Charles M Schroeder

List of Publications by Year
in descending order

104 papers	3,994 citations	126708 33 h-index	133063 59 g-index
106 all docs	106 docs citations	106 times ranked	4020 citing authors

#	Article	IF	Citations
1	Observation of Polymer Conformation Hysteresis in Extensional Flow. Science, 2003, 301, 1515-1519.	6.0	321
2	Thermostable Enzymes as Biocatalysts in the Biofuel Industry. Advances in Applied Microbiology, 2010, 70, 1-55.	1.3	235
3	Characteristic Periodic Motion of Polymers in Shear Flow. Physical Review Letters, 2005, 95, 018301.	2.9	188
4	Effect of Hydrodynamic Interactions on DNA Dynamics in Extensional Flow:Â Simulation and Single Molecule Experiment. Macromolecules, 2004, 37, 9242-9256.	2.2	155
5	A microfluidic-based hydrodynamic trap: design and implementation. Lab on A Chip, 2011, 11, 1786.	3.1	153
6	Dynamics of DNA in the Flow-Gradient Plane of Steady Shear Flow:Â Observations and Simulations. Macromolecules, 2005, 38, 1967-1978.	2.2	126
7	A multiplexed microfluidic platform for rapid antibiotic susceptibility testing. Biosensors and Bioelectronics, 2013, 49, 118-125.	5.3	122
8	Hydrodynamic trap for single particles and cells. Applied Physics Letters, 2010, 96, 224101.	1.5	120
9	Manipulation and Confinement of Single Particles Using Fluid Flow. Nano Letters, 2013, 13, 2357-2364.	4.5	111
10	Stokes trap for multiplexed particle manipulation and assembly using fluidics. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 3976-3981.	3.3	110
11	Characterization of Flavin-Based Fluorescent Proteins: An Emerging Class of Fluorescent Reporters. PLoS ONE, 2013, 8, e64753.	1.1	103
12	Single polymer dynamics for molecular rheology. Journal of Rheology, 2018, 62, 371-403.	1.3	101
13	Multiplexed single-molecule assay for enzymatic activity on flow-stretched DNA. Nature Methods, 2007, 4, 397-399.	9.0	76
14	Flavin-based fluorescent proteins: emerging paradigms in biological imaging. Current Opinion in Biotechnology, 2015, 31, 16-23.	3.3	70
15	TALEN outperforms Cas9 in editing heterochromatin target sites. Nature Communications, 2021, 12, 606.	5.8	69
16	When Ends Meet: Circular DNA Stretches Differently in Elongational Flows. Macromolecules, 2015, 48, 5997-6001.	2.2	66
17	Direct observation of TALE protein dynamics reveals a two-state search mechanism. Nature Communications, 2015, 6, 7277.	5.8	63
18	Ultrafast Redistribution of E. coli SSB along Long Single-Stranded DNA via Intersegment Transfer. Journal of Molecular Biology, 2014, 426, 2413-2421.	2.0	57

