Ard a louis

List of Publications by Year
in descending order

137 papers	9,250 citations	41344 49 h-index	45317 90 g-index
142 all docs	142 docs citations	142 times ranked	5075 citing authors

#	Article	IF	Citations
1	On the biophysics and kinetics of toehold-mediated DNA strand displacement. Nucleic Acids Research, 2013, 41, 10641-10658.	14.5	423
2	Structural, mechanical, and thermodynamic properties of a coarse-grained DNA model. Journal of Chemical Physics, 2011, 134, 085101.	3.0	379
3	Can Polymer Coils Be Modeled as â€œSoft Colloidsâ€?. Physical Review Letters, 2000, 85, 2522-2525.	7.8	374
4	Hydrodynamic interactions and Brownian forces in colloidal suspensions: Coarse-graining over time and length scales. Physical Review E, 2006, 74, 031402.	2.1	353
5	Accurate effective pair potentials for polymer solutions. Journal of Chemical Physics, 2001, 114, 4296-4311.	3.0	308
6	Introducing improved structural properties and salt dependence into a coarse-grained model of DNA. Journal of Chemical Physics, 2015, 142, 234901.	3.0	267
7	Sequence-dependent thermodynamics of a coarse-grained DNA model. Journal of Chemical Physics, 2012, 137, 135101.	3.0	265
8	Beware of density dependent pair potentials. Journal of Physics Condensed Matter, 2002, 14, 9187-9206.	1.8	259
9	Mean-field fluid behavior of the Gaussian core model. Physical Review E, 2000, 62, 7961-7972.	2.1	241
10	DNA hybridization kinetics: zippering, internal displacement and sequence dependence. Nucleic Acids Research, 2013, 41, 8886-8895.	14.5	203
11	Representability problems for coarse-grained water potentials. Journal of Chemical Physics, 2007, 126, 144509.	3.0	198
12	Influence of Polymer-Excluded Volume on the Phase-Behavior of Colloid-Polymer Mixtures. Physical Review Letters, 2002, 89, 128302.	7.8	182
13	Controlling crystallization and its absence: proteins, colloids and patchy models. Physical Chemistry Chemical Physics, 2007, 9, 2197.	2.8	179
14	Reversible self-assembly of patchy particles into monodisperse icosahedral clusters. Journal of Chemical Physics, 2007, 127, 085106.	3.0	176
15	Coarse-graining DNA for simulations of DNA nanotechnology. Physical Chemistry Chemical Physics, 2013, 15, 20395.	2.8	173
16	DNA Nanotweezers Studied with a Coarse-Grained Model of DNA. Physical Review Letters, 2010, 104, 178101.	7.8	162
17	Hydrodynamic and Brownian Fluctuations in Sedimenting Suspensions. Physical Review Letters, 2004, 93, 220601.	7.8	142
18	Polymer induced depletion potentials in polymer-colloid mixtures. Journal of Chemical Physics, 2002, 117, 1893-1907.	3.0	132

