Stefan Klumpp

List of Publications by Year in descending order

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126 papers	6,125 citations	94433 37 h-index	82547 72 g-index
135 all docs	135 docs citations	135 times ranked	4925 citing authors

#	Article	IF	Citations
1	Synchronization of a genetic oscillator with the cell division cycle. New Journal of Physics, 2022, 24, 033050.	2.9	0
2	Stokesian dynamics simulations of a magnetotactic bacterium. European Physical Journal E, 2021, 44, 40.	1.6	3
3	Orientation fluctuations in magnetotactic swimming. European Physical Journal: Special Topics, 2021, 230, 1099-1103.	2.6	0
4	Opportunities and utilization of branching and step-out behavior in magnetic microswimmers with a nonlinear response. Applied Physics Letters, 2021, 118, .	3.3	5
5	Enhanced diffusion of a tracer particle in a lattice model of a crowded active system. Physical Review E, 2021, 103, 052601.	2.1	7
6	Quasi-essentiality of RNase Y inBacillus subtilisis caused by its critical role in the control of mRNA homeostasis. Nucleic Acids Research, 2021, 49, 7088-7102.	14.5	12
7	Vimentin intermediate filaments stabilize dynamic microtubules by direct interactions. Nature Communications, 2021, 12, 3799.	12.8	52
8	Multiscale mechanics and temporal evolution of vimentin intermediate filament networks. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	12
9	Reflections on COVID-19â€“Induced Online Teaching in Biophysics Courses. The Biophysicist, 2021, 2, 20-22.	0.3	1
10	Accuracy and speed of elongation in a minimal model of DNA replication. Physical Review E, 2021, 104, 034417.	2.1	2
11	Role of bacterial persistence in spatial population expansion. Physical Review E, 2021, 104, 034401.	2.1	1
12	Simulations of structure formation by confined dipolar active particles. Soft Matter, 2020, 16, 10537-10547.	2.7	9
13	Selection for Function: From Chemically Synthesized Prototypes to 3Dâ€Printed Microdevices. Advanced Intelligent Systems, 2020, 2, 2000078.	6.1	2
14	Coarse graining of biochemical systems described by discrete stochastic dynamics. Physical Review E, 2020, 102, 062149.	2.1	8
15	High-speed motility originates from cooperatively pushing and pulling flagella bundles in bilophotrichous bacteria. ELife, 2020, 9, .	6.0	27
16	Focus on bacterial mechanics. New Journal of Physics, 2019, 21, 040201.	2.9	0
17	Lateral Subunit Coupling Determines Intermediate Filament Mechanics. Physical Review Letters, 2019, 123, 188102.	7.8	27
18	Decoding Biomineralization: Interaction of a Mad10-Derived Peptide with Magnetite Thin Films. Nano Letters, 2019, 19, 8207-8215.	9.1	9

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19	Life in crowded conditions. European Physical Journal: Special Topics, 2019, 227, 2315-2328.	2.6	12
20	Is F₁-ATPase a Rotary Motor with Nearly 100% Efficiency? Quantitative Analysis of Chemomechanical Coupling and Mechanical Slip. Nano Letters, 2019, 19, 3370-3378.	9.1	7
21	Force-Dependent Unbinding Rate of Molecular Motors from Stationary Optical Trap Data. Nano Letters, 2019, 19, 2598-2602.	9.1	17
22	Cooperative Transport by Amoeboid Cells: A Cellular Tug-of-War. Biophysical Journal, 2019, 116, 122a.	0.5	0
23	On Protein Folding in Crowded Conditions. Journal of Physical Chemistry Letters, 2019, 10, 7650-7656.	4.6	29
24	Chemotaxis in external fields: Simulations for active magnetic biological matter. PLoS Computational Biology, 2019, 15, e1007548.	3.2	13
25	Swimming with magnets: From biological organisms to synthetic devices. Physics Reports, 2019, 789, 1-54.	25.6	57
26	Simulation of colony pattern formation under differential adhesion and cell proliferation. Soft Matter, 2018, 14, 1908-1916.	2.7	14
27	Visualization of tandem repeat mutagenesis in Bacillus subtilis. DNA Repair, 2018, 63, 10-15.	2.8	9
28	Simulating Genetic Circuits in Bacterial Populations with Growth Heterogeneity. Biophysical Journal, 2018, 114, 484-492.	0.5	9
29	Modeling Colony Pattern Formation under Differential Adhesion and Cell Proliferation. Biophysical Journal, 2018, 114, 328a.	0.5	0
30	Bead-Based Hydrodynamic Simulations of Rigid Magnetic Micropropellers. Frontiers in Robotics and AI, 2018, 5, 109.	3.2	7
31	Self-organization and stability of magnetosome chainsâ€"A simulation study. PLoS ONE, 2018, 13, e0190265.	2.5	10
32	Magneto-Aerotaxis: Bacterial Motility in Magnetic Fields. Biophysical Journal, 2017, 112, 567a.	0.5	1
33	Large-scale reduction of the Bacillus subtilis genome: consequences for the transcriptional network, resource allocation, and metabolism. Genome Research, 2017, 27, 289-299.	5.5	137
34	Buckling of elastic filaments by discrete magnetic moments. European Physical Journal E, 2017, 40, 86.	1.6	5
35	Magnetosome Organization in Magnetotactic Bacteria Unraveled by Ferromagnetic Resonance Spectroscopy. Biophysical Journal, 2017, 113, 637-644.	0.5	17
36	Twitching motility of bacteria with type-IV pili: Fractal walks, first passage time, and their consequences on microcolonies. Physical Review E, 2017, 96, 052411.	2.1	9

