Martin Krger

List of Publications by Citations

234 papers	8,557 citations	47 h-index	82 g-index
260 ext. papers	9,583 ext. citations	4.7 avg, IF	6.69 L-index

#	Paper	IF	Citations
234	Poly(N-isopropylacrylamide) Phase Diagrams: Fifty Years of Research. *Angewandte Chemie - International Edition*, **2015**, 54, 15342-67	16.4	557
233	Shortest multiple disconnected path for the analysis of entanglements in two- and three-dimensional polymeric systems. *Computer Physics Communications*, **2005**, 168, 209-232	4.2	310
232	Simple models for complex nonequilibrium fluids. *Physics Reports*, **2004**, 390, 453-551	27.7	238
231	Topological analysis of polymeric melts: chain-length effects and fast-converging estimators for entanglement length. *Physical Review E*, **2009**, 80, 031803	2.4	214
230	Shape effect in cellular uptake of PEGylated nanoparticles: comparison between sphere, rod, cube and disk. *Nanoscale*, **2015**, 7, 16631-46	7.7	204
229	Rheology and structural changes of polymer melts via nonequilibrium molecular dynamics. *Journal of Rheology*, **1993**, 37, 1057-1079	4.1	196
228	Rheological evidence for a dynamical crossover in polymer melts via nonequilibrium molecular dynamics. *Physical Review Letters*, **2000**, 85, 1128-31	7.4	190
227	Crossover from the Rouse to the Entangled Polymer Melt Regime: Signals from Long, Detailed Atomistic Molecular Dynamics Simulations, Supported by Rheological Experiments. *Macromolecules* , **2003**, 36, 1376-1387	5.5	179
226	Primitive Path Networks Generated by Annealing and Geometrical Methods: Insights into Differences. *Macromolecules*, **2007**, 40, 2897-2903	5.5	160
225	Challenges in Multiscale Modeling of Polymer Dynamics. *Polymers*, **2013**, 5, 751-832	4.5	143
224	Endocytosis of PEGylated nanoparticles accompanied by structural and free energy changes of the grafted polyethylene glycol. *Biomaterials*, **2014**, 35, 8467-78	15.6	142
223	Nanoparticle effect on the dynamics of polymer chains and their entanglement network. *Physical Review Letters*, **2012**, 109, 118001	7.4	141
222	Primitive Path Identification and Entanglement Statistics in Polymer Melts: Results from Direct Topological Analysis on Atomistic Polyethylene Models. *Macromolecules*, **2006**, 39, 4207-4216	5.5	137
221	Flow Effects on Melt Structure and Entanglement Network of Linear Polymers: Results from a Nonequilibrium Molecular Dynamics Simulation Study of a Polyethylene Melt in Steady Shear. *Macromolecules*, **2010**, 43, 6886-6902	5.5	128
220	Combined molecular algorithms for the generation, equilibration and topological analysis of entangled polymers: methodology and performance. *International Journal of Molecular Sciences*, **2009**, 10, 5054-89	6.3	124
219	Tuning polymer thickness: synthesis and scaling theory of homologous series of dendronized polymers. *Journal of the American Chemical Society*, **2009**, 131, 11841-54	16.4	121
218	Effect of charge, hydrophobicity, and sequence of nucleoporins on the translocation of model particles through the nuclear pore complex. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 3363-8	11.5	113

217	Polymer Melts under Uniaxial Elongational Flow: Stress-Optical Behavior from Experiments and Nonequilibrium Molecular Dynamics Computer Simulations. *Macromolecules*, **1997**, 30, 526-539	5.5	106
216	The largest synthetic structure with molecular precision: towards a molecular object. *Angewandte Chemie - International Edition*, **2011**, 50, 737-40	16.4	102
215	A thermodynamically admissible reptation model for fast flows of entangled polymers. II. Model predictions for shear and extensional flows. *Journal of Rheology*, **2000**, 44, 1293-1317	4.1	100
214	Viscoelastic flows studied by smoothed particle dynamics. *Journal of Non-Newtonian Fluid Mechanics*, **2002**, 105, 35-51	2.7	98
213	Modeling of Polymer Structure and Conformations in Polymer Nanocomposites from Atomistic to Mesoscale: A Review. *Polymer Reviews*, **2016**, 56, 385-428	14	97
