

Matt Tirrell

List of Publications by Year in descending order

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131
papers

8,373
citations

41344

49
h-index

48315

88
g-index

142
all docs

142
docs citations

142
times ranked

8004
citing authors

#	ARTICLE	IF	CITATIONS
1	The role of surface science in bioengineered materials. <i>Surface Science</i> , 2002, 500, 61-83.	1.9	417
2	Phase behaviour and complex coacervation of aqueous polypeptide solutions. <i>Soft Matter</i> , 2012, 8, 9396-9405.	2.7	288
3	Adhesion and Friction Mechanisms of Polymer-on-Polymer Surfaces. <i>Science</i> , 2002, 297, 379-382.	12.6	278
4	Targeting atherosclerosis by using modular, multifunctional micelles. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 9815-9819.	7.1	250
5	Protein Encapsulation via Polypeptide Complex Coacervation. <i>ACS Macro Letters</i> , 2014, 3, 1088-1091.	4.8	241
6	Phase Behavior and Salt Partitioning in Polyelectrolyte Complex Coacervates. <i>Macromolecules</i> , 2018, 51, 2988-2995.	4.8	241
7	Phase Behavior and Coacervation of Aqueous Poly(acrylic acid)~Poly(allylamine) Solutions. <i>Macromolecules</i> , 2010, 43, 2518-2528.	4.8	216
8	Chirality-selected phase behaviour in ionic polypeptide complexes. <i>Nature Communications</i> , 2015, 6, 6052.	12.8	208
9	Self-Assembled Peptide Amphiphile Micelles Containing a Cytotoxic T~Cell Epitope Promote a Protective Immune Response In Vivo. <i>Advanced Materials</i> , 2012, 24, 3845-3849.	21.0	207
10	The Effect of Salt on the Complex Coacervation of Vinyl Polyelectrolytes. <i>Polymers</i> , 2014, 6, 1756-1772.	4.5	204
11	Adhesion and Surface Interactions of a Self-Healing Polymer with Multiple Hydrogen~Bonding Groups. <i>Advanced Functional Materials</i> , 2014, 24, 2322-2333.	14.9	202
12	Bottom-up design of biomimetic assemblies. <i>Advanced Drug Delivery Reviews</i> , 2004, 56, 1537-1563.	13.7	198
13	Oligonucleotide~Peptide Complexes: Phase Control by Hybridization. <i>Journal of the American Chemical Society</i> , 2018, 140, 1632-1638.	13.7	172
14	Self-assembling peptide-based building blocks in medical applications. <i>Advanced Drug Delivery Reviews</i> , 2017, 110-111, 65-79.	13.7	169
15	Structural properties of soluble peptide amphiphile micelles. <i>Soft Matter</i> , 2011, 7, 9572.	2.7	160
16	Polyelectrolyte Molecular Weight and Salt Effects on the Phase Behavior and Coacervation of Aqueous Solutions of Poly(acrylic acid) Sodium Salt and Poly(allylamine) Hydrochloride. <i>Macromolecules</i> , 2013, 46, 2376-2390.	4.8	157
17	Direct Force Measurements at Polymer Brush Surfaces by Atomic Force Microscopy. <i>Macromolecules</i> , 1998, 31, 4297-4300.	4.8	155
18	Fibrin-binding, peptide amphiphile micelles for targeting glioblastoma. <i>Biomaterials</i> , 2014, 35, 1249-1256.	11.4	144

