

Roland R Netz

List of Publications by Year in descending order

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128
papers

6,818
citations

61984

43
h-index

69250

77
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130
all docs

130
docs citations

130
times ranked

6311
citing authors

#	ARTICLE	IF	CITATIONS
1	Role of entropy in determining the phase behavior of protein solutions induced by multivalent ions. <i>Soft Matter</i> , 2022, 18, 592-601.	2.7	3
2	Charge Matters: Mutations in Omicron Variant Favor Binding to Cells. <i>ChemBioChem</i> , 2022, 23, e202100681.	2.6	62
3	Time-Dependent Friction Effects on Vibrational Infrared Frequencies and Line Shapes of Liquid Water. <i>Journal of Physical Chemistry B</i> , 2022, 126, 1579-1589.	2.6	11
4	Supramolecular Engineering of Alkylated, Fluorinated, and Mixed Amphiphiles. <i>Macromolecular Rapid Communications</i> , 2022, 43, e2100914.	3.9	7
5	Molecular dynamics simulations of the evaporation of hydrated ions from aqueous solution. <i>Communications Chemistry</i> , 2022, 5, .	4.5	15
6	Ultrafast proton-coupled isomerization in the phototransformation of phytochrome. <i>Nature Chemistry</i> , 2022, 14, 823-830.	13.6	12
7	Generalized Langevin equation with a nonlinear potential of mean force and nonlinear memory friction from a hybrid projection scheme. <i>Physical Review E</i> , 2022, 105, .	2.1	25
8	Dielectric constant of aqueous solutions of proteins and organic polymers from molecular dynamics simulations. <i>Journal of Chemical Physics</i> , 2022, 156, .	3.0	1
9	Fluids at the Nanoscale: From Continuum to Subcontinuum Transport. <i>Annual Review of Fluid Mechanics</i> , 2021, 53, 377-410.	25.0	172
10	Basement membrane stiffness determines metastases formation. <i>Nature Materials</i> , 2021, 20, 892-903.	27.5	94
11	Interfacial, Electroviscous, and Nonlinear Dielectric Effects on Electrokinetics at Highly Charged Surfaces. <i>Journal of Physical Chemistry B</i> , 2021, 125, 4767-4778.	2.6	14
12	Polysulfate hemmen durch elektrostatische Wechselwirkungen die SARS-CoV-2-Infektion**. <i>Angewandte Chemie</i> , 2021, 133, 16005-16014.	2.0	0
13	Water at charged interfaces. <i>Nature Reviews Chemistry</i> , 2021, 5, 466-485.	30.2	186
14	Polysulfates Block SARS-CoV-2 Uptake through Electrostatic Interactions**. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 15870-15878.	13.8	49
15	Non-Markovian modeling of protein folding. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	47
16	A synthetic tubular molecular transport system. <i>Nature Communications</i> , 2021, 12, 4393.	12.8	23
17	Transferable Ion Force Fields in Water from a Simultaneous Optimization of Ion Solvation and Ion-Ion Interaction. <i>Journal of Physical Chemistry B</i> , 2021, 125, 8581-8587.	2.6	34
18	Interplay of Interfacial Viscosity, Specific-Ion, and Impurity Adsorption Determines Zeta Potentials of Phospholipid Membranes. <i>Langmuir</i> , 2021, 37, 8463-8473.	3.5	10