212	A predictive multiscale computational framework for viscoelastic properties of linear polymers. *Polymer*, **2012**, 53, 5935-5952	3.9	91
211	Nanoparticle Geometrical Effect on Structure, Dynamics and Anisotropic Viscosity of Polyethylene Nanocomposites. *Macromolecules*, **2012**, 45, 2099-2112	5.5	87
210	Quantifying chain reptation in entangled polymer melts: topological and dynamical mapping of atomistic simulation results onto the tube model. *Journal of Chemical Physics*, **2010**, 132, 124904	3.9	87
209	Structure and Dynamics of Dilute Polymer Solutions under Shear Flow via Nonequilibrium Molecular Dynamics. *Macromolecules*, **1999**, 32, 5660-5672	5.5	84
208	Direct observation of the dynamics of semiflexible polymers in shear flow. *Physical Review Letters*, **2013**, 110, 108302	7.4	83
207	Influence of Nanorod Inclusions on Structure and Primitive Path Network of Polymer Nanocomposites at Equilibrium and Under Deformation. *Macromolecules*, **2011**, 44, 1034-1045	5.5	83
206	A theoretical evaluation of the effects of carbon nanotube entanglement and bundling on the structural and mechanical properties of buckypaper. *Carbon*, **2012**, 50, 1793-1806	10.4	81
205	Morphology control of hairy nanopores. *ACS Nano*, **2011**, 5, 4737-47	16.7	80
204	Collapse of Thermoresponsive Brushes and the Tuning of Protein Adsorption. *Macromolecules*, **2011**, 44, 6986-7005	5.5	79
203	From Dendrimers to Dendronized Polymers and Forests: Scaling Theory and its Limitations. *Macromolecules*, **2010**, 43, 6213-6224	5.5	76
202	Adsorption of core-shell nanoparticles at liquid–liquid interfaces. *Soft Matter*, **2011**, 7, 7663	3.6	75
201	Molecular simulation guided constitutive modeling on finite strain viscoelasticity of elastomers. *Journal of the Mechanics and Physics of Solids*, **2016**, 88, 204-226	5	67
200	Dynamic structure of unentangled polymer chains in the vicinity of non-attractive nanoparticles. *Soft Matter*, **2014**, 10, 1723-37	3.6	67

199	Wormlike micelles under shear flow: A microscopic model studied by nonequilibrium-molecular-dynamics computer simulations. *Physical Review E*, **1996**, 53, 2531-2536	2.4	66
198	Colloid-Brush Interactions: The Effect of Solvent Quality. *Macromolecules*, **2011**, 44, 3622-3638	5.5	61
197	Simple, admissible, and accurate approximants of the inverse Langevin and Brillouin functions, relevant for strong polymer deformations and flows. *Journal of Non-Newtonian Fluid Mechanics*, **2015**, 223, 77-87	2.7	58
196	Variance reduced Brownian simulation of a bead-spring chain under steady shear flow considering hydrodynamic interaction effects. *Journal of Chemical Physics*, **2000**, 113, 4767-4773	3.9	58
195	Dendronized Polymers: Molecular Objects between Conventional Linear Polymers and Colloidal Particles. *ACS Macro Letters*, **2014**, 3, 991-998	6.6	56
194	Structure, dimensions, and entanglement statistics of long linear polyethylene chains. *Journal of Physical Chemistry B*, **2009**, 113, 442-55	3.4	56
193	Chaotic orientational behavior of a nematic liquid crystal subjected to a steady shear flow. *Physical Review E*, **2002**, 66, 040702	2.4	55
192	Ternary protein adsorption onto brushes: strong versus weak. *Langmuir*, **2009**, 25, 11621-34	4	54
191	Chaotic and regular shear-induced orientational dynamics of nematic liquid crystals. *Physica A: Statistical Mechanics and Its Applications*, **2002**, 315, 537-568	3.3	51
190	Molecular dynamics simulations of polymer crystallization under confinement: Entanglement effect. *Polymer*, **2017**, 109, 71-84	3.9	49
189	Theoretical considerations on mechanisms of harvesting cells cultured on thermoresponsive polymer brushes. *Biomaterials*, **2012**, 33, 4975-87	15.6	49
188	Rheological and entanglement characteristics of linear-chain polyethylene liquids in planar Couette and planar elongational flows. *Journal of Non-Newtonian Fluid Mechanics*, **2008**, 152, 168-183	2.7	48