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19	Microfluidic systems for single DNA dynamics. Soft Matter, 2012, 8, 10560.	1.2	55
20	Direct observation of DNA dynamics in semidilute solutions in extensional flow. Journal of Rheology, 2017, 61, 151-167.	1.3	52
21	Engineering and Characterization of New LOV-Based Fluorescent Proteins from Chlamydomonas reinhardtii and Vaucheria frigida. ACS Synthetic Biology, 2015, 4, 371-377.	1.9	51
22	Ring Polymer Dynamics Are Governed by a Coupling between Architecture and Hydrodynamic Interactions. Macromolecules, 2016, 49, 1961-1971.	2.2	47
23	TALE proteins search DNA using a rotationally decoupled mechanism. Nature Chemical Biology, 2016, 12, 831-837.	3.9	46
24	Directed evolution of bright mutants of an oxygen-independent flavin-binding fluorescent protein from Pseudomonas putida. Journal of Biological Engineering, 2012, 6, 20.	2.0	45
25	Effect of molecular architecture on ring polymer dynamics in semidilute linear polymer solutions. Nature Communications, 2019, 10, 1753.	5.8	45
26	A microfluidic approach to study the effect of bacterial interactions on antimicrobial susceptibility in polymicrobial cultures. RSC Advances, 2015, 5, 35211-35223.	1.7	42
27	Topology-Controlled Relaxation Dynamics of Single Branched Polymers. ACS Macro Letters, 2015, 4, 446-452.	2.3	40
28	Passive non-linear microrheology for determining extensional viscosity. Physics of Fluids, 2017, 29, .	1.6	40
29	Model systems for single molecule polymer dynamics. Soft Matter, 2011, 7, 7907.	1.2	38
30	Comparative Analyses of Two Thermophilic Enzymes Exhibiting both Î²-1,4 Mannosidic and Î²-1,4 Glucosidic Cleavage Activities from Caldanaerobius polysaccharolyticus. Journal of Bacteriology, 2010, 192, 4111-4121.	1.0	36
31	Single-Molecule Study of DNA Polymerization Activity of HIV-1 Reverse Transcriptase on DNA Templates. Journal of Molecular Biology, 2010, 395, 995-1006.	2.0	36
32	Ellipsoidal Polyaspartamide Polymersomes with Enhanced Cellâ€Targeting Ability. Advanced Functional Materials, 2012, 22, 3239-3246.	7.8	34
33	Dendrimer Probes for Enhanced Photostability and Localization in Fluorescence Imaging. Biophysical Journal, 2013, 104, 1566-1575.	0.2	34
34	Automated single cell microbioreactor for monitoring intracellular dynamics and cell growth in free solution. Lab on A Chip, 2014, 14, 2688-2697.	3.1	33
35	Direct observation of single flexible polymers using single stranded DNA. Soft Matter, 2011, 7, 8005.	1.2	32
36	Fluidicâ€Directed Assembly of Aligned Oligopeptides with Ï€â€Conjugated Cores. Advanced Materials, 2013, 25, 6398-6404.	11.1	31

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37	Charge Transport and Quantum Interference Effects in Oxazole-Terminated Conjugated Oligomers. Journal of the American Chemical Society, 2019, 141, 16079-16084.	6.6	31
38	Dynamically Heterogeneous Relaxation of Entangled Polymer Chains. Physical Review Letters, 2018, 120, 267801.	2.9	30
39	Parameter-free prediction of DNA dynamics in planar extensional flow of semidilute solutions. Journal of Rheology, 2017, 61, 169-186.	1.3	29
40	Concentration-Driven Assembly and Solâ€“Gel Transition of Ï€-Conjugated Oligopeptides. ACS Central Science, 2017, 3, 986-994.	5.3	28
41	Stretching Dynamics of Single Comb Polymers in Extensional Flow. Macromolecules, 2018, 51, 1507-1517.	2.2	28
42	Charge Transport in Sequence-Defined Conjugated Oligomers. Journal of the American Chemical Society, 2020, 142, 4852-4861.	6.6	28
43	Multiplexed detection of nucleic acids in a combinatorial screening chip. Lab on A Chip, 2011, 11, 1916.	3.1	27
44	Characterizing the performance of the hydrodynamic trap using a control-based approach. Microfluidics and Nanofluidics, 2015, 18, 1055-1066.	1.0	27
45	Conformational dynamics and phase behavior of lipid vesicles in a precisely controlled extensional flow. Soft Matter, 2020, 16, 337-347.	1.2	27
46	Simulation of ultrathin lubricant films spreading over various carbon surfaces. Journal of Applied Physics, 2000, 87, 6164-6166.	1.1	26
47	Nonequilibrium Self-Assembly of Ï€-Conjugated Oligopeptides in Solution. ACS Applied Materials & Interfaces, 2017, 9, 3977-3984.	4.0	26
48	Single polymer dynamics under large amplitude oscillatory extension. Physical Review Fluids, 2016, 1, .	1.0	26
49	Intrachain Charge Transport through Conjugated Donorâ€“Acceptor Oligomers. ACS Applied Electronic Materials, 2019, 1, 7-12.	2.0	25
50	Covalent Agâ€“C Bonding Contacts from Unprotected Terminal Acetylenes for Molecular Junctions. Nano Letters, 2020, 20, 5490-5495.	4.5	25
51	Efficient Intermolecular Charge Transport in Ï€-Stacked Pyridinium Dimers Using Cucurbit[8]uril Supramolecular Complexes. Journal of the American Chemical Society, 2022, 144, 3162-3173.	6.6	24
52	Determining elasticity from single polymer dynamics. Soft Matter, 2014, 10, 2178-2187.	1.2	23
53	Flow Topology During Multiplexed Particle Manipulation Using a Stokes Trap. Physical Review Applied, 2019, 12, .	1.5	23
54	Direct Observation of Ring Polymer Dynamics in the Flow-Gradient Plane of Shear Flow. Macromolecules, 2020, 53, 9406-9419.	2.2	22

