Michael Rubinstein

List of Publications by Year
in descending order

100 papers	11,338 citations	36203 51 h-index	30848 102 g-index
105 all docs	105 docs citations	105 times ranked	9774 citing authors

#	Article	IF	Citations
1	A Periciliary Brush Promotes the Lung Health by Separating the Mucus Layer from Airway Epithelia. Science, 2012, 337, 937-941.	6.0	649
2	Dynamics of reversible networks. Macromolecules, 1991, 24, 4701-4707.	2.2	614
3	Thermoreversible Gelation in Solutions of Associative Polymers. 1. Statics. Macromolecules, 1998, 31, 1373-1385.	2.2	490
4	Dynamics of Entangled Solutions of Associating Polymers. Macromolecules, 2001, 34, 1058-1068.	2.2	448
5	Solvent-free, supersoft and superelastic bottlebrush melts and networks. Nature Materials, 2016, 15, 183-189.	13.3	428
6	Cascade of Transitions of Polyelectrolytes in Poor Solvents. Macromolecules, 1996, 29, 2974-2979.	2.2	424
7	Elasticity of Polymer Networks. Macromolecules, 2002, 35, 6670-6686.	2.2	402
8	Thermoreversible Gelation in Solutions of Associating Polymers. 2. Linear Dynamics. Macromolecules, 1998, 31, 1386-1397.	2.2	399
9	A Self-Consistent Mean Field Model of a Starburst Dendrimer:â€‰ Dense Core vs Dense Shell. Macromolecules, 1996, 29, 7251-7260.	2.2	308
10	Mobility of Nonsticky Nanoparticles in Polymer Liquids. Macromolecules, 2011, 44, 7853-7863.	2.2	307
11	Self-Healing of Unentangled Polymer Networks with Reversible Bonds. Macromolecules, 2013, 46, 7525-7541.	2.2	302
12	Diblock Copolymer Micelles in a Dilute Solution. Macromolecules, 2005, 38, 5330-5351.	2.2	282
13	Polyampholytes. Journal of Polymer Science, Part B: Polymer Physics, 2004, 42, 3513-3538.	2.4	269
14	Surface patterning of nanoparticles with polymer patches. Nature, 2016, 538, 79-83.	13.7	257
15	Programming molecular self-assembly of intrinsically disordered proteins containing sequences of low complexity. Nature Chemistry, 2017, 9, 509-515.	6.6	247
16	Network Modulus and Superelasticity. Macromolecules, 1994, 27, 3191-3198.	2.2	218
17	Hopping Diffusion of Nanoparticles in Polymer Matrices. Macromolecules, 2015, 48, 847-862.	2.2	211
18	Nonaffine Deformation and Elasticity of Polymer Networks. Macromolecules, 1997, 30, 8036-8044.	2.2	207

