Roland R Netz

List of Publications by Year
in descending order

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128	6,818	61984	69250
papers	citations	43 h-index	77 g-index

130	130	130	6311
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Interfacial Water at Hydrophobic and Hydrophilic Surfaces: Slip, Viscosity, and Diffusion. Langmuir, 2009, 25, 10768-10781.	3.5	433
2	Reversed Anionic Hofmeister Series: The Interplay of Surface Charge and Surface Polarity. Langmuir, 2010, 26, 7370-7379.	3.5	256
3	Dielectric Profile of Interfacial Water and its Effect on Double-Layer Capacitance. Physical Review Letters, 2011, 107, 166102.	7.8	235
4	Rational design of ion force fields based on thermodynamic solvation properties. Journal of Chemical Physics, 2009, 130, 124507.	3.0	214
5	Specific ion adsorption at the air/water interface: The role of hydrophobic solvation. Chemical Physics Letters, 2009, 479, 173-183.	2.6	208
6	Water Dielectric Effects in Planar Confinement. Physical Review Letters, 2016, 117, 048001.	7.8	189
7	Water at charged interfaces. Nature Reviews Chemistry, 2021, 5, 466-485.	30.2	186
8	Simulations of counterions at charged plates. European Physical Journal E, 2002, 8, 33-58.	1.6	178
9	Fluids at the Nanoscale: From Continuum to Subcontinuum Transport. Annual Review of Fluid Mechanics, 2021, 53, 377-410.	25.0	172
10	Electrostatic interactions in strongly coupled soft matter. Physica A: Statistical Mechanics and Its Applications, 2005, 352, 131-170.	2.6	171
11	Profile of the Static Permittivity Tensor of Water at Interfaces: Consequences for Capacitance, Hydration Interaction and Ion Adsorption. Langmuir, 2012, 28, 7679-7694.	3.5	170
12	Specific Ion Adsorption at Hydrophobic Solid Surfaces. Physical Review Letters, 2007, 99, 226104.	7.8	168
13	Reversed Hofmeister seriesâ€”The rule rather than the exception. Current Opinion in Colloid and Interface Science, 2016, 23, 10-18.	7.4	163
14	Interfacial Water at Hydrophobic and Hydrophilic Surfaces:â€‰ Depletion versus Adsorption. Langmuir, 2007, 23, 8417-8429.	3.5	144
15	Ionic force field optimization based on single-ion and ion-pair solvation properties: Going beyond standard mixing rules. Journal of Chemical Physics, 2012, 136, 124103.	3.0	129
16	Force fields for divalent cations based on single-ion and ion-pair properties. Journal of Chemical Physics, 2013, 138, 024505.	3.0	118
17	Water at Hydrophobic Substrates:Â Curvature, Pressure, and Temperature Effects. Langmuir, 2004, 20, 4756-4763.	3.5	117
18	Beyond the Continuum: How Molecular Solvent Structure Affects Electrostatics and Hydrodynamics at Solidâ€“Electrolyte Interfaces. Journal of Physical Chemistry B, 2013, 117, 11397-11413.	2.6	110