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19	Exploring the locking stage of NFGAILS amyloid fibrillation via transition manifold analysis. <i>European Physical Journal B</i> , 2021, 94, 1.	1.5	3
20	Sequence-specific response of collagen-mimetic peptides to osmotic pressure. <i>MRS Bulletin</i> , 2021, 46, 889-901.	3.5	4
21	Water evaporation from solute-containing aerosol droplets: Effects of internal concentration and diffusivity profiles and onset of crust formation. <i>Physics of Fluids</i> , 2021, 33, 091901.	4.0	18
22	Airborne virus transmission via respiratory droplets: Effects of droplet evaporation and sedimentation. <i>Current Opinion in Colloid and Interface Science</i> , 2021, 55, 101471.	7.4	38
23	Estimating computational limits on theoretical descriptions of biological cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	16
24	Hydrophobicity of Self-Assembled Monolayers of Alkanes: Fluorination, Density, Roughness, and Lennard-Jones Cutoffs. <i>Langmuir</i> , 2021, 37, 13846-13858.	3.5	10
25	Mechanisms of Airborne Infection via Evaporating and Sedimenting Droplets Produced by Speaking. <i>Journal of Physical Chemistry B</i> , 2020, 124, 7093-7101.	2.6	84
26	Consistent description of ion-specificity in bulk and at interfaces by solvent implicit simulations and mean-field theory. <i>Journal of Chemical Physics</i> , 2020, 153, 034103.	3.0	11
27	Negative friction memory induces persistent motion. <i>European Physical Journal E</i> , 2020, 43, 67.	1.6	9
28	The Impact of Halogenated Phenylalanine Derivatives on NFGAIL Amyloid Formation. <i>ChemBioChem</i> , 2020, 21, 3544-3554.	2.6	13
29	Physics of virus transmission by speaking droplets. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 25209-25211.	7.1	46
30	Barrier crossing in the presence of multi-exponential memory functions with unequal friction amplitudes and memory times. <i>Europhysics Letters</i> , 2020, 131, 40004.	2.0	8
31	Rapid onset of molecular friction in liquids bridging between the atomistic and hydrodynamic pictures. <i>Communications Physics</i> , 2020, 3, .	5.3	29
32	Energy transfer within the hydrogen bonding network of water following resonant terahertz excitation. <i>Science Advances</i> , 2020, 6, eaay7074.	10.3	62
33	Universal and Nonuniversal Aspects of Electrostatics in Aqueous Nanoconfinement. <i>Journal of Physical Chemistry B</i> , 2020, 124, 4365-4371.	2.6	48
34	Force Response of Polypeptide Chains from Water-Explicit MD Simulations. <i>Macromolecules</i> , 2020, 53, 4618-4629.	4.8	3
35	Macroscopic conductivity of aqueous electrolyte solutions scales with ultrafast microscopic ion motions. <i>Nature Communications</i> , 2020, 11, 1611.	12.8	31
36	Nanomolar Surface-Active Charged Impurities Account for the Zeta Potential of Hydrophobic Surfaces. <i>Langmuir</i> , 2020, 36, 3645-3658.	3.5	27

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37	Non-Markovian data-driven modeling of single-cell motility. <i>Physical Review E</i> , 2020, 101, 032408.	2.1	27
38	Exploring the Absorption Spectrum of Simulated Water from MHz to Infrared. <i>Journal of Physical Chemistry A</i> , 2020, 124, 5599-5605.	2.5	25
39	Approach to equilibrium and nonequilibrium stationary distributions of interacting many-particle systems that are coupled to different heat baths. <i>Physical Review E</i> , 2020, 101, 022120.	2.1	16
40	Collective exchange processes reveal an active site proton cage in bacteriorhodopsin. <i>Communications Biology</i> , 2020, 3, 4.	4.4	14
41	Molecular interpretation of the non-Newtonian viscoelastic behavior of liquid water at high frequencies. <i>Physical Review Fluids</i> , 2020, 5, .	2.5	11
42	Influence of polar co-solutes and salt on the hydration of lipid membranes. <i>Physical Chemistry Chemical Physics</i> , 2019, 21, 16989-17000.	2.8	16
43	Memory-kernel extraction for different molecular solutes in solvents of varying viscosity in confinement. <i>Physical Review E</i> , 2019, 100, 012126.	2.1	35
44	Comment on "Hydrophobic Surface Enhances Electrostatic Interaction in Water". <i>Physical Review Letters</i> , 2019, 123, 049601.	7.8	19
45	Adsorption Kinetics in Open Nanopores as a Source of Low-Frequency Noise. <i>Nano Letters</i> , 2019, 19, 7265-7272.	9.1	25
46	Mass-Dependent Solvent Friction of a Hydrophobic Molecule. <i>Journal of Physical Chemistry B</i> , 2019, 123, 8123-8130.	2.6	8
47	Non-Markovian barrier crossing with two-time-scale memory is dominated by the faster memory component. <i>European Physical Journal E</i> , 2019, 42, 119.	1.6	19
48	Unraveling the Origin of the Apparent Charge of Zwitterionic Lipid Layers. <i>Journal of Physical Chemistry Letters</i> , 2019, 10, 6355-6359.	4.6	17
49	Opposing Temperature Dependence of the Stretching Response of Single PEG and PNIPAM Polymers. <i>Journal of the American Chemical Society</i> , 2019, 141, 11603-11613.	13.7	53
50	Tailor-Made Core-Multishell Nanocarriers for the Delivery of Cationic Analgesics to Inflamed Tissue. <i>Advanced Therapeutics</i> , 2019, 2, 1900007.	3.2	2
51	Cyclization and Relaxation Dynamics of Finite-Length Collapsed Self-Avoiding Polymers. <i>Physical Review Letters</i> , 2019, 122, 067801.	7.8	12
52	Giant Axial Dielectric Response in Water-Filled Nanotubes and Effective Electrostatic Ion-Ion Interactions from a Tensorial Dielectric Model. <i>Journal of Physical Chemistry B</i> , 2019, 123, 10850-10857.	2.6	28
53	Simulations of Nanoseparated Charged Surfaces Reveal Charge-Induced Water Reorientation and Nonadditivity of Hydration and Mean-Field Electrostatic Repulsion. <i>Langmuir</i> , 2019, 35, 551-560.	3.5	39
54	Impurity effects at hydrophobic surfaces. <i>Current Opinion in Electrochemistry</i> , 2019, 13, 166-173.	4.8	48