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19	Dynamics of a Ring Polymer in a Gel. Physical Review Letters, 1994, 73, 1263-1266.	2.9	202
20	Molecular structure of bottlebrush polymers in melts. Science Advances, 2016, 2, e1601478.	4.7	198
21	Network dynamics in nanofilled polymers. Nature Communications, 2016, 7, 11368.	5.8	180
22	Adsorption of Polyelectrolytes at Oppositely Charged Surfaces. Macromolecules, 2001, 34, 3421-3436.	2.2	170
23	Dynamics of Ring Polymers in the Presence of Fixed Obstacles. Physical Review Letters, 1986, 57, 3023-3026.	2.9	164
24	Soft Poly(dimethylsiloxane) Elastomers from Architectureâ€Driven Entanglement Free Design. Advanced Materials, 2015, 27, 5132-5140.	11.1	163
25	Hydrophobic Polyelectrolytes. Macromolecules, 1999, 32, 915-922.	2.2	140
26	Molecular Characterization of Polymer Networks. Chemical Reviews, 2021, 121, 5042-5092.	23.0	140
27	The Relationship of Mucus Concentration (Hydration) to Mucus Osmotic Pressure and Transport in Chronic Bronchitis. American Journal of Respiratory and Critical Care Medicine, 2015, 192, 182-190.	2.5	136
28	Self-Similar Conformations and Dynamics in Entangled Melts and Solutions of Nonconcatenated Ring Polymers. Macromolecules, 2016, 49, 708-722.	2.2	136
29	Viscosity of Ring Polymer Melts. ACS Macro Letters, 2013, 2, 874-878.	2.3	134
30	Strong, Tough, Stretchable, and Selfâ€Adhesive Hydrogels from Intrinsically Unstructured Proteins. Advanced Materials, 2017, 29, 1604743.	11.1	130
31	Toughening hydrogels through force-triggered chemical reactions that lengthen polymer strands. Science, 2021, 374, 193-196.	6.0	124
32	A Rheological Study of the Association and Dynamics of MUC5AC Gels. Biomacromolecules, 2017, 18, 3654-3664.	2.6	122
33	Dynamics of Entangled Associating Polymers with Large Aggregates. Macromolecules, 2002, 35, 4821-4837.	2.2	113
34	Counterion Condensation and Phase Separation in Solutions of Hydrophobic Polyelectrolytes. Macromolecules, 2001, 34, 1964-1972.	2.2	107
35	Counterion Phase Transitions in Dilute Polyelectrolyte Solutions. Physical Review Letters, 2001, 86, 2341-2344.	2.9	105
36	Molecular Dynamics Simulations of Polyelectrolyte Solutions:Â Osmotic Coefficient and Counterion Condensation. Macromolecules, 2003, 36, 3399-3410.	2.2	97

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37	Nanocapillarity-mediated magnetic assembly ofÂnanoparticles into ultraflexible filaments andÂreconfigurable networks. Nature Materials, 2015, 14, 1104-1109.	13.3	89
38	Elastin-like Polypeptide Diblock Copolymers Self-Assemble into Weak Micelles. Macromolecules, 2015, 48, 4183-4195.	2.2	86
39	Adsorption of a Polyampholyte Chain on a Charged Surface. Macromolecules, 1997, 30, 4332-4341.	2.2	84
40	Lubrication by Polyelectrolyte Brushes. Macromolecules, 2014, 47, 5825-5838.	2.2	79
41	Roles of mucus adhesion and cohesion in cough clearance. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12501-12506.	3.3	79
42	Dynamics of near-critical polymer gels. Physical Review E, 1993, 48, 3712-3716.	0.8	75
43	Structure of Liquid Coacervates Formed by Oppositely Charged Polyelectrolytes. Macromolecules, 2018, 51, 9572-9588.	2.2	65
44	Structure of Polymer-Grafted Nanoparticle Melts. ACS Nano, 2020, 14, 15505-15516.	7.3	65
45	Regimes of Conformational Transitions of a Diblock Polyampholyte. Macromolecules, 2006, 39, 5897-5912.	2.2	61
46	Nanoparticle Motion in Entangled Melts of Linear and Nonconcatenated Ring Polymers. Macromolecules, 2017, 50, 1749-1754.	2.2	61
47	Quantitative Adjustment to the Molecular Energy Parameter in the Lakeâ€"Thomas Theory of Polymer Fracture Energy. Macromolecules, 2019, 52, 2772-2777.	2.2	60
48	Effect of the Soluble Block Size on Spherical Diblock Copolymer Micelles. Macromolecules, 2008, 41, 6555-6563.	2.2	58
49	Tuning Selectivities in Gas Separation Membranes Based on Polymer-Grafted Nanoparticles. ACS Nano, 2020, 14, 17174-17183.	7.3	55
50	Effect of Short-Range Interactions on Polyelectrolyte Adsorption at Charged Surfacesâ€. Journal of Physical Chemistry B, 2003, 107, 8260-8269.	1.2	54
51	Rouse Mode Analysis of Chain Relaxation in Homopolymer Melts. Macromolecules, 2014, 47, 6925-6931.	2.2	54
52	Topological Linking Drives Anomalous Thickening of Ring Polymers in Weak Extensional Flows. Physical Review Letters, 2020, 124, 027801.	2.9	53
53	Hydrophobically Modified Polyelectrolytes in Dilute Salt-Free Solutions. Macromolecules, 2000, 33, 8097-8105.	2.2	52
54	Flory theory of randomly branched polymers. Soft Matter, 2017, 13, 1223-1234.	1.2	52