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19	Density Depletion at Solidâ^'Liquid Interfaces:Â a Neutron Reflectivity Study. Langmuir, 2007, 23, 598-608.	3.5	107
20	Water-Mediated Interactions between Hydrophilic and Hydrophobic Surfaces. Langmuir, 2016, 32, 8767-8782.	3.5	100
21	Basement membrane stiffness determines metastases formation. Nature Materials, 2021, 20, 892-903.	27.5	94
22	Water at polar and nonpolar solid walls (Review). Biointerphases, 2008, 3, FC23-FC39.	1.6	93
23	Unraveling the Combined Effects of Dielectric and Viscosity Profiles on Surface Capacitance, Electro-Osmotic Mobility, and Electric Surface Conductivity. Langmuir, 2012, 28, 16049-16059.	3.5	88
24	Mechanisms of Airborne Infection via Evaporating and Sedimenting Droplets Produced by Speaking. Journal of Physical Chemistry B, 2020, 124, 7093-7101.	2.6	84
25	How the diffusivity profile reduces the arbitrariness of protein folding free energies. Journal of Chemical Physics, 2010, 132, 245103.	3.0	77
26	On the Relationship between Peptide Adsorption Resistance and Surface Contact Angle: A Combined Experimental and Simulation Single-Molecule Study. Journal of the American Chemical Society, 2012, 134, 19628-19638.	13.7	72
27	Hydration Effects Turn a Highly Stretched Polymer from an Entropic into an Energetic Spring. ACS Nano, 2017, 11, 702-712.	14.6	68
28	Shear-Induced Unfolding and Enzymatic Cleavage of Full-Length VWF Multimers. Biophysical Journal, 2016, 110, 545-554.	0.5	63
29	Energy transfer within the hydrogen bonding network of water following resonant terahertz excitation. Science Advances, 2020, 6, eaay7074.	10.3	62
30	Charge Matters: Mutations in Omicron Variant Favor Binding to Cells. ChemBioChem, 2022, 23, e202100681.	2.6	62
31	Tight cohesion between glycolipid membranes results from balanced waterâ€"headgroup interactions. Nature Communications, 2017, 8, 14899.	12.8	61
32	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
33	Viscous Friction of Hydrogen-Bonded Matter. Journal of the American Chemical Society, 2012, 134, 623-630.	13.7	55
34	Charged Surface-Active Impurities at Nanomolar Concentration Induce Jonesâ€"Ray Effect. Journal of Physical Chemistry Letters, 2018, 9, 189-193.	4.6	55
35	Opposing Temperature Dependence of the Stretching Response of Single PEG and PNiPAM Polymers. Journal of the American Chemical Society, 2019, 141, 11603-11613.	13.7	53
36	From hydration repulsion to dry adhesion between asymmetric hydrophilic and hydrophobic surfaces. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 12338-12343.	7.1	51

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37	Ratchet effect for nanoparticle transport in hair follicles. European Journal of Pharmaceutics and Biopharmaceutics, 2017, 116, 125-130.	4.3	50
38	Polysulfates Block SARSâ€CoVâ€2 Uptake through Electrostatic Interactions**. Angewandte Chemie - International Edition, 2021, 60, 15870-15878.	13.8	49
39	Pore formation and rupture in fluid bilayers. Physical Review E, 1996, 53, 3875-3885.	2.1	48
40	External Potential Modifies Friction of Molecular Solutes in Water. Physical Review X, 2017, 7, .	8.9	48
41	Impurity effects at hydrophobic surfaces. Current Opinion in Electrochemistry, 2019, 13, 166-173.	4.8	48
42	Universal and Nonuniversal Aspects of Electrostatics in Aqueous Nanoconfinement. Journal of Physical Chemistry B, 2020, 124, 4365-4371.	2.6	48
43	Electrokinetics at Aqueous Interfaces without Mobile Charges. Langmuir, 2010, 26, 12614-12625.	3.5	47
44	Optimization of classical nonpolarizable force fields for OHâ^' and H3O+. Journal of Chemical Physics, 2016, 144, 104503.	3.0	47
45	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
46	Non-Markovian modeling of protein folding. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	47
47	The mean shape of transition and first-passage paths. Journal of Chemical Physics, 2015, 143, 224108.	3.0	46
48	Mutual A domain interactions in the force sensing protein von Willebrand factor. Journal of Structural Biology, 2017, 197, 57-64.	2.8	46
49	Physics of virus transmission by speaking droplets. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 25209-25211.	7.1	46
50	Conduction and diffusion in two-dimensional electrolytes. Europhysics Letters, 2003, 63, 616-622.	2.0	45
51	Hydration Friction in Nanoconfinement: From Bulk via Interfacial to Dry Friction. Nano Letters, 2017, 17, 5969-5976.	9.1	44
52	Nanoroughness, Intrinsic Density Profile, and Rigidity of the Air-Water Interface. Physical Review Letters, 2009, 103, 136102.	7.8	43
53	Orientationâ€Induced Adsorption of Hydrated Protons at the Airâ€“Water Interface. Angewandte Chemie - International Edition, 2017, 56, 15846-15851.	13.8	42
54	Dissecting ion-specific dielectric spectra of sodium-halide solutions into solvation water and ionic contributions. Journal of Chemical Physics, 2014, 141, 214502.	3.0	41