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55	Quantitative Prediction of Multivalent Ligand- α -Receptor Binding Affinities for Influenza, Cholera, and Anthrax Inhibition. ACS Nano, 2018, 12, 4140-4147.	14.6	36
56	Analytical Interfacial Layer Model for the Capacitance and Electrokinetics of Charged Aqueous Interfaces. Langmuir, 2018, 34, 9097-9113.	3.5	25
57	Water-separated ion pairs cause the slow dielectric mode of magnesium sulfate solutions. Journal of Chemical Physics, 2018, 148, 222812.	3.0	22
58	Effects of Urea and TMAO on Lipid Self-Assembly under Osmotic Stress Conditions. Journal of Physical Chemistry B, 2018, 122, 6471-6482.	2.6	34
59	Orientation of non-spherical protonated water clusters revealed by infrared absorption dichroism. Nature Communications, 2018, 9, 311.	12.8	22
60	Charged Surface-Active Impurities at Nanomolar Concentration Induce Jones- α -Ray Effect. Journal of Physical Chemistry Letters, 2018, 9, 189-193.	4.6	55
61	Memory-induced acceleration and slowdown of barrier crossing. Journal of Chemical Physics, 2018, 148, 014903.	3.0	37
62	Dielectric boundary effects on the interaction between planar charged surfaces with counterions only. Journal of Chemical Physics, 2018, 148, 164103.	3.0	14
63	Collective hydrogen-bond rearrangement dynamics in liquid water. Journal of Chemical Physics, 2018, 149, 244504.	3.0	22
64	Generalized line tension of water nanodroplets. Physical Review E, 2018, 98, .	2.1	29
65	Hydrodynamic Shear Effects on Grafted and Non-Grafted Collapsed Polymers. Polymers, 2018, 10, 926.	4.5	10
66	Breakdown of Linear Dielectric Theory for the Interaction between Hydrated Ions and Graphene. Journal of Physical Chemistry Letters, 2018, 9, 6463-6468.	4.6	35
67	Fluctuation-dissipation relation and stationary distribution of an exactly solvable many-particle model for active biomatter far from equilibrium. Journal of Chemical Physics, 2018, 148, 185101.	3.0	24
68	Butane dihedral angle dynamics in water is dominated by internal friction. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 5169-5174.	7.1	56
69	Particle Trapping Mechanisms Are Different in Spatially Ordered and Disordered Interacting Gels. Biophysical Journal, 2018, 114, 2653-2664.	0.5	19
70	Mutual A domain interactions in the force sensing protein von Willebrand factor. Journal of Structural Biology, 2017, 197, 57-64.	2.8	46
71	Hydration Repulsion Difference between Ordered and Disordered Membranes Due to Cancellation of Membrane- α -Membrane and Water-Mediated Interactions. Journal of Physical Chemistry Letters, 2017, 8, 2869-2874.	4.6	18
72	Tight cohesion between glycolipid membranes results from balanced water- α -headgroup interactions. Nature Communications, 2017, 8, 14899.	12.8	61