187	Systematic time-scale-bridging molecular dynamics applied to flowing polymer melts. *Physical Review E*, **2009**, 79, 011802	2.4	47
186	Molecular dynamics of model liquid crystals composed of semiflexible molecules. *Physical Review E*, **1996**, 54, 5178-5186	2.4	47
185	Aggregation of polyethylene glycol polymers suppresses receptor-mediated endocytosis of PEGylated liposomes. *Nanoscale*, **2018**, 10, 4545-4560	7.7	46
184	Entanglements and Dynamics of Polymer Melts near a SWCNT. *Macromolecules*, **2012**, 45, 7274-7281	5.5	45
183	Primitive chain network study on uncrosslinked and crosslinked cis-polyisoprene polymers. *Polymer*, **2011**, 52, 5867-5878	3.9	45
182	A Two-Dimensional Polymer Synthesized at the Air/Water Interface. *Angewandte Chemie - International Edition*, **2018**, 57, 10584-10588	16.4	44

181	Universal scaling, entanglements, and knots of model chain molecules. *Physical Review Letters*, **2008**, 101, 265702	7.4	44
180	Consistent closure schemes for statistical models of anisotropic fluids. *Journal of Non-Newtonian Fluid Mechanics*, **2008**, 149, 40-55	2.7	44
179	Magnetoviscosity of semidilute ferrofluids and the role of dipolar interactions: comparison of molecular simulations and dynamical mean-field theory. *Physical Review E*, **2005**, 71, 031205	2.4	44
178	Viscoelasticity of polymeric melts and concentrated solutions. The effect of flow-induced alignment of chain ends. *Physica A: Statistical Mechanics and Its Applications*, **1993**, 195, 336-353	3.3	44
177	Kinetics of gene derepression by ERK signaling. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 10330-5	11.5	43
176	Thermomechanical properties of the WCA□ennard-Jones model system in its fluid and solid states. *Physica A: Statistical Mechanics and Its Applications*, **1998**, 250, 58-82	3.3	43
175	Height and Width of Adsorbed Dendronized Polymers: Electron and Atomic Force Microscopy of Homologous Series. *Macromolecules*, **2011**, 44, 6785-6792	5.5	41
174	Rotation and Deformation of a Finitely Extendable Flexible Polymer Molecule in a Steady Shear Flow. *Macromolecules*, **2002**, 35, 8621-8630	5.5	41
173	Random packing of model polymers: local structure, topological hindrance and universal scaling. *Soft Matter*, **2009**, 5, 1762	3.6	40
172	Boundaries steer the contraction of active gels. *Nature Communications*, **2016**, 7, 13120	17.4	39
171	Entanglements and Crystallization of Concentrated Polymer Solutions: Molecular Dynamics Simulations. *Macromolecules*, **2016**, 49, 9017-9025	5.5	39
170	Polymer Brushes under Shear: Molecular Dynamics Simulations Compared to Experiments. *Langmuir*, **2015**, 31, 4798-805	4	38
169	Evolution of fivefold local symmetry during crystal nucleation and growth in dense hard-sphere packings. *Soft Matter*, **2012**, 8, 844-858	3.6	38
168	Magnetization dynamics, rheology, and an effective description of ferromagnetic units in dilute suspension. *Physical Review E*, **2002**, 66, 021501	2.4	36
167	Efficient hybrid algorithm for the dynamic creation of wormlike chains in solutions, brushes, melts and glasses. *Computer Physics Communications*, **1999**, 118, 278-298	4.2	36
166	Viscosity coefficients for anisotropic, nematic fluids based on structural theories of suspensions. *Journal of Chemical Physics*, **1995**, 103, 807-817	3.9	36
165	Viscoelasticity of carbon nanotube buckypaper: zipping□nzipping mechanism and entanglement effects. *Soft Matter*, **2012**, 8, 7822	3.6	35
164	Shear modulus of fluids and solids. *Physica A: Statistical Mechanics and Its Applications*, **1997**, 239, 449-466	3.3	35

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162	Projection from an atomistic chain contour to its primitive path. *Polymer*, **2002**, 43, 477-487	3.9	33