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19	Colloid-Polymer Mixtures in the Protein Limit. Physical Review Letters, 2003, 90, 068304.	7.8	127
20	Effective forces in colloidal mixtures: From depletion attraction to accumulation repulsion. Physical Review E, 2002, 65, 061407.	2.1	125
21	A nucleotide-level coarse-grained model of RNA. Journal of Chemical Physics, 2014, 140, 235102.	3.0	117
22	Phase separation in binary hard-core mixtures: An exact result. Physical Review Letters, 1992, 68, 3363-3365.	7.8	108
23	The stability of a crystal with diamond structure for patchy particles with tetrahedral symmetry. Journal of Chemical Physics, 2010, 132, 234511.	3.0	93
24	How To Derive and Parameterize Effective Potentials in Colloidâ˜'Polymer Mixtures. Macromolecules, 2002, 35, 1860-1869.	4.8	90
25	Optimizing DNA Nanotechnology through Coarse-Grained Modeling: A Two-Footed DNA Walker. ACS Nano, 2013, 7, 2479-2490.	14.6	88
26	Force-Induced Rupture of a DNA Duplex: From Fundamentals to Force Sensors. ACS Nano, 2015, 9, 11993-12003.	14.6	86
27	Direct Simulation of the Self-Assembly of a Small DNA Origami. ACS Nano, 2016, 10, 1724-1737.	14.6	86
28	Effective potentials for polymers and colloids: beyond the van der Waals picture of fluids?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2001, 359, 939-960.	3.4	85
29	Plectoneme tip bubbles: Coupled denaturation and writhing in supercoiled DNA. Scientific Reports, 2015, 5, 7655.	3.3	84
30	Theory of asymmetric nonadditive binary hard-sphere mixtures. Physical Review E, 2001, 64, 051202.	2.1	81
31	Phase diagram of model anisotropic particles with octahedral symmetry. Journal of Chemical Physics, 2007, 127, 054501.	3.0	80
32	The Arrival of the Frequent: How Bias in Genotype-Phenotype Maps Can Steer Populations to Local Optima. PLoS ONE, 2014, 9, e86635.	2.5	78
33	Inhibition of protein crystallization by evolutionary negative design. Physical Biology, 2004, 1, P9-P13.	1.8	77
34	Coarse-grained modelling of the structural properties of DNA origami. Nucleic Acids Research, 2019, 47, 1585-1597.	14.5	75
35	Many-body interactions and correlations in coarse-grained descriptions of polymer solutions. Physical Review E, 2001, 64, 021801.	2.1	73
36	Measuring colloidal interactions with confocal microscopy. Journal of Chemical Physics, 2007, 127, 044507.	3.0	73

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37	Knot-Controlled Ejection of a Polymer from a Virus Capsid. Physical Review Letters, 2009, 102, 088101.	7.8	72
38	Modelling the self-assembly of virus capsids. Journal of Physics Condensed Matter, 2010, 22, 104101.	1.8	71
39	Density profiles and surface tension of polymers near colloidal surfaces. Journal of Chemical Physics, 2002, 116, 10547-10556.	3.0	70
40	Self-Assembly and Evolution of Homomeric Protein Complexes. Physical Review Letters, 2009, 102, 118106.	7.8	68
41	Coarse-grained simulations of DNA overstretching. Journal of Chemical Physics, 2013, 138, 085101.	3.0	66
42	Design of hidden thermodynamic driving for non-equilibrium systems via mismatch elimination during DNA strand displacement. Nature Communications, 2020, 11, 2562.	12.8	66
43	A tractable genotypeâ€“phenotype map modelling the self-assembly of protein quaternary structure. Journal of the Royal Society Interface, 2014, 11, 20140249.	3.4	62
44	Monodisperse self-assembly in a model with protein-like interactions. Journal of Chemical Physics, 2009, 131, 175102.	3.0	61
45	Genetic Correlations Greatly Increase Mutational Robustness and Can Both Reduce and Enhance Evolvability. PLoS Computational Biology, 2016, 12, e1004773.	3.2	61
46	Exotic fluids and crystals of soft polymeric colloids. Journal of Physics Condensed Matter, 2002, 14, 7681-7698.	1.8	60
47	The structure of the genotypeâ€“phenotype map strongly constrains the evolution of non-coding RNA. Interface Focus, 2015, 5, 20150053.	3.0	58
48	Interplay between hydrodynamic and Brownian fluctuations in sedimenting colloidal suspensions. Physical Review E, 2008, 77, 011402.	2.1	57
49	Dynamic Colloidal Stabilization by Nanoparticle Halos. Physical Review Letters, 2004, 93, 248303.	7.8	55
50	Force-Induced Unravelling of DNA Origami. ACS Nano, 2018, 12, 6734-6747.	14.6	55
51	Influence of solvent quality on effective pair potentials between polymers in solution. Physical Review E, 2003, 67, 041801.	2.1	54
52	Self-assembly of monodisperse clusters: Dependence on target geometry. Journal of Chemical Physics, 2009, 131, 175101.	3.0	54
53	DNA hairpins destabilize duplexes primarily by promoting melting rather than by inhibiting hybridization. Nucleic Acids Research, 2015, 43, 6181-6190.	14.5	54
54	Modelling Toehold-Mediated RNA Strand Displacement. Biophysical Journal, 2015, 108, 1238-1247.	0.5	54

