Richard K Bowles

List of Publications by Year
in descending order

70	1,423	279701 23	345118 36
papers	citations	h-index	g-index

73	73	73	1014
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Free energy surface of ST2 water near the liquid-liquid phase transition. Journal of Chemical Physics, 2013, 138, 034505.	1.2	118
2	Phase transitions in systems small enough to be clusters. Journal of Chemical Physics, 2003, 118, 340-353.	1.2	117
3	A molecular theory of the homogeneous nucleation rate. I. Formulation and fundamental issues. Journal of Chemical Physics, 1999, 110, 6421-6437.	1.2	85
4	A molecular theory of the homogeneous nucleation rate. II. Application to argon vapor. Journal of Chemical Physics, 1999, 110, 6438-6450.	1.2	72
5	A theory for the deliquescence of small particles. Journal of Chemical Physics, 2000, 113, 8200-8205.	1.2	52
6	Theory of Size Dependent Deliquescence of Nanoparticles:Â Relation to Heterogeneous Nucleation and Comparison with Experiments. Journal of Physical Chemistry B, 2001, 105, 7708-7722.	1.2	50
7	Surface Nucleation in the Freezing of Gold Nanoparticles. Physical Review Letters, 2007, 98, 185503.	2.9	49
8	Nonclassical Nucleation in a Solid-Solid Transition of Confined Hard Spheres. Physical Review Letters, 2015, 115, 185701.	2.9	48
9	A molecular based derivation of the nucleation theorem. Journal of Chemical Physics, 2000, 113, 4524-4532.	1.2	40
10	Some fundamental statistical mechanical relations concerning physical clusters of interest to nucleation theory. Journal of Chemical Physics, 1999, 111, 7501-7504.	1.2	37
11	A theorem for inhomogeneous systems: The generalization of the nucleation theorem. Journal of Chemical Physics, 2001, 115, 1853-1866.	1.2	37
12	Edwards entropy and compactivity in a model of granular matter. Physical Review E, 2011, 83, 031302.	0.8	37
13	Complete Jamming Landscape of Confined Hard Discs. Physical Review Letters, 2009, 102, 235701.	2.9	36
14	Simulative determination of kinetic coefficients for nucleation rates. Journal of Chemical Physics, 2001, 114, 8091-8104.	1.2	35
15	Test of classical nucleation theory on deeply supercooled high-pressure simulated silica. Journal of Chemical Physics, 2006, 124, 224709.	1.2	34
16	Calculating the hopping times of confined fluids: Two hard disks in a box. Journal of Chemical Physics, 2004, 121, 10668-10673.	1.2	32
17	Phase transitions in fluctuations and their role in two-step nucleation. Journal of Chemical Physics, 2019, 150, 074501.	1.2	30
18	Landscapes, dynamic heterogeneity, and kinetic facilitation in a simple off-lattice model. Physical Review E, 2006, 73, 011503.	0.8	28

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19	Crystal Nucleation in a Supercooled Liquid with Glassy Dynamics. Physical Review Letters, 2009, 103, 225701.	2.9	28
20	Inherent Structure Landscape Connection between Liquids, Granular Materials, and the Jamming Phase Diagram. Physical Review Letters, 2013, 110, 145701.	2.9	28
21	Fragile-Strong Fluid Crossover and Universal Relaxation Times in a Confined Hard-Disk Fluid. Physical Review Letters, 2012, 109, 225701.	2.9	26
22	Normal and anomalous diffusion in highly confined hard disk fluid mixtures. Journal of Chemical Physics, 2009, 130, 054504.	1.2	24
23	Inherent structures, fragility, and jamming: Insights from quasi-one-dimensional hard disks. Physical Review E, 2015, 91, 022301.	0.8	24
24	Cavities in the hard sphere crystal and fluid. Molecular Physics, 1994, 83, 113-125.	0.8	21
25	The vapour pressure of glassy crystals of dimers. Molecular Physics, 1996, 87, 1349-1361.	0.8	20
26	Five discs in a box. Physica A: Statistical Mechanics and Its Applications, 1999, 262, 76-87.	1.2	17
27	A comparison of KÃ¶hler activation with nucleation for NaClâ€“H2O. Journal of Chemical Physics, 2000, 113, 8194-8199.	1.2	17
28	Osmotic force resisting chain insertion in a colloidal suspension. European Physical Journal E, 2003, 10, 191-197.	0.7	17
29	Heterogeneous condensation of the Lennard-Jones vapor onto a nanoscale seed particle. Journal of Chemical Physics, 2011, 134, 114505.	1.2	17
30	A limit of stability in supercooled liquid clusters. Journal of Chemical Physics, 2007, 127, 154703.	1.2	16
31	Helical Defect Packings in a Quasi-One-Dimensional System of Cylindrically Confined Hard Spheres. Physical Review Letters, 2015, 115, 025702.	2.9	16
32	Free energy of formation of small ice nuclei near the Widom line in simulations of supercooled water. European Physical Journal E, 2015, 38, 124.	0.7	15
33	Molecular Dynamics Simulations of Competitive Freezing in Gold Nanoclusters. Journal of Physical Chemistry C, 2012, 116, 14619-14626.	1.5	14
34	Heterogeneous nucleation in the low-barrier regime. Physical Review E, 2013, 87, 042407.	0.8	14
35	Statistical geometry of hard sphere systems: exact relations for additive and non-additive mixtures. Molecular Physics, 1999, 96, 1623-1635.	0.8	13
36	Role of constraints in the thermodynamics of heterogeneous condensation on solid soluble particles: failure of the capillarity approximation. Physica A: Statistical Mechanics and Its Applications, 2001, 298, 155-176.	1.2	13