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73	Data-based modeling of drug penetration relates human skin barrier function to the interplay of diffusivity and free-energy profiles. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 3631-3636.	7.1	47
74	General method for the quantification of drug loading and release kinetics of nanocarriers. European Journal of Pharmaceutics and Biopharmaceutics, 2017, 116, 131-137.	4.3	26
75	Power-law electrokinetic behavior as a direct probe of effective surface viscosity. Chemical Physics Letters, 2017, 670, 11-15.	2.6	14
76	Hydration Effects Turn a Highly Stretched Polymer from an Entropic into an Energetic Spring. ACS Nano, 2017, 11, 702-712.	14.6	68
77	Hydration Friction in Nanoconfinement: From Bulk via Interfacial to Dry Friction. Nano Letters, 2017, 17, 5969-5976.	9.1	44
78	Orientation-Induced Adsorption of Hydrated Protons at the Air-Water Interface. Angewandte Chemie - International Edition, 2017, 56, 15846-15851.	13.8	42
79	Ratchet effect for nanoparticle transport in hair follicles. European Journal of Pharmaceutics and Biopharmaceutics, 2017, 116, 125-130.	4.3	50
80	External Potential Modifies Friction of Molecular Solutes in Water. Physical Review X, 2017, 7, .	8.9	48
81	Nonlinear fractional waves at elastic interfaces. Physical Review Fluids, 2017, 2, .	2.5	24
82	Ratchet effect for two-dimensional nanoparticle motion in a corrugated oscillating channel. European Physical Journal E, 2016, 39, 116.	1.6	4
83	Nanoscale Structure of the Oil-Water Interface. Physical Review Letters, 2016, 117, 256102.	7.8	28
84	Nanoparticle filtering in charged hydrogels: Effects of particle size, charge asymmetry and salt concentration. European Physical Journal E, 2016, 39, 53.	1.6	37
85	Reversed Hofmeister series—The rule rather than the exception. Current Opinion in Colloid and Interface Science, 2016, 23, 10-18.	7.4	163
86	Water-Mediated Interactions between Hydrophilic and Hydrophobic Surfaces. Langmuir, 2016, 32, 8767-8782.	3.5	100
87	Single molecule force spectroscopy data and BD- and MD simulations on the blood protein von Willebrand factor. Data in Brief, 2016, 8, 1080-1087.	1.0	5
88	Water Dielectric Effects in Planar Confinement. Physical Review Letters, 2016, 117, 048001.	7.8	189
89	Optimization of classical nonpolarizable force fields for OH ⁻ and H ₃ O ⁺ . Journal of Chemical Physics, 2016, 144, 104503.	3.0	47
90	Computing pK _a Values in Different Solvents by Electrostatic Transformation. Journal of Chemical Theory and Computation, 2016, 12, 3360-3369.	5.3	28

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91	Shear-Induced Unfolding and Enzymatic Cleavage of Full-Length VWF Multimers. <i>Biophysical Journal</i> , 2016, 110, 545-554.	0.5	63
92	Interfacial layer effects on surface capacitances and electro-osmosis in electrolytes. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2016, 374, 20150033.	3.4	9
93	The mean shape of transition and first-passage paths. <i>Journal of Chemical Physics</i> , 2015, 143, 224108.	3.0	46
94	Barrier-induced dielectric counterion relaxation at super-low frequencies in salt-free polyelectrolyte solutions. <i>European Physical Journal E</i> , 2015, 38, 120.	1.6	5
95	Impact of secondary structure and hydration water on the dielectric spectrum of poly-alanine and possible relation to the debate on slaved versus slaving water. <i>Journal of Chemical Physics</i> , 2015, 142, 215104.	3.0	6
96	From hydration repulsion to dry adhesion between asymmetric hydrophilic and hydrophobic surfaces. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 12338-12343.	7.1	51
97	Dissecting ion-specific dielectric spectra of sodium-halide solutions into solvation water and ionic contributions. <i>Journal of Chemical Physics</i> , 2014, 141, 214502.	3.0	41
98	Ion-Specific Solvation Water Dynamics: Single Water versus Collective Water Effects. <i>Journal of Physical Chemistry A</i> , 2014, 118, 11667-11677.	2.5	37
99	Charge/mass dynamic structure factors of water and applications to dielectric friction and electroacoustic conversion. <i>Journal of Chemical Physics</i> , 2014, 140, 054512.	3.0	8
100	Influence of nonlinearities on the dynamics of thermally fluctuating systems revealed by the expansion of dynamic observables in powers of the thermal noise strength. <i>European Physical Journal B</i> , 2013, 86, 1.	1.5	0
101	Beyond the Continuum: How Molecular Solvent Structure Affects Electrostatics and Hydrodynamics at Solid-Electrolyte Interfaces. <i>Journal of Physical Chemistry B</i> , 2013, 117, 11397-11413.	2.6	110
102	Force fields for divalent cations based on single-ion and ion-pair properties. <i>Journal of Chemical Physics</i> , 2013, 138, 024505.	3.0	118
103	Solvation thermodynamics and heat capacity of polar and charged solutes in water. <i>Journal of Chemical Physics</i> , 2013, 138, 115101.	3.0	21
104	Ionic force field optimization based on single-ion and ion-pair solvation properties: Going beyond standard mixing rules. <i>Journal of Chemical Physics</i> , 2012, 136, 124103.	3.0	129
105	On the Relationship between Peptide Adsorption Resistance and Surface Contact Angle: A Combined Experimental and Simulation Single-Molecule Study. <i>Journal of the American Chemical Society</i> , 2012, 134, 19628-19638.	13.7	72
106	Profile of the Static Permittivity Tensor of Water at Interfaces: Consequences for Capacitance, Hydration Interaction and Ion Adsorption. <i>Langmuir</i> , 2012, 28, 7679-7694.	3.5	170
107	Viscous Friction of Hydrogen-Bonded Matter. <i>Journal of the American Chemical Society</i> , 2012, 134, 623-630.	13.7	55
108	Unraveling the Combined Effects of Dielectric and Viscosity Profiles on Surface Capacitance, Electro-Osmotic Mobility, and Electric Surface Conductivity. <i>Langmuir</i> , 2012, 28, 16049-16059.	3.5	88