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37	Modeling sRNA-Regulated Plasmid Maintenance. PLoS ONE, 2017, 12, e0169703.	2.5	5
38	Asymmetric exclusion process with a dynamic roadblock and open boundaries. Journal of Physics A: Mathematical and Theoretical, 2016, 49, 315001.	2.1	10
39	Elastic Properties of Magnetosome Chains. Biophysical Journal, 2016, 110, 469a.	0.5	0
40	Facilitated diffusion in the presence of obstacles on the DNA. Physical Chemistry Chemical Physics, 2016, 18, 11184-11192.	2.8	16
41	Mechanism of Facilitated Diffusion during a DNA Search in Crowded Environments. Journal of Physical Chemistry B, 2016, 120, 11113-11122.	2.6	23
42	Segregation of prokaryotic magnetosomes organelles is driven by treadmilling of a dynamic actin-like MamK filament. BMC Biology, 2016, 14, 88.	3.8	48
43	Magnetotactic bacteria. European Physical Journal: Special Topics, 2016, 225, 2173-2188.	2.6	26
44	Steering magnetic micropropellers along independent trajectories. Journal Physics D: Applied Physics, 2016, 49, 065003.	2.8	20
45	Navigation with magnetic nanoparticles: magnetotactic bacteria and magnetic micro-robots. Physica Scripta, 2015, T165, 014044.	2.5	12
46	Biochemical reactions in crowded environments: revisiting the effects of volume exclusion with simulations. Frontiers in Physics, 2015, 3, .	2.1	27
47	Impact of the cell division cycle on gene circuits. Physical Biology, 2015, 12, 066003.	1.8	14
48	Positioning the Flagellum at the Center of a Dividing Cell To Combine Bacterial Division with Magnetic Polarity. MBio, 2015, 6, e02286.	4.1	13
49	Dynamic blockage in an exclusion process. Journal of Physics A: Mathematical and Theoretical, 2015, 48, 015007.	2.1	12
50	External forces influence the elastic coupling effects during cargo transport by molecular motors. Physical Review E, 2015, 91, 022701.	2.1	24
51	Elastic properties of magnetosome chains. New Journal of Physics, 2015, 17, 043007.	2.9	32
52	Emergence of phenotype switching through continuous and discontinuous evolutionary transitions. Physical Biology, 2015, 12, 046004.	1.8	22
53	Fast Magnetic Micropropellers with Random Shapes. Nano Letters, 2015, 15, 7064-7070.	9.1	61
54	Biologically controlled synthesis and assembly of magnetite nanoparticles. Faraday Discussions, 2015, 181, 71-83.	3.2	34