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37	A transition state theory for calculating hopping times and diffusion in highly confined fluids. Journal of Chemical Physics, 2014, 140, 024505.	1.2	12
38	Mapping volume scale for overlapping clusters. Journal of Chemical Physics, 2000, 112, 1390-1394.	1.2	11
39	The role of fcc tetrahedral subunits in the phase behavior of medium sized Lennard-Jones clusters. Journal of Chemical Physics, 2010, 133, 074503.	1.2	11
40	A thermodynamic description of the glass transition: an exact one-dimensional example. Physica A: Statistical Mechanics and Its Applications, 2000, 275, 217-228.	1.2	10
41	Diffusion in quasi-one-dimensional channels: A small system n, p, T, transition state theory for hopping times. Journal of Chemical Physics, 2017, 146, 154505.	1.2	10
42	Comparison between two methods for mapping fluctuations in a simulation cell onto a macrovolume. Journal of Chemical Physics, 1999, 111, 9965-9970.	1.2	9
43	Free energy surface of two-step nucleation. Journal of Chemical Physics, 2021, 154, 234507.	1.2	9
44	Modeling the influence of effective oil volume fraction and droplet repulsive interaction on nanoemulsion gelation. Journal of Food Engineering, 2019, 249, 25-33.	2.7	8
45	â€œSwarm relaxationâ€• Equilibrating a large ensemble of computer simulationsâ‹†. European Physical Journal E, 2017, 40, 98.	0.7	7
46	Statistical Geometry and Lattices. Journal of Statistical Physics, 1999, 96, 1111-1123.	0.5	5
47	Statistical geometry of hard sphere systems: exact relations for first-order phase transitions in multicomponent systems. Molecular Physics, 2000, 98, 429-438.	0.8	5
48	Simulation of nanoscale density fluctuations. Journal of Chemical Physics, 2000, 113, 8615-8630.	1.2	5
49	Mapping of simulated localized fluctuations onto a macrosystem: Direct counting in the macrosystem to confirm statistical mechanical theory. Journal of Chemical Physics, 2000, 112, 1122-1124.	1.2	4
50	On a debate over the simulation and mapping of physical clusters in small cells. Journal of Chemical Physics, 2002, 117, 557-566.	1.2	4
51	Single file and normal dual mode diffusion in highly confined hard sphere mixtures under flow. Journal of Chemical Physics, 2012, 137, 104501.	1.2	4
52	Exploring the Impact of Tail Polarity on the Phase Behavior of Single Component and Mixed Lipid Monolayers Using a MARTINI Coarse-Grained Force Field. Journal of Physical Chemistry B, 2016, 120, 7641-7651.	1.2	4
53	A tiling approach to counting inherent structures in hard potential systems. Journal of Non-Crystalline Solids, 2009, 355, 700-704.	1.5	3
54	Vapor condensation onto a non-volatile liquid drop. Journal of Chemical Physics, 2013, 139, 214703.	1.2	3

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55	Vapor Condensed and Supercooled Glassy Nanoclusters. ACS Nano, 2016, 10, 3416-3423.	7.3	3
56	The effect of soft repulsive interactions on the diffusion of particles in quasi-one-dimensional channels: A hopping time approach. Journal of Chemical Physics, 2019, 150, 224501.	1.2	3
57	Glass forming phase diagram and local structure of Kobâ€“Andersen binary Lennard-Jones nanoparticles. Journal of Chemical Physics, 2018, 149, 094502.	1.2	2
58	Mapping diffusivity of narrow channels into one dimension. Physical Review E, 2020, 101, 012908.	0.8	2
59	The solubility transition in partially miscible, non-volatile liquid drops. , 2013, , .		1
60	Competitive heterogeneous nucleation onto a microscopic impurity in a Potts model. Journal of Chemical Physics, 2016, 145, 064511.	1.2	1
61	Free energy surface of ST2 water near the liquid-liquid phase transition. , 0, .		1
62	The vapour pressure of glassy crystals of dimers. , 0, .		1
63	Statistical Geometry and Cavity Correlations in the Hard Sphere Fluid. Collection of Czechoslovak Chemical Communications, 2008, 73, 344-357.	1.0	1
64	ERRATUM The vapour pressure of glassy crystals of dimers. Molecular Physics, 1996, 88, 1671-1671.	0.8	1
65	Influence on crystal nucleation of an order-disorder transition among the subcritical clusters. Physical Review E, 2022, 105, .	0.8	1
66	A theory for the deliquescence of small particles. AIP Conference Proceedings, 2000, , .	0.3	0
67	Dualâ€Polarization Imaging of a Dualâ€Fluorophore Ion Sensor: A Singleâ€Molecule Study. ChemPhysChem, 2008, 9, 1947-1953.	1.0	0
68	Competitive freezing in gold nanoparticles. , 2013, , .		0
69	Surface Nucleation in Freezing Nanoparticles. , 2007, , 339-343.		0
70	Inherent structure landscape of hard spheres confined to narrow cylindrical channels. Physical Review E, 2021, 104, 064602.	0.8	0