic inhomogeneities in understanding glassy dynamics. AIP Conference Proceedings, 1992, , .	0.4	0
141	The origin of glassy dynamics in the 2D facilitated kinetic Ising model. Journal of Chemical Physics, 1991, 95, 4454-4465.	3.0	93
142	Glassy relaxation at surfaces: The correlation length of cooperative motion in the facilitated kinetic Ising model. Journal of Chemical Physics, 1991, 95, 4466-4470.	3.0	46
143	Mechanical instability of colloidal crystals under shear flow. Physical Review A, 1990, 42, 3427-3431.	2.5	6
144	The shear melting of colloidal crystals: A long wavelength driven transition. Journal of Chemical Physics, 1987, 87, 4154-4161.	3.0	17

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145	On the interaction between order and a moving interface: Dynamical disordering and anisotropic growth rates. Journal of Chemical Physics, 1987, 86, 2932-2942.	3.0	96
146	Crystal structure analyses of reduced (Cul) poplar plastocyanin at six pH values. Journal of Molecular Biology, 1986, 192, 361-387.	4.2	404
147	Anisotropic surface free energy and the roughening transition of the diffuse crystal-liquid interface. Physical Review B, 1986, 33, 6293-6303.	3.2	10
148	Quantum theory of the full pressure dependence of collision induced intersystem crossing. Journal of Chemical Physics, 1985, 83, 6288-6300.	3.0	9
149	On the positivity of the density in molecular theories of freezing. Journal of Chemical Physics, 1985, 83, 6058-6059.	3.0	8
150	Interfacial properties and phase transitions of a system of anisotropic molecules. Molecular Physics, 1985, 54, 1325-1333.	1.7	18
151	A molecular theory of crystal nucleation from the melt. Journal of Chemical Physics, 1984, 80, 1639-1646.	3.0	150
152	A Van der Waals model of chiral mixtures using a chiral Lennard-Jones potential. Applications to the Pasteur Experiment and phenomena in chiral solvents. Journal of the American Chemical Society, 1983, 105, 723-730.	13.7	24