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109	Friction contribution to water-bond breakage kinetics. <i>Physical Review E</i> , 2011, 84, 051501.	2.1	11
110	Dielectric Profile of Interfacial Water and its Effect on Double-Layer Capacitance. <i>Physical Review Letters</i> , 2011, 107, 166102.	7.8	235
111	How the diffusivity profile reduces the arbitrariness of protein folding free energies. <i>Journal of Chemical Physics</i> , 2010, 132, 245103.	3.0	77
112	Electrokinetics at Aqueous Interfaces without Mobile Charges. <i>Langmuir</i> , 2010, 26, 12614-12625.	3.5	47
113	Reversed Anionic Hofmeister Series: The Interplay of Surface Charge and Surface Polarity. <i>Langmuir</i> , 2010, 26, 7370-7379.	3.5	256
114	Nanoroughness, Intrinsic Density Profile, and Rigidity of the Air-Water Interface. <i>Physical Review Letters</i> , 2009, 103, 136102.	7.8	43
115	Plectoneme creation reduces the rotational friction of a polymer. <i>Europhysics Letters</i> , 2009, 87, 38001.	2.0	17
116	Specific ion adsorption at the air/water interface: The role of hydrophobic solvation. <i>Chemical Physics Letters</i> , 2009, 479, 173-183.	2.6	208
117	Interfacial Water at Hydrophobic and Hydrophilic Surfaces: Slip, Viscosity, and Diffusion. <i>Langmuir</i> , 2009, 25, 10768-10781.	3.5	433
118	Rational design of ion force fields based on thermodynamic solvation properties. <i>Journal of Chemical Physics</i> , 2009, 130, 124507.	3.0	214
119	Water at polar and nonpolar solid walls (Review). <i>Biointerphases</i> , 2008, 3, FC23-FC39.	1.6	93
120	Specific Ion Adsorption at Hydrophobic Solid Surfaces. <i>Physical Review Letters</i> , 2007, 99, 226104.	7.8	168
121	Density Depletion at Solid-Liquid Interfaces: A Neutron Reflectivity Study. <i>Langmuir</i> , 2007, 23, 598-608.	3.5	107
122	Interfacial Water at Hydrophobic and Hydrophilic Surfaces: Depletion versus Adsorption. <i>Langmuir</i> , 2007, 23, 8417-8429.	3.5	144
123	Electrostatic interactions in strongly coupled soft matter. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2005, 352, 131-170.	2.6	171
124	Water at Hydrophobic Substrates: Curvature, Pressure, and Temperature Effects. <i>Langmuir</i> , 2004, 20, 4756-4763.	3.5	117
125	Conduction and diffusion in two-dimensional electrolytes. <i>Europhysics Letters</i> , 2003, 63, 616-622.	2.0	45
126	Simulations of counterions at charged plates. <i>European Physical Journal E</i> , 2002, 8, 33-58.	1.6	178

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127	Pore formation and rupture in fluid bilayers. Physical Review E, 1996, 53, 3875-3885.	2.1	48
128	Rational Design of Amphiphilic Fluorinated Peptides: Evaluation of Self-Assembly Properties and Hydrogel Formation. Nanoscale, 0, , .	5.6	9