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55	Simulations of Nanoseparated Charged Surfaces Reveal Charge-Induced Water Reorientation and Nonadditivity of Hydration and Mean-Field Electrostatic Repulsion. Langmuir, 2019, 35, 551-560.	3.5	39
56	Airborne virus transmission via respiratory droplets: Effects of droplet evaporation and sedimentation. Current Opinion in Colloid and Interface Science, 2021, 55, 101471.	7.4	38
57	Ion-Specific Solvation Water Dynamics: Single Water versus Collective Water Effects. Journal of Physical Chemistry A, 2014, 118, 11667-11677.	2.5	37
58	Nanoparticle filtering in charged hydrogels: Effects of particle size, charge asymmetry and salt concentration. European Physical Journal E, 2016, 39, 53.	1.6	37
59	Memory-induced acceleration and slowdown of barrier crossing. Journal of Chemical Physics, 2018, 148, 014903.	3.0	37
60	Quantitative Prediction of Multivalent Ligandâ€“Receptor Binding Affinities for Influenza, Cholera, and Anthrax Inhibition. ACS Nano, 2018, 12, 4140-4147.	14.6	36
61	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
62	Memory-kernel extraction for different molecular solutes in solvents of varying viscosity in confinement. Physical Review E, 2019, 100, 012126.	2.1	35
63	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
64	Transferable Ion Force Fields in Water from a Simultaneous Optimization of Ion Solvation and Ionâ€“Ion Interaction. Journal of Physical Chemistry B, 2021, 125, 8581-8587.	2.6	34
65	Macroscopic conductivity of aqueous electrolyte solutions scales with ultrafast microscopic ion motions. Nature Communications, 2020, 11, 1611.	12.8	31
66	Generalized line tension of water nanodroplets. Physical Review E, 2018, 98, .	2.1	29
67	Rapid onset of molecular friction in liquids bridging between the atomistic and hydrodynamic pictures. Communications Physics, 2020, 3, .	5.3	29
68	Nanoscale Structure of the Oil-Water Interface. Physical Review Letters, 2016, 117, 256102.	7.8	28
69	Computing pK_a Values in Different Solvents by Electrostatic Transformation. Journal of Chemical Theory and Computation, 2016, 12, 3360-3369.	5.3	28
70	Giant Axial Dielectric Response in Water-Filled Nanotubes and Effective Electrostatic Ionâ€“Ion Interactions from a Tensorial Dielectric Model. Journal of Physical Chemistry B, 2019, 123, 10850-10857.	2.6	28
71	Nanomolar Surface-Active Charged Impurities Account for the Zeta Potential of Hydrophobic Surfaces. Langmuir, 2020, 36, 3645-3658.	3.5	27
72	Non-Markovian data-driven modeling of single-cell motility. Physical Review E, 2020, 101, 032408.	2.1	27