161	Magnetoviscous model fluids. *Journal of Physics Condensed Matter*, **2003**, 15, S1403-S1423	1.8	31
160	Linear Viscoelastic Behavior of Unentangled Polymer Melts via Non-Equilibrium Molecular Dynamics. *Macromolecular Theory and Simulations*, **2004**, 13, 748-753	1.5	31
159	Regular and chaotic orientational and rheological behaviour of liquid crystals. *Journal of Physics Condensed Matter*, **2004**, 16, S3835-S3859	1.8	31
158	Phase behavior and structure of Janus fluids. *Physical Review E*, **2003**, 67, 041209	2.4	31
157	Self-Folding of Charged Single Dendronized Polymers. *Advanced Materials*, **2008**, 20, 3204-3210	24	30
156	Canonical distribution functions in polymer dynamics. (II). Liquid-crystalline polymers. *Physica A: Statistical Mechanics and Its Applications*, **2003**, 319, 134-150	3.3	30
155	Thermoresponsive cell culture substrates based on PNIPAM brushes functionalized with adhesion peptides: theoretical considerations of mechanism and design. *Langmuir*, **2012**, 28, 16623-37	4	29
154	Analytical solution of the SIR-model for the temporal evolution of epidemics. Part A: time-independent reproduction factor. *Journal of Physics A: Mathematical and Theoretical*, **2020**, 53, 505601	2	29
153	Covid-19 Predictions Using a Gauss Model, Based on Data from April 2 **2020**, 2, 197-212	2.1	28
152	Understanding Dynamics in Binary Mixtures of Entangledcis-1,4-Polybutadiene Melts at the Level of Primitive Path Segments by Mapping Atomistic Simulation Data onto the Tube Model. *Macromolecules*, **2010**, 43, 8239-8250	5.5	28
151	Rheology and Packing of Dendronized Polymers. *Macromolecules*, **2016**, 49, 7054-7068	5.5	28
150	Microscopic Origin of the Non-Newtonian Viscosity of Semiflexible Polymer Solutions in the Semidilute Regime.. *ACS Macro Letters*, **2014**, 3, 136-140	6.6	27
149	Effect of polymer solvent on the mechanical properties of entangled polymer gels: Coarse-grained molecular simulation. *Polymer*, **2013**, 54, 2555-2564	3.9	27
148	Rheology: From simple and to complex fluids. *Physica A: Statistical Mechanics and Its Applications*, **1997**, 240, 126-144	3.3	27
147	Magnetoviscosity and orientational order parameters of dilute ferrofluids. *Journal of Chemical Physics*, **2002**, 116, 9078-9088	3.9	27
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144	Ordering and Crystallization of Entangled Polyethylene Melts under Uniaxial Tension: A Molecular Dynamics Study. *Macromolecules*, **2018**, 51, 9635-9648	5.5	27
143	Molecularly derived constitutive equation for low-molecular polymer melts from thermodynamically guided simulation. *Journal of Rheology*, **2011**, 55, 69-93	4.1	26
142	Formation of double helical and filamentous structures in models of physical and chemical gels. *Soft Matter*, **2007**, 4, 18-28	3.6	26
141	Communication: Appearance of undershoots in start-up shear: Experimental findings captured by tumbling-snake dynamics. *Journal of Chemical Physics*, **2017**, 146, 161101	3.9	25
140	Structure and rheology of model-ferrofluids under shear flow. *Journal of Magnetism and Magnetic Materials*, **2005**, 289, 325-327	2.8	25
139	A simple example for comparing GENERIC with rational non-equilibrium thermodynamics. *Physica A: Statistical Mechanics and Its Applications*, **2000**, 285, 448-466	3.3	25
138	Self-assembly of core-polyethylene glycol-lipid shell (CPLS) nanoparticles and their potential as drug delivery vehicles. *Nanoscale*, **2016**, 8, 14821-35	7.7	25
137	Computer simulation of dendronized polymers: organization and characterization at the atomistic level. *RSC Advances*, **2013**, 3, 126-140	3.7	24
136	Recognition and analysis of local structure in polycrystalline configurations. *Computer Physics Communications*, **2002**, 145, 371-384	4.2	24
135	Automated symbolic calculations in nonequilibrium thermodynamics. *Computer Physics Communications*, **2010**, 181, 2149-2157	4.2	23