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55	Single-stranded nucleic acid elasticity arises from internal electrostatic tension. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 5095-5100.	3.3	51
56	Nonlinear Shear Rheology of Entangled Polymer Rings. Macromolecules, 2021, 54, 2811-2827.	2.2	51
57	Enhanced nanochannel translocation and localization of genomic DNA molecules using three-dimensional nanofunnels. Nature Communications, 2017, 8, 807.	5.8	49
58	Influence of the Solvent Quality on Ring Polymer Dimensions. Macromolecules, 2015, 48, 1598-1605.	2.2	48
59	Long-Range Multichain Adsorption of Polyampholytes on a Charged Surface. Macromolecules, 1999, 32, 5689-5700.	2.2	46
60	Bond Tension in Tethered Macromolecules. Macromolecules, 2011, 44, 4520-4529.	2.2	46
61	Rouse Dynamics of Polyelectrolyte Solutions:â€‰ Molecular Dynamics Study. Macromolecules, 2007, 40, 7671-7679.	2.2	43
62	Stress Relaxation in Symmetric Ring-Linear Polymer Blends at Low Ring Fractions. Macromolecules, 2020, 53, 1685-1693.	2.2	42
63	Adsorption of Hydrophobic Polyelectrolytes at Oppositely Charged Surfaces. Macromolecules, 2002, 35, 2754-2768.	2.2	39
64	Elastic Modulus and Equilibrium Swelling of Near-Critical Gels. Macromolecules, 1994, 27, 3184-3190.	2.2	37
65	Mechanism Dictates Mechanics: A Molecular Substituent Effect in the Macroscopic Fracture of a Covalent Polymer Network. Journal of the American Chemical Society, 2021, 143, 3714-3718.	6.6	37
66	Universal behavior of hydrogels confined to narrow capillaries. Scientific Reports, 2015, 5, 17017.	1.6	36
67	Scaling properties of branched polyesters. 2. Static scaling above the gel point. Macromolecules, 1992, 25, 7180-7187.	2.2	35
68	SWCNT Induced Crystallization in an Amorphous All-Aromatic Poly(ether imide). Macromolecules, 2013, 46, 1492-1503.	2.2	34
69	Nanorheology of Entangled Polymer Melts. Physical Review Letters, 2018, 120, 057801.	2.9	34
70	Helicoidal Patterning of Nanorods with Polymer Ligands. Angewandte Chemie - International Edition, 2019, 58, 3123-3127.	7.2	32
71	Monte Carlo simulation of homopolymer chains. I. Second virial coefficient. Journal of Chemical Physics, 2003, 118, 4721-4732.	1.2	30
72	Ion Pairing and the Structure of Gel Coacervates. Macromolecules, 2020, 53, 9420-9442.	2.2	29