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55	Orientation control and nonlinear trajectory tracking of colloidal particles using microfluidics. Physical Review Fluids, 2019, 4, .	1.0	22
56	Zooming in on biological processes with fluorescence nanoscopy. Current Opinion in Biotechnology, 2013, 24, 646-653.	3.3	21
57	Transient and Average Unsteady Dynamics of Single Polymers in Large-Amplitude Oscillatory Extension. Macromolecules, 2016, 49, 8018-8030.	2.2	21
58	Unexpected entanglement dynamics in semidilute blends of supercoiled and ring DNA. Soft Matter, 2020, 16, 152-161.	1.2	21
59	Automation and flow control for particle manipulation. Current Opinion in Chemical Engineering, 2020, 29, 1-8.	3.8	21
60	Dynamics and rheology of ring-linear blend semidilute solutions in extensional flow: Single molecule experiments. Journal of Rheology, 2021, 65, 729-744.	1.3	19
61	Microfluidic Wheatstone bridge for rapid sample analysis. Lab on A Chip, 2011, 11, 4181.	3.1	18
62	Nonequilibrium thermodynamics of dilute polymer solutions in flow. Journal of Chemical Physics, 2014, 141, 174903.	1.2	18
63	Single polymer dynamics of topologically complex DNA. Current Opinion in Colloid and Interface Science, 2016, 26, 28-40.	3.4	18
64	100th Anniversary of Macromolecular Science Viewpoint: Single-Molecule Studies of Synthetic Polymers. ACS Macro Letters, 2020, 9, 1332-1341.	2.3	18
65	Expanding the Molecular Alphabet of DNA-Based Data Storage Systems with Neural Network Nanopore Readout Processing. Nano Letters, 2022, 22, 1905-1914.	4.5	18
66	Specific Labeling of Zinc Finger Proteins using Noncanonical Amino Acids and Copper-Free Click Chemistry. Bioconjugate Chemistry, 2012, 23, 1891-1901.	1.8	16
67	Modeling the stretching of wormlike chains in the presence of excluded volume. Soft Matter, 2015, 11, 5947-5954.	1.2	16
68	Viscoelastic properties of ring-linear DNA blends exhibit nonmonotonic dependence on blend composition. Physical Review Research, 2020, 2, .	1.3	16
69	Rewritable two-dimensional DNA-based data storage with machine learning reconstruction. Nature Communications, 2022, 13, .	5.8	16
70	New directions in single polymer dynamics. Journal of Polymer Science, Part B: Polymer Physics, 2013, 51, 556-566.	2.4	15
71	Nonequilibrium Work Relations for Polymer Dynamics in Dilute Solutions. Macromolecules, 2013, 46, 8345-8355.	2.2	14
72	Template-Directed Synthesis of Structurally Defined Branched Polymers. Macromolecules, 2015, 48, 1296-1303.	2.2	14