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19	Multivalent counterions diminish the lubricity of polyelectrolyte brushes. <i>Science</i> , 2018, 360, 1434-1438.	12.6	137
20	Structure and rheology of polyelectrolyte complex coacervates. <i>Soft Matter</i> , 2018, 14, 2454-2464.	2.7	136
21	Interfacial Tension of Polyelectrolyte Complex Coacervate Phases. <i>ACS Macro Letters</i> , 2014, 3, 565-568.	4.8	135
22	Self-assembly of block copolymers with a strongly charged and a hydrophobic block in a selective, polar solvent. Micelles and adsorbed layers. <i>Macromolecules</i> , 1993, 26, 4310-4315.	4.8	117
23	Effects of Polymer and Salt Concentration on the Structure and Properties of Triblock Copolymer Coacervate Hydrogels. <i>Macromolecules</i> , 2013, 46, 1512-1518.	4.8	113
24	A pH-Triggered, Self-Assembled, and Bioprintable Hybrid Hydrogel Scaffold for Mesenchymal Stem Cell Based Bone Tissue Engineering. <i>ACS Applied Materials & Interfaces</i> , 2019, 11, 8749-8762.	8.0	112
25	Effect of the Lipid Chain Melting Transition on the Stability of DSPE-PEG(2000) Micelles. <i>Langmuir</i> , 2009, 25, 7279-7286.	3.5	109
26	Complex coacervation of poly(ethylene-imine)/polypeptide aqueous solutions: Thermodynamic and rheological characterization. <i>Journal of Colloid and Interface Science</i> , 2013, 398, 39-50.	9.4	108
27	Adhesion and Friction of Polymer Surfaces: The Effect of Chain Ends. <i>Macromolecules</i> , 2005, 38, 3491-3503.	4.8	107
28	Molecular engineering solutions for therapeutic peptide delivery. <i>Chemical Society Reviews</i> , 2017, 46, 6553-6569.	38.1	103
29	Gel phase formation in dilute triblock copolyelectrolyte complexes. <i>Nature Communications</i> , 2017, 8, 14131.	12.8	92
30	Neural stem cell adhesion and proliferation on phospholipid bilayers functionalized with RGD peptides. <i>Biomaterials</i> , 2010, 31, 8706-8715.	11.4	89
31	Inhibition of atherosclerosis-promoting microRNAs via targeted polyelectrolyte complex micelles. <i>Journal of Materials Chemistry B</i> , 2014, 2, 8142-8153.	5.8	89
32	pH-responsive branched peptide amphiphile hydrogel designed for applications in regenerative medicine with potential as injectable tissue scaffolds. <i>Journal of Materials Chemistry</i> , 2012, 22, 19447.	6.7	84
33	Structure of Polyelectrolyte Brushes in the Presence of Multivalent Counterions. <i>Macromolecules</i> , 2016, 49, 5609-5617.	4.8	84
34	Self-Assembly of Helical Polypeptides Driven by Complex Coacervation. <i>Angewandte Chemie - International Edition</i> , 2015, 54, 11128-11132.	13.8	81
35	Multivalent ions induce lateral structural inhomogeneities in polyelectrolyte brushes. <i>Science Advances</i> , 2017, 3, eaao1497.	10.3	79
36	Partitioning and Enhanced Self-Assembly of Actin in Polypeptide Coacervates. <i>Biophysical Journal</i> , 2018, 114, 1636-1645.	0.5	78