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55	Long-range correlations in the mechanics of small DNA circles under topological stress revealed by multi-scale simulation. Nucleic Acids Research, 2016, 44, gkw815.	14.5	54
56	TacoxDNA: A userâ€friendly web server for simulations of complex DNA structures, from single strands to origami. Journal of Computational Chemistry, 2019, 40, 2586-2595.	3.3	54
57	Formation of dodecagonal quasicrystals in two-dimensional systems of patchy particles. Journal of Chemical Physics, 2012, 136, 054904.	3.0	52
58	Correlation of automorphism group size and topological properties with program-size complexity evaluations of graphs and complex networks. Physica A: Statistical Mechanics and Its Applications, 2014, 404, 341-358.	2.6	51
59	Characterizing the Motion of Jointed DNA Nanostructures Using a Coarse-Grained Model. ACS Nano, 2017, 11, 12426-12435.	14.6	51
60	Symmetry and simplicity spontaneously emerge from the algorithmic nature of evolution. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2113883119.	7.1	50
61	Nonmonotonic variation with salt concentration of the second virial coefficient in protein solutions. Physical Review E, 2003, 67, 051404.	2.1	49
62	From genotypes to organisms: State-of-the-art and perspectives of a cornerstone in evolutionary dynamics. Physics of Life Reviews, 2021, 38, 55-106.	2.8	49
63	Crystallization and phase separation in nonadditive binary hard-sphere mixtures. Physical Review E, 2000, 61, R1028-R1031.	2.1	48
64	Extracting bulk properties of self-assembling systems from small simulations. Journal of Physics Condensed Matter, 2010, 22, 104102.	1.8	47
65	Stick boundary conditions and rotational velocity auto-correlation functions for colloidal particles in a coarse-grained representation of the solvent. Journal of Physics Condensed Matter, 2005, 17, S3393-S3399.	1.8	46
66	Self-assembly, modularity, and physical complexity. Physical Review E, 2010, 82, 026117.	2.1	46
67	Relating monomer to centre-of-mass distribution functions in polymer solutions. Europhysics Letters, 2002, 58, 53-59.	2.0	45
68	Metallization of fluid hydrogen. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 1998, 356, 119-138.	3.4	44
69	Templated self-assembly of patchy particles. Soft Matter, 2011, 7, 3423.	2.7	44
70	Inputâ€“output maps are strongly biased towards simple outputs. Nature Communications, 2018, 9, 761.	12.8	43
71	Discrete charge patterns, Coulomb correlations and interactions in protein solutions. Europhysics Letters, 2002, 57, 731-737.	2.0	42
72	Evolutionary dynamics in a simple model of self-assembly. Physical Review E, 2011, 83, 066105.	2.1	42

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73	Effects of Interparticle Attractions on Colloidal Sedimentation. Physical Review Letters, 2010, 104, 068301.	7.8	40
74	Atomic Tunneling from a Scanning-Tunneling or Atomic-Force Microscope Tip: Dissipative Quantum Effects from Phonons. Physical Review Letters, 1995, 74, 1363-1366.	7.8	39
75	The Asakuraâ€“Oosawa model in the protein limit: the role of many-body interactions. Journal of Physics Condensed Matter, 2003, 15, S3429-S3442.	1.8	38
76	Density profiles and solvation forces for a Yukawa fluid in a slit pore. Journal of Chemical Physics, 2008, 128, 204704.	3.0	38
77	Invited article: Thermodynamic perturbation theory of the phase behaviour of colloid/interacting polymer mixtures. Molecular Physics, 2004, 102, 1-11.	1.7	37
78	The self-assembly of DNA Holliday junctions studied with a minimal model. Journal of Chemical Physics, 2009, 130, 065101.	3.0	36
79	Epistasis can lead to fragmented neutral spaces and contingency in evolution. Proceedings of the Royal Society B: Biological Sciences, 2012, 279, 1777-1783.	2.6	36
80	Effect of Bending Rigidity on the Knotting of a Polymer under Tension. ACS Macro Letters, 2012, 1, 1352-1356.	4.8	36
81	DNA Cruciform Arms Nucleate through a Correlated but Asynchronous Cooperative Mechanism. Journal of Physical Chemistry B, 2012, 116, 11616-11625.	2.6	36
82	The structure of colloid-polymer mixtures. Europhysics Letters, 1999, 46, 741-747.	2.0	35
83	Characterizing DNA Star-Tile-Based Nanostructures Using a Coarse-Grained Model. ACS Nano, 2016, 10, 4236-4247.	14.6	35
84	Probing ion-ion and electron-ion correlations in liquid metals within the quantum hypernetted chain approximation. Physical Review B, 2000, 61, 11400-11410.	3.2	34
85	Coarse-graining diblock copolymer solutions: a macromolecular version of the Widomâ€“Rowlinson model. Molecular Physics, 2005, 103, 3045-3054.	1.7	34
86	Effect of topology on dynamics of knots in polymers under tension. Europhysics Letters, 2010, 89, 20001.	2.0	34
87	Re-entrant phase behavior for systems with competition between phase separation and self-assembly. Journal of Chemical Physics, 2011, 134, 104905.	3.0	34
88	Generalized depletion potentials. Journal of Physics Condensed Matter, 2001, 13, L777-L784.	1.8	32
89	The effect of scale-free topology on the robustness and evolvability of genetic regulatory networks. Journal of Theoretical Biology, 2010, 267, 48-61.	1.7	32
90	Phenotype Bias Determines How Natural RNA Structures Occupy the Morphospace of All Possible Shapes. Molecular Biology and Evolution, 2022, 39, .	8.9	32