134	Anisotropy of the magnetoviscous effect in ferrofluids. *Physical Review E*, **2005**, 71, 051201	2.4	23
133	Modeling of Entangled Polymer Diffusion in Melts and Nanocomposites: A Review. *Polymers*, **2019**, 11,	4.5	22
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129	Unraveling two-dimensional polymerization in the single crystal. *Journal of Applied Crystallography*, **2018**, 51, 481-497	3.8	21
128	Influence of molecular architecture on the entanglement network: topological analysis of linear, long- and short-chain branched polyethylene melts via Monte Carlo simulations. *Soft Matter*, **2016**, 12, 3770-86	3.6	21

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125	From atomistic simulation to the dynamics, structure and helical network formation of dendronized polymers: the Janus chain model. *Journal of Chemical Physics*, **2007**, 127, 094904	3.9	21
124	Effect of Crosslinking on the Microtribological Behavior of Model Polymer Brushes. *Tribology Letters*, **2016**, 63, 1	2.8	20
123	Computer simulation of fifth generation dendronized polymers: impact of charge on internal organization. *Journal of Physical Chemistry B*, **2013**, 117, 6007-17	3.4	20
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121	The Largest Synthetic Structure with Molecular Precision: Towards a Molecular Object. *Angewandte Chemie*, **2011**, 123, 763-766	3.6	20
120	Lubricated optical rheometer for the study of two-dimensional complex flows of polymer melts. *Journal of Non-Newtonian Fluid Mechanics*, **2008**, 150, 43-55	2.7	20
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118	Size of graphene sheets determines the structural and mechanical properties of 3D graphene foams. *Nanotechnology*, **2018**, 29, 104001	3.4	19
117	Synthetic regimes due to packing constraints in dendritic molecules confirmed by labelling experiments. *Nature Communications*, **2013**, 4, 1993	17.4	19
116	Anisotropic self-diffusion in ferrofluids studied via Brownian dynamics simulations. *Physical Review E*, **2005**, 72, 031504	2.4	19
115	Influence of Chain Stiffness, Grafting Density and Normal Load on the Tribological and Structural Behavior of Polymer Brushes: A Nonequilibrium-Molecular-Dynamics Study. *Polymers*, **2016**, 8,	4.5	19
114	Using mesoscopic models to design strong and tough biomimetic polymer networks. *Langmuir*, **2011**, 27, 13796-805	4	18
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112	Dynamics of colloidal suspensions of ferromagnetic particles in plane Couette flow: comparison of approximate solutions with Brownian dynamics simulations. *Physical Review E*, **2003**, 67, 061401	2.4	18
111	NEMD-Computersimulation zur Rheologie von Polymerschmelzen / NEMD Computer Simulation of Polymer Melt Rheology. *Applied Rheology*, **1995**, 5, 66-71	1.2	18
110	Filamentous networks in phase-separating two-dimensional gels. *Europhysics Letters*, **2007**, 77, 58007	1.6	17

109	From hyperbolic regularization to exact hydrodynamics for linearized Grad's equations. *Physical Review E*, **2007**, 75, 051204	2.4	17
108	Analytical solution of the SIR-model for the temporal evolution of epidemics: part B. Semi-time case. *Journal of Physics A: Mathematical and Theoretical*, **2021**, 54, 175601	2	17
107	Interactions in dendronized polymers: intramolecular dominates intermolecular. *Soft Matter*, **2014**, 10, 1032-44	3.6	16
106	Structure Elucidation of 2D Polymer Monolayers Based on Crystallization Estimates Derived from Tip-Enhanced Raman Spectroscopy (TERS) Polymerization Conversion Data. *Journal of the American Chemical Society*, **2019**, 141, 9867-9871	16.4	15
105	A Detailed Examination of the Topological Constraints of Lamellae-Forming Block Copolymers. *Macromolecules*, **2018**, 51, 2110-2124	5.5	15
104	Poly(N-isopropylacrylamid)-Phasendiagramme: 50 Jahre Forschung. *Angewandte Chemie*, **2015**, 127, 15558-15586	3.6	15