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55	Molecular Motors: Cooperative Phenomena of Multiple Molecular Motors. , 2015, , 27-61.		14
56	Control of transcription elongation by GreA determines rate of gene expression in Streptococcus pneumoniae. Nucleic Acids Research, 2014, 42, 10987-10999.	14.5	48
57	A Model for Sigma Factor Competition in Bacterial Cells. PLoS Computational Biology, 2014, 10, e1003845.	3.2	81
58	Phenotypically heterogeneous populations in spatially heterogeneous environments. Physical Review E, 2014, 89, 030702.	2.1	13
59	Emergence of robust growth laws from optimal regulation of ribosome synthesis. Molecular Systems Biology, 2014, 10, 747.	7.2	374
60	Differences between cotranscriptional and free riboswitch folding. Nucleic Acids Research, 2014, 42, 2687-2696.	14.5	33
61	Modeling stochastic gene expression in growing cells. Journal of Theoretical Biology, 2014, 348, 1-11.	1.7	16
62	Diversity of Magneto-Aerotactic Behaviors and Oxygen Sensing Mechanisms in Cultured Magnetotactic Bacteria. Biophysical Journal, 2014, 107, 527-538.	0.5	122
63	Probing the Mechanical Properties of Magnetosome Chains in Living Magnetotactic Bacteria. Nano Letters, 2014, 14, 4653-4659.	9.1	34
64	Computational Analysis of Co-Transcriptional Riboswitch Folding. Biophysical Journal, 2014, 106, 284a.	0.5	0
65	Tug-of-War: Mechanical Coordination of Molecular Motors. Biophysical Journal, 2014, 106, 10a.	0.5	0
66	Bacterial twitching motility is coordinated by a two-dimensional tug-of-war with directional memory. Nature Communications, 2014, 5, 3759.	12.8	83
67	Bacterial growth: global effects on gene expression, growth feedback and proteome partition. Current Opinion in Biotechnology, 2014, 28, 96-102.	6.6	182
68	Influence of Magnetic Fields on Magneto-Aerotaxis. PLoS ONE, 2014, 9, e101150.	2.5	49
69	Elastic Coupling Effects in Cooperative Transport by a Pair of Molecular Motors. Cellular and Molecular Bioengineering, 2013, 6, 48-64.	2.1	20
70	A Superresolution Census of RNA Polymerase. Biophysical Journal, 2013, 105, 2613-2614.	0.5	3
71	Modeling Stochastic Gene Expression in Growing Cells. Biophysical Journal, 2013, 104, 551a-552a.	0.5	0
72	Selecting for Function: Solution Synthesis of Magnetic Nanopropellers. Nano Letters, 2013, 13, 5373-5378.	9.1	61

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73	Molecular crowding limits translation and cell growth. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 16754-16759.	7.1	241
74	Dilution and the theoretical description of growth-rate dependent gene expression. Journal of Biological Engineering, 2013, 7, 22.	4.7	28
75	Distinct Transport Regimes of Two Elastically Coupled Molecular Motors. Biophysical Journal, 2013, 104, 325a.	0.5	10
76	Kinetic Monte Carlo approach to RNA folding dynamics using structure-based models. Physical Review E, 2013, 88, 052701.	2.1	7
77	Mass transport perspective on an accelerated exclusion process: Analysis of augmented current and unit-velocity phases. Physical Review E, 2013, 87, 022146.	2.1	3
78	Backtracking dynamics of RNA polymerase: pausing and error correction. Journal of Physics Condensed Matter, 2013, 25, 374104.	1.8	22
79	Population Dynamics of Bacterial Persistence. PLoS ONE, 2013, 8, e62814.	2.5	49
80	Mechanisms and economy of molecular machines. Physica Scripta, 2012, T151, 014066.	2.5	1
81	Sources of stochasticity in constitutive and autoregulated gene expression. Physica Scripta, 2012, T151, 014068.	2.5	1
82	Entrainment and Unit Velocity: Surprises in an Accelerated Exclusion Process. Physical Review Letters, 2012, 109, 130602.	7.8	19
83	Interplay between Population Dynamics and Drug Tolerance of <i>Staphylococcus aureus</i> Persister Cells. Journal of Molecular Microbiology and Biotechnology, 2012, 22, 381-391.	1.0	17
84	Transcriptional Proofreading in Dense RNA Polymerase Traffic. Biophysical Journal, 2012, 102, 287a.	0.5	0
85	Deterministic and Stochastic Descriptions of Gene Expression Dynamics. Journal of Statistical Physics, 2012, 148, 608-627.	1.2	16
86	Distinct Transport Regimes for Two Elastically Coupled Molecular Motors. Physical Review Letters, 2012, 108, 208101.	7.8	63
87	Interplay of Magnetic Interactions and Active Movements in the Formation of Magnetosome Chains. PLoS ONE, 2012, 7, e33562.	2.5	33
88	On Ribosome Load, Codon Bias and Protein Abundance. PLoS ONE, 2012, 7, e48542.	2.5	33
89	Co-operative transport by molecular motors. Biochemical Society Transactions, 2011, 39, 1211-1215.	3.4	23
90	Pausing and Backtracking in Transcription Under Dense Traffic Conditions. Journal of Statistical Physics, 2011, 142, 1252-1267.	1.2	39