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73	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
74	Analytical Interfacial Layer Model for the Capacitance and Electrokinetics of Charged Aqueous Interfaces. Langmuir, 2018, 34, 9097-9113.	3.5	25
75	Adsorption Kinetics in Open Nanopores as a Source of Low-Frequency Noise. Nano Letters, 2019, 19, 7265-7272.	9.1	25
76	Exploring the Absorption Spectrum of Simulated Water from MHz to Infrared. Journal of Physical Chemistry A, 2020, 124, 5599-5605.	2.5	25
77	Generalized Langevin equationÂwith a nonlinear potential of mean force and nonlinear memory friction from a hybrid projection scheme. Physical Review E, 2022, 105, .	2.1	25
78	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
79	Nonlinear fractional waves at elastic interfaces. Physical Review Fluids, 2017, 2, .	2.5	24
80	A synthetic tubular molecular transport system. Nature Communications, 2021, 12, 4393.	12.8	23
81	Water-separated ion pairs cause the slow dielectric mode of magnesium sulfate solutions. Journal of Chemical Physics, 2018, 148, 222812.	3.0	22
82	Orientation of non-spherical protonated water clusters revealed by infrared absorption dichroism. Nature Communications, 2018, 9, 311.	12.8	22
83	Collective hydrogen-bond rearrangement dynamics in liquid water. Journal of Chemical Physics, 2018, 149, 244504.	3.0	22
84	Solvation thermodynamics and heat capacity of polar and charged solutes in water. Journal of Chemical Physics, 2013, 138, 115101.	3.0	21
85	Particle Trapping Mechanisms Are Different in Spatially Ordered and Disordered Interacting Gels. Biophysical Journal, 2018, 114, 2653-2664.	0.5	19
86	Comment on â€œHydrophobic Surface Enhances Electrostatic Interaction in Waterâ€• Physical Review Letters, 2019, 123, 049601.	7.8	19
87	Non-Markovian barrier crossing with two-time-scale memory is dominated by the faster memory component. European Physical Journal E, 2019, 42, 119.	1.6	19
88	Hydration Repulsion Difference between Ordered and Disordered Membranes Due to Cancellation of Membraneâ€“Membrane and Water-Mediated Interactions. Journal of Physical Chemistry Letters, 2017, 8, 2869-2874.	4.6	18
89	Water evaporation from solute-containing aerosol droplets: Effects of internal concentration and diffusivity profiles and onset of crust formation. Physics of Fluids, 2021, 33, 091901.	4.0	18
90	Plectoneme creation reduces the rotational friction of a polymer. Europhysics Letters, 2009, 87, 38001.	2.0	17

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91	Unraveling the Origin of the Apparent Charge of Zwitterionic Lipid Layers. Journal of Physical Chemistry Letters, 2019, 10, 6355-6359.	4.6	17
92	Influence of polar co-solutes and salt on the hydration of lipid membranes. Physical Chemistry Chemical Physics, 2019, 21, 16989-17000.	2.8	16
93	Approach to equilibrium and nonequilibrium stationary distributions of interacting many-particle systems that are coupled to different heat baths. Physical Review E, 2020, 101, 022120.	2.1	16
94	Estimating computational limits on theoretical descriptions of biological cells. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	16
95	Molecular dynamics simulations of the evaporation of hydrated ions from aqueous solution. Communications Chemistry, 2022, 5, .	4.5	15
96	Power-law electrokinetic behavior as a direct probe of effective surface viscosity. Chemical Physics Letters, 2017, 670, 11-15.	2.6	14
97	Dielectric boundary effects on the interaction between planar charged surfaces with counterions only. Journal of Chemical Physics, 2018, 148, 164103.	3.0	14
98	Collective exchange processes reveal an active site proton cage in bacteriorhodopsin. Communications Biology, 2020, 3, 4.	4.4	14
99	Interfacial, Electroviscous, and Nonlinear Dielectric Effects on Electrokinetics at Highly Charged Surfaces. Journal of Physical Chemistry B, 2021, 125, 4767-4778.	2.6	14
100	The Impact of Halogenated Phenylalanine Derivatives on NFGAIL Amyloid Formation. ChemBioChem, 2020, 21, 3544-3554.	2.6	13
101	Cyclization and Relaxation Dynamics of Finite-Length Collapsed Self-Avoiding Polymers. Physical Review Letters, 2019, 122, 067801.	7.8	12
102	Ultrafast proton-coupled isomerization in the phototransformation of phytochrome. Nature Chemistry, 2022, 14, 823-830.	13.6	12
103	Friction contribution to water-bond breakage kinetics. Physical Review E, 2011, 84, 051501.	2.1	11
104	Consistent description of ion-specificity in bulk and at interfaces by solvent implicit simulations and mean-field theory. Journal of Chemical Physics, 2020, 153, 034103.	3.0	11
105	Molecular interpretation of the non-Newtonian viscoelastic behavior of liquid water at high frequencies. Physical Review Fluids, 2020, 5, .	2.5	11
106	Time-Dependent Friction Effects on Vibrational Infrared Frequencies and Line Shapes of Liquid Water. Journal of Physical Chemistry B, 2022, 126, 1579-1589.	2.6	11
107	Hydrodynamic Shear Effects on Grafted and Non-Grafted Collapsed Polymers. Polymers, 2018, 10, 926.	4.5	10
108	Interplay of Interfacial Viscosity, Specific-Ion, and Impurity Adsorption Determines Zeta Potentials of Phospholipid Membranes. Langmuir, 2021, 37, 8463-8473.	3.5	10