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102	Structural changes and viscoplastic behavior of a generic embedded-atom model metal in steady shear flow. *Physical Review E*, **2004**, 69, 021509	2.4	15
101	On the Shape and Rheology of Linear Micelles in Dilute Solutions. *Journal De Physique II*, **1997**, 7, 931-946		15
100	Dynamics of interacting magnetic nanoparticles: effective behavior from competition between Brownian and Néel relaxation. *Physical Chemistry Chemical Physics*, **2020**, 22, 22244-22259	3.6	15
99	Boltzmann equation and hydrodynamic fluctuations. *Physical Review E*, **2009**, 80, 051202	2.4	14
98	Crossover between short- and long-time behavior of stress fluctuations and viscoelasticity of liquids. *Physical Review E*, **2003**, 67, 042201	2.4	14
97	Thermophysical properties of gases, liquids, and solids composed of particles interacting with a short-range attractive potential. *Physical Review E*, **2001**, 64, 011201	2.4	14
96	Combined Experimental and Simulation Studies of Cross-Linked Polymer Brushes under Shear. *Macromolecules*, **2018**, 51, 10174-10183	5.5	14
95	Assessing numerical methods for molecular and particle simulation. *Soft Matter*, **2017**, 13, 8565-8578	3.6	13
94	Carbon Nanotube Length Governs the Viscoelasticity and Permeability of Buckypaper. *Polymers*, **2017**, 9,	4.5	13
93	Beyond-equilibrium molecular dynamics of a rarefied gas subjected to shear flow. *Journal of Non-Newtonian Fluid Mechanics*, **2004**, 120, 175-187	2.7	13
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86	Atomistic Modeling of Plastic Deformation in Semicrystalline Polyethylene: Role of Interphase Topology, Entanglements, and Chain Dynamics. *Macromolecules*, **2020**, 53, 4605-4617	5.5	11
85	Branching Defects in Dendritic Molecules: Coupling Efficiency and Congestion Effects. *Macromolecules*, **2013**, 46, 7550-7564	5.5	11
84	Modeling Nanosized Single Molecule Objects: Dendronized Polymers Adsorbed onto Mica. *Journal of Physical Chemistry C*, **2015**, 119, 3746-3753	3.8	11
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81	Pulling-force-induced elongation and alignment effects on entanglement and knotting characteristics of linear polymers in a melt. *Physical Review E*, **2014**, 90, 042602	2.4	10
80	Modelling and confocal microscopy of biopolymer mixtures in confined geometries. *Soft Matter*, **2010**, 6, 2713	3.6	10
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74	Miscibility and Nanoparticle Diffusion in Ionic Nanocomposites. *Polymers*, **2018**, 10,	4.5	9

73	3D Conformations of Thick Synthetic Polymer Chains Observed by Cryogenic Electron Microscopy. *ACS Nano*, **2019**, 13, 3466-3473	16.7	8
72	Pushing Synthesis toward the Maximum Generation Range of Dendritic Macromolecules. *Macromolecules*, **2018**, 51, 5420-5429	5.5	8
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70	Smooth full field reconstruction of velocity and its gradients from noisy scattered velocimetry data in a cross-slot flow. *Journal of Rheology*, **2011**, 55, 353-377	4.1	8
69	Ideal contribution to the macroscopic quasiequilibrium entropy of anisotropic fluids. *Physical Review E*, **2011**, 83, 061713	2.4	8
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67	Reconfigurable artificial microswimmers with internal feedback. *Nature Communications*, **2021**, 12, 4762	17.4	8
66	Explicit formulae for the peak time of an epidemic from the SIR model. Which approximant to use?. *Physica D: Nonlinear Phenomena*, **2021**, 425, 132981	3.3	8
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62	Pressure of fluids and solids composed of particles interacting with a short-range repulsive potential. *Physical Review E*, **2000**, 61, 4629-31	2.4	7
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60	Gaussian Doubling Times and Reproduction Factors of the COVID-19 Pandemic Disease. *Frontiers in Physics*, **2020**, 8,	3.9	7
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