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91	Coarse-graining polymers as soft colloids. Physica A: Statistical Mechanics and Its Applications, 2002, 306, 251-261.	2.6	31
92	Simulating a burnt-bridges DNA motor with a coarse-grained DNA model. Natural Computing, 2014, 13, 535-547.	3.0	30
93	The crossover from single file to Fickian diffusion. Faraday Discussions, 2010, 144, 285-299.	3.2	28
94	The effect of topology on the structure and free energy landscape of DNA kissing complexes. Journal of Chemical Physics, 2012, 136, 215102.	3.0	28
95	The Role of Loop Stacking in the Dynamics of DNA Hairpin Formation. Journal of Physical Chemistry B, 2014, 118, 14326-14335.	2.6	27
96	Contingency, convergence and hyper-astronomical numbers in biological evolution. Studies in History and Philosophy of Science Part C:Studies in History and Philosophy of Biological and Biomedical Sciences, 2016, 58, 107-116.	1.3	25
97	Extending Linear Response: Inferences from Electron-Ion Structure Factors. Physical Review Letters, 1998, 81, 4456-4459.	7.8	24
98	Viscous fingering at ultralow interfacial tension. Soft Matter, 2013, 9, 10599.	2.7	24
99	Zigzag transitions and nonequilibrium pattern formation in colloidal chains. Journal of Chemical Physics, 2013, 139, 134908.	3.0	22
100	Dynamics of solutes with hydrodynamic interactions: Comparison between Brownian dynamics and stochastic rotation dynamics simulations. Physical Review E, 2013, 88, 043304.	2.1	22
101	Identifying Physical Causes of Apparent Enhanced Cyclization of Short DNA Molecules with a Coarse-Grained Model. Journal of Chemical Theory and Computation, 2019, 15, 4660-4672.	5.3	22
102	Phase Separation of Penetrable Core Mixtures. Journal of Statistical Physics, 2003, 110, 1015-1037.	1.2	21
103	Pattern formation in colloidal explosions. Europhysics Letters, 2011, 94, 48008.	2.0	21
104	Confinement of knotted polymers in a slit. Molecular Physics, 2011, 109, 1289-1295.	1.7	20
105	Phase separation of a multiple occupancy lattice gas. Journal of Physics A, 2004, 37, 577-590.	1.6	18
106	Multi-scale coarse-graining for the study of assembly pathways in DNA-brick self-assembly. Journal of Chemical Physics, 2018, 148, 134910.	3.0	18
107	Effect of polymerâ€“polymer interactions on the surface tension of colloidâ€“polymer mixtures. Journal of Chemical Physics, 2003, 119, 12667-12672.	3.0	17
108	Influence of solvent quality on polymer solutions: A Monte Carlo study of bulk and interfacial properties. Journal of Chemical Physics, 2004, 121, 612.	3.0	17