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109	Hydrophobicity of Self-Assembled Monolayers of Alkanes: Fluorination, Density, Roughness, and Lennard-Jones Cutoffs. Langmuir, 2021, 37, 13846-13858.	3.5	10
110	Interfacial layer effects on surface capacitances and electro-osmosis in electrolytes. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150033.	3.4	9
111	Negative friction memory induces persistent motion. European Physical Journal E, 2020, 43, 67.	1.6	9
112	Rational Design of Amphiphilic Fluorinated Peptides: Evaluation of Self-Assembly Properties and Hydrogel Formation. Nanoscale, 0, , .	5.6	9
113	Charge/mass dynamic structure factors of water and applications to dielectric friction and electroacoustic conversion. Journal of Chemical Physics, 2014, 140, 054512.	3.0	8
114	Mass-Dependent Solvent Friction of a Hydrophobic Molecule. Journal of Physical Chemistry B, 2019, 123, 8123-8130.	2.6	8
115	Barrier crossing in the presence of multi-exponential memory functions with unequal friction amplitudes and memory times. Europhysics Letters, 2020, 131, 40004.	2.0	8
116	Supramolecular Engineering of Alkylated, Fluorinated, and Mixed Amphiphiles. Macromolecular Rapid Communications, 2022, 43, e2100914.	3.9	7
117	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. Journal of Chemical Physics, 2015, 142, 215104.	3.0	6
118	Barrier-induced dielectric counterion relaxation at super-low frequencies in salt-free polyelectrolyte solutions. European Physical Journal E, 2015, 38, 120.	1.6	5
119	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
120	Ratchet effect for two-dimensional nanoparticle motion in a corrugated oscillating channel. European Physical Journal E, 2016, 39, 116.	1.6	4
121	Sequence-specific response of collagen-mimetic peptides to osmotic pressure. MRS Bulletin, 2021, 46, 889-901.	3.5	4
122	Force Response of Polypeptide Chains from Water-Explicit MD Simulations. Macromolecules, 2020, 53, 4618-4629.	4.8	3
123	Exploring the locking stage of NFGAILS amyloid fibrillation via transition manifold analysis. European Physical Journal B, 2021, 94, 1.	1.5	3
124	Role of entropy in determining the phase behavior of protein solutions induced by multivalent ions. Soft Matter, 2022, 18, 592-601.	2.7	3
125	Tailorâ€Made Coreâ€Multishell Nanocarriers for the Delivery of Cationic Analgesics to Inflamed Tissue. Advanced Therapeutics, 2019, 2, 1900007.	3.2	2
126	Dielectric constant of aqueous solutions of proteins and organic polymers from molecular dynamics simulations. Journal of Chemical Physics, 2022, 156, .	3.0	1

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127	Influence of nonlinearities on the dynamics of thermally fluctuating systems revealed by the expansion of dynamic observables in powers of the thermal noise strength. European Physical Journal B, 2013, 86, 1.	1.5	0
128	Polysulfate hemmen durch elektrostatische Wechselwirkungen die SARSâ€CoVâ€2â€Infektion**. Angewandte Chemie, 2021, 133, 16005-16014.	2.0	0