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91	Transcriptional proofreading in dense RNA polymerase traffic. Europhysics Letters, 2011, 96, 60004.	2.0	18
92	Growth-Rate Dependence Reveals Design Principles of Plasmid Copy Number Control. PLoS ONE, 2011, 6, e20403.	2.5	56
93	Cooperative behavior of molecular motors: Cargo transport and traffic phenomena. Physica E: Low-Dimensional Systems and Nanostructures, 2010, 42, 649-661.	2.7	38
94	Bidirectional Transport by Molecular Motors: Enhanced Processivity and Response to External Forces. Biophysical Journal, 2010, 98, 2610-2618.	0.5	99
95	Traffic by multiple species of molecular motors. Physical Review E, 2009, 80, 041928.	2.1	23
96	Traffic patrol in the transcription of ribosomal RNA. RNA Biology, 2009, 6, 392-394.	3.1	15
97	Stochastic simulations of cargo transport by processive molecular motors. Journal of Chemical Physics, 2009, 131, 245107.	3.0	55
98	ACTIVE BIO-SYSTEMS: FROM SINGLE MOTOR MOLECULES TO COOPERATIVE CARGO TRANSPORT. Biophysical Reviews and Letters, 2009, 04, 77-137.	0.8	12
99	Transport by Molecular Motors in the Presence of Static Defects. Journal of Statistical Physics, 2009, 135, 241-260.	1.2	18
100	Growth Rate-Dependent Global Effects on Gene Expression in Bacteria. Cell, 2009, 139, 1366-1375.	28.9	614
101	Kinesinâ€™s backsteps under mechanical load. Physical Chemistry Chemical Physics, 2009, 11, 4899.	2.8	53
102	Traffic by Small Teams of Molecular Motors. , 2009, , 695-700.		0
103	Motility States of Molecular Motors Engaged inÂaÂStochastic Tug-of-War. Journal of Statistical Physics, 2008, 133, 1059-1081.	1.2	57
104	Transport of Beads by Several Kinesin Motors. Biophysical Journal, 2008, 94, 532-541.	0.5	177
105	Tug-of-war as a cooperative mechanism for bidirectional cargo transport by molecular motors. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 4609-4614.	7.1	467
106	Growth-rate-dependent partitioning of RNA polymerases in bacteria. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 20245-20250.	7.1	189
107	Stochasticity and traffic jams in the transcription of ribosomal RNA: Intriguing role of termination and antitermination. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 18159-18164.	7.1	126
108	Effects of the chemomechanical stepping cycle on the traffic of molecular motors. Physical Review E, 2008, 78, 041909.	2.1	41

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109	Traffic of Molecular Motors. , 2007, , 251-261.		4
110	Molecular motor traffic: From biological nanomachines to macroscopic transport. Physica A: Statistical Mechanics and Its Applications, 2006, 372, 34-51.	2.6	94
111	COOPERATIVE TRANSPORT BY SMALL TEAMS OF MOLECULAR MOTORS. Biophysical Reviews and Letters, 2006, 01, 353-361.	0.8	4
112	Walks of molecular motors interacting with immobilized filaments. Physica A: Statistical Mechanics and Its Applications, 2005, 350, 122-130.	2.6	4
113	â€˜Life is motionâ€™: multiscale motility of molecular motors. Physica A: Statistical Mechanics and Its Applications, 2005, 352, 53-112.	2.6	90
114	Movements of molecular motors: Ratchets, random walks and traffic phenomena. Physica E: Low-Dimensional Systems and Nanostructures, 2005, 29, 380-389.	2.7	23
115	Molecular motor traffic in a half-open tube. Journal of Physics Condensed Matter, 2005, 17, S3839-S3850.	1.8	30
116	Active Diffusion of Motor Particles. Physical Review Letters, 2005, 95, 268102.	7.8	51
117	Cooperative cargo transport by several molecular motors. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 17284-17289.	7.1	347
118	Self-Organized Density Patterns of Molecular Motors in Arrays of Cytoskeletal Filaments. Biophysical Journal, 2005, 88, 3118-3132.	0.5	56
119	Asymmetric simple exclusion processes with diffusive bottlenecks. Physical Review E, 2004, 70, 066104.	2.1	30
120	Random walks of molecular motors arising from diffusional encounters with immobilized filaments. Physical Review E, 2004, 69, 061911.	2.1	42
121	Phase transitions in systems with two species of molecular motors. Europhysics Letters, 2004, 66, 90-96.	2.0	78
122	Traffic of Molecular Motors Through Tube-Like Compartments. Journal of Statistical Physics, 2003, 113, 233-268.	1.2	193
123	Walks of molecular motors in two and three dimensions. Europhysics Letters, 2002, 58, 468-474.	2.0	40
124	Noise-induced transport of two coupled particles. Physical Review E, 2001, 63, 031914.	2.1	62
125	Random Walks of Cytoskeletal Motors in Open and Closed Compartments. Physical Review Letters, 2001, 87, 108101.	7.8	240
126	Speed Limit for Cell Growth. Physics Magazine, 0, 13, .	0.1	3