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109	Polymer solutions: from hard monomers to soft polymers. Journal of Physics Condensed Matter, 2005, 17, S3185-S3193.	1.8	17
110	Characterizing the bending and flexibility induced by bulges in DNA duplexes. Journal of Chemical Physics, 2015, 142, 165101.	3.0	16
111	Density-Functional Study of Interfacial Properties of Colloidâ^'Polymer Mixturesâ€. Journal of Physical Chemistry B, 2005, 109, 6640-6649.	2.6	15
112	Hydrodynamics of confined colloidal fluids in two dimensions. Physical Review E, 2009, 79, 051402.	2.1	14
113	Coarse-grained modelling of supercoiled RNA. Journal of Chemical Physics, 2015, 143, 243122.	3.0	13
114	Generic predictions of output probability based on complexities of inputs and outputs. Scientific Reports, 2020, 10, 4415.	3.3	12
115	Complex dynamics of knotted filaments in shear flow. Europhysics Letters, 2010, 92, 34003.	2.0	11
116	From Concentration Profiles to Polymer Osmotic Equations of State. ChemPhysChem, 2005, 6, 1760-1764.	2.1	10
117	Measuring Internal Forces in Single-Stranded DNA: Application to a DNA Force Clamp. Journal of Chemical Theory and Computation, 2020, 16, 7764-7775.	5.3	10
118	How PÃ©clet number affects microstructure and transient cluster aggregation in sedimenting colloidal suspensions. Journal of Chemical Physics, 2012, 136, 064517.	3.0	9
119	Combining quantum and classical density functional theory for ionâ€“electron mixtures. Journal of Non-Crystalline Solids, 2002, 312-314, 60-68.	3.1	8
120	Boolean Threshold Networks as Models of Genotype-Phenotype Maps. Springer Proceedings in Complexity, 2020, , 143-155.	0.3	8
121	Phase Separation of a Model Binary Polymer Solution in an External Fieldâ€. Journal of Physical Chemistry B, 2006, 110, 3661-3665.	2.6	6
122	Taylor dispersion of colloidal particles in narrow channels. Molecular Physics, 2015, 113, 2538-2545.	1.7	6
123	The interplay of supercoiling and thymine dimers in DNA. Nucleic Acids Research, 2022, 50, 2480-2492.	14.5	6
124	Electronâ€“ion structure factors and the general accuracy of linear response. Journal of Non-Crystalline Solids, 1999, 250-252, 9-14.	3.1	5
125	Extracting short-ranged interactions from structure factors. Molecular Physics, 2011, 109, 2945-2951.	1.7	5
126	Fluid-Solid Phase Separation in Hard-Sphere Mixtures is Unrelated to Bond Percolation. Physical Review Letters, 2000, 84, 1840-1840.	7.8	4

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127	Preliminary Evaluation of a Kinetic Parameter Estimator with Application to Direct Parametric Reconstruction. , 0, , .		3
128	Reply to Ocklenburg and Mundorf: The interplay of developmental bias and natural selection. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.1	3
129	Coarse-Grained Modelling of Extreme DNA Bending. Biophysical Journal, 2014, 106, 66a.	0.5	2
130	Coarse-Grained Modeling of RNA for Biology and Nanotechnology. Biophysical Journal, 2017, 112, 369a.	0.5	1
131	Reconfigurable Tâ€junction DNA Origami. Angewandte Chemie - International Edition, 2020, 59, 15942-15946.	13.8	1
132	Is Water an Amniotic Eden or a Corrosive Hell? Emerging Perspectives on the Strangest Fluid in the Universe. , 2010, , 3-9.		0
133	Precision control of DNA-based molecular reactions. , 2016, , .		0
134	A touch of awe: crafting meaning from the wonder of the cosmos. Annals of the New York Academy of Sciences, 2018, 1432, 46-62.	3.8	0
135	Reconfigurable Tâ€junction DNA Origami. Angewandte Chemie, 2020, 132, 16076-16080.	2.0	0
136	The long and winding road to understanding organismal construction. Physics of Life Reviews, 2022, 42, 19-24.	2.8	0
137	Free energy landscapes of DNA and its assemblies: perspectives from coarse-grained modelling. Frontiers of Nanoscience, 2022, , 195-210.	0.6	0