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73	Fluorescent Nanoconjugate Derivatives with Enhanced Photostability for Single Molecule Imaging. Analytical Chemistry, 2015, 87, 11048-11057.	3.2	14
74	Reversible Switching of Molecular Conductance in Viologens is Controlled by the Electrochemical Environment. Journal of Physical Chemistry C, 2021, 125, 21862-21872.	1.5	14
75	Macroscopic Alignment and Assembly of Ï€-Conjugated Oligopeptides Using Colloidal Microchannels. ACS Applied Materials & Interfaces, 2017, 9, 41586-41593.	4.0	13
76	Characterizing intermolecular interactions in redox-active pyridinium-based molecular junctions. Journal of Electroanalytical Chemistry, 2020, 875, 114070.	1.9	13
77	Rheology of Entangled Solutions of Ringâ€“Linear DNA Blends. Macromolecules, 2022, 55, 1205-1217.	2.2	13
78	Dynamics and rheology of ring-linear blend semidilute solutions in extensional flow. Part I: Modeling and molecular simulations. Journal of Rheology, 2021, 65, 757-777.	1.3	12
79	Transition between Nonresonant and Resonant Charge Transport in Molecular Junctions. Nano Letters, 2021, 21, 8340-8347.	4.5	12
80	Using automated synthesis to understand the role of side chains on molecular charge transport. Nature Communications, 2022, 13, 2102.	5.8	12
81	A Single-Molecule View of Genome Editing Proteins: Biophysical Mechanisms for TALEs and CRISPR/Cas9. Annual Review of Chemical and Biomolecular Engineering, 2017, 8, 577-597.	3.3	11
82	Scale-Dependent Stiffness and Internal Tension of a Model Brush Polymer. Physical Review Letters, 2017, 119, 127801.	2.9	11
83	Synthesis and Direct Observation of Thermoresponsive DNA Copolymers. ACS Macro Letters, 2018, 7, 281-286.	2.3	11
84	Nonmonotonic dependence of comb polymer relaxation on branch density in semidilute solutions of linear polymers. Physical Review Fluids, 2020, 5, .	1.0	10
85	Understanding How Coacervates Drive Reversible Small Molecule Reactions to Promote Molecular Complexity. Langmuir, 2021, 37, 14323-14335.	1.6	10
86	A Microfluidic-based Hydrodynamic Trap for Single Particles. Journal of Visualized Experiments, 2011, , .	0.2	8
87	Image Processing in DNA. , 2020, , .		8
88	Double-mode relaxation of highly deformed anisotropic vesicles. Physical Review E, 2020, 102, 010605.	0.8	8
89	Divalent cations promote TALE DNA-binding specificity. Nucleic Acids Research, 2020, 48, 1406-1422.	6.5	6
90	Effect of Core Oligomer Length on the Phase Behavior and Assembly of Ï€-Conjugated Peptides. ACS Applied Materials & Interfaces, 2020, 12, 20722-20732.	4.0	6

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91	Heterogeneous drying and nonmonotonic contact angle dynamics in concentrated film-forming latex drops. Physical Review Fluids, 2017, 2, .	1.0	4
92	Nonlinear Transient and Steady State Stretching of Deflated Vesicles in Flow. Langmuir, 2021, 37, 13976-13984.	1.6	4
93	The Genus Prevotella, A Resource of Enzymes for Hemicellulose Degradation. Biophysical Journal, 2010, 98, 210a.	0.2	3
94	Solubility and activity of a phosphinosulfonate palladium catalyst in water with different surfactants. Polymer Chemistry, 2019, 10, 1988-1992.	1.9	2
95	Flow-Based Particle Trapping and Manipulation. , 2014, , 1-9.		2
96	Vesicle dynamics in large amplitude oscillatory extensional flow. Journal of Fluid Mechanics, 2021, 929, .	1.4	2
97	Role of Interfacial Interactions in the Graphene-Directed Assembly of Monolayer Conjugated Polymers. Langmuir, 2022, 38, 6984-6995.	1.6	2
98	Photoswitchable Dendrimer Nanoconjugates as Fluorescent Probes for Super-Resolution Microscopy. Biophysical Journal, 2012, 102, 182a-183a.	0.2	1
99	In Situ Photophysical Characterization of Ï€-Conjugated Oligopeptides Assembled via Continuous Flow Processing. Langmuir, 2019, 35, 10947-10957.	1.6	1
100	Single Cell Response to Periodic Environmental Stimuli using a Microfluidic Bioreactor. Biophysical Journal, 2014, 106, 225a.	0.2	0
101	Microfluidic Methods in Single Cell Biology. , 2016, , 19-54.		0
102	Emerging Investigators 2016: discovery science meets technology. Lab on A Chip, 2016, 16, 2974-2976.	3.1	0
103	Single-Molecule Charge Transport in Discrete, Ï€-Stacked Pyridinium Dimers. SSRN Electronic Journal, 0, , .	0.4	0
104	Crooks Fluctuation Theorem for Single Polymer Dynamics in Time-Dependent Flows: Understanding Viscoelastic Hysteresis. Entropy, 2022, 24, 27.	1.1	0