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73	Structure of Adsorbed Polyampholyte Layers at Charged Objects. Macromolecules, 2001, 34, 627-639.	2.2	25
74	Conformations of a Long Polymer in a Melt of Shorter Chains: Generalizations of the Flory Theorem. ACS Macro Letters, 2015, 4, 177-181.	2.3	25
75	Nonlinear rheometry of entangled polymeric rings and ring-linear blends. Journal of Rheology, 2021, 65, 695-711.	1.3	24
76	Stress-Induced Ordering in Microphase-Separated Multicomponent Networks. Macromolecules, 1996, 29, 8220-8230.	2.2	23
77	Universal Polymeric-to-Colloidal Transition in Melts of Hairy Nanoparticles. ACS Nano, 2021, 15, 16697-16708.	7.3	23
78	Deterministic model of DNA gel electrophoresis in strong electric fields. Electrophoresis, 1996, 17, 1011-1017.	1.3	20
79	Effects of Tethered Polymers on Dynamics of Nanoparticles in Unentangled Polymer Melts. Macromolecules, 2020, 53, 6898-6906.	2.2	20
80	Single-Event Spectroscopy and Unravelling Kinetics of Covalent Domains Based on Cyclobutane Mechanophores. Journal of the American Chemical Society, 2021, 143, 5269-5276.	6.6	20
81	Diffusion of Thin Nanorods in Polymer Melts. Macromolecules, 2021, 54, 7051-7059.	2.2	20
82	Strong Selective Adsorption of Polymers. Macromolecules, 2015, 48, 3788-3801.	2.2	17
83	Polymer physicsâ€"The ugly duckling story: Will polymer physics ever become a part of â€œproperâ€• physics?. Journal of Polymer Science, Part B: Polymer Physics, 2010, 48, 2548-2551.	2.4	16
84	Surface-Anchored Poly(<i>N</i>-isopropylacrylamide) Orthogonal Gradient Networks. Macromolecules, 2016, 49, 5076-5083.	2.2	16
85	Tension Amplification in Tethered Layers of Bottle-Brush Polymers. Macromolecules, 2016, 49, 1950-1960.	2.2	16
86	Mobility of Polymer-Tethered Nanoparticles in Unentangled Polymer Melts. Macromolecules, 2019, 52, 1536-1545.	2.2	16
87	Dynamic Coupling in Unentangled Liquid Coacervates Formed by Oppositely Charged Polyelectrolytes. Macromolecules, 2021, 54, 1783-1800.	2.2	15
88	Adsorption Isotherms of Polyampholytes at Charged Spherical Particles. Journal of Physical Chemistry B, 2001, 105, 8917-8930.	1.2	14
89	Unexpected Scenario of Glass Transition in Polymer Globules: An Exactly Enumerable Model. Physical Review Letters, 2000, 84, 2417-2420.	2.9	12
90	Scaling Theory of Swelling and Deswelling of Polymer Networks. Macromolecules, 2022, 55, 3588-3601.	2.2	11

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91	Polymers at Liquid/Vapor Interface. ACS Macro Letters, 2017, 6, 1191-1195.	2.3	10
92	Gas Transport in Interacting Planar Brushes. ACS Polymers Au, 2021, 1, 39-46.	1.7	9
93	Understanding Gas Transport in Polymer-Grafted Nanoparticle Assemblies. Macromolecules, 2022, 55, 3011-3019.	2.2	9
94	Mucus concentrationâ€"dependent biophysical abnormalities unify submucosal gland and superficial airway dysfunction in cystic fibrosis. Science Advances, 2022, 8, eabm9718.	4.7	8
95	Fibrous hydrogels under biaxial confinement. Nature Communications, 2022, 13, .	5.8	6
96	Overlap Concentration in Salt-Free Polyelectrolyte Solutions. Macromolecules, 2021, 54, 10068-10073.	2.2	5
97	Where in the world are condensed counterions?. Soft Matter, 2022, 18, 1154-1173.	1.2	4
98	Explanation of Anomalous Scaling of Swollen Entangled Chains. Macromolecules, 2005, 38, 3511-3514.	2.2	3
99	Helicoidal Patterning of Nanorods with Polymer Ligands. Angewandte Chemie, 2019, 131, 3155-3159.	1.6	2
100	Dynamics of Entangled Polymers: The Three Key Ideas. Series on Directions in Condensed Matter Physics, 2009, , 20-34.	0.1	1