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37	Mechanisms of Peptide Amphiphile Internalization by SJS-A1 Cells <i>in Vitro</i> . <i>Biochemistry</i> , 2009, 48, 3304-3314.	2.5	74
38	Structure-Property Relationships of Oligonucleotide Polyelectrolyte Complex Micelles. <i>Nano Letters</i> , 2018, 18, 7111-7117.	9.1	68
39	Controlling Complex Coacervation via Random Polyelectrolyte Sequences. <i>ACS Macro Letters</i> , 2019, 8, 1296-1302.	4.8	63
40	Active targeting of early and mid-stage atherosclerotic plaques using self-assembled peptide amphiphile micelles. <i>Biomaterials</i> , 2014, 35, 8678-8686.	11.4	61
41	Polyelectrolyte Complex Coacervation across a Broad Range of Charge Densities. <i>Macromolecules</i> , 2021, 54, 6878-6890.	4.8	60
42	Small Angle Neutron Scattering Study of Complex Coacervate Micelles and Hydrogels Formed from Ionic Diblock and Triblock Copolymers. <i>Journal of Physical Chemistry B</i> , 2014, 118, 13011-13018.	2.6	57
43	In vivo biodistribution and clearance of peptide amphiphile micelles. <i>Nanomedicine: Nanotechnology, Biology, and Medicine</i> , 2015, 11, 479-487.	3.3	56
44	A molecular view of the role of chirality in charge-driven polypeptide complexation. <i>Soft Matter</i> , 2015, 11, 1525-1538.	2.7	55
45	Effect of the Peptide Secondary Structure on the Peptide Amphiphile Supramolecular Structure and Interactions. <i>Langmuir</i> , 2011, 27, 6163-6170.	3.5	54
46	Adhesion and Detachment Mechanisms between Polymer and Solid Substrate Surfaces: Using Polystyrene-Mica as a Model System. <i>Macromolecules</i> , 2016, 49, 5223-5231.	4.8	54
47	Effects of Non-Electrostatic Intermolecular Interactions on the Phase Behavior of pH-Sensitive Polyelectrolyte Complexes. <i>Macromolecules</i> , 2020, 53, 7835-7844.	4.8	54
48	Phosphate-Containing Polyethylene Glycol Polymers Prevent Lethal Sepsis by Multidrug-Resistant Pathogens. <i>Antimicrobial Agents and Chemotherapy</i> , 2014, 58, 966-977.	3.2	53
49	Effect of Solvent Quality on the Phase Behavior of Polyelectrolyte Complexes. <i>Macromolecules</i> , 2021, 54, 105-114.	4.8	53
50	Gadolinium-Functionalized Peptide Amphiphile Micelles for Multimodal Imaging of Atherosclerotic Lesions. <i>ACS Omega</i> , 2016, 1, 996-1003.	3.5	49
51	Open-to-Air RAFT Polymerization in Complex Solvents: From Whisky to Fermentation Broth. <i>ACS Macro Letters</i> , 2018, 7, 406-411.	4.8	48
52	Monocyte-Targeting Supramolecular Micellar Assemblies: A Molecular Diagnostic Tool for Atherosclerosis. <i>Advanced Healthcare Materials</i> , 2015, 4, 367-376.	7.6	46
53	Lateral Structure Formation in Polyelectrolyte Brushes Induced by Multivalent Ions. <i>Macromolecules</i> , 2017, 50, 1225-1235.	4.8	46
54	Bridging contributions to polyelectrolyte brush collapse in multivalent salt solutions. <i>Journal of Polymer Science Part A</i> , 2016, 54, 284-291.	2.3	45

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55	Comparing Solvophobic and Multivalent Induced Collapse in Polyelectrolyte Brushes. ACS Macro Letters, 2017, 6, 155-160.	4.8	45
56	Polyelectrolyte Complexes: Fluid or Solid?. ACS Central Science, 2018, 4, 532-533.	11.3	45
57	Structural Evolution of Polyelectrolyte Complex Core Micelles and Ordered-Phase Bulk Materials. Macromolecules, 2014, 47, 8026-8032.	4.8	44
58	Complex Coacervation in Polyelectrolytes from a Coarse-Grained Model. Macromolecules, 2018, 51, 6717-6723.	4.8	44
59	Advanced Materials for Energy-Water Systems: The Central Role of Water/Solid Interfaces in Adsorption, Reactivity, and Transport. Chemical Reviews, 2021, 121, 9450-9501.	47.7	43
60	Recent Advances in Targeted, Self-Assembling Nanoparticles to Address Vascular Damage Due to Atherosclerosis. Advanced Healthcare Materials, 2015, 4, 2408-2422.	7.6	40
61	Reversible Adhesion with Polyelectrolyte Brushes Tailored via the Uptake and Release of Trivalent Lanthanum Ions. Journal of Physical Chemistry C, 2015, 119, 14805-14814.	3.1	39
62	Polyelectrolyte Complexation of Oligonucleotides by Charged Hydrophobic-Neutral Hydrophilic Block Copolymers. Polymers, 2019, 11, 83.	4.5	39
63	Solid-to-Liquid Phase Transition in Polyelectrolyte Complexes. Macromolecules, 2020, 53, 7944-7953.	4.8	39
64	Structure, Morphology, and Rheology of Polyelectrolyte Complex Hydrogels Formed by Self-Assembly of Oppositely Charged Triblock Polyelectrolytes. Macromolecules, 2020, 53, 5763-5774.	4.8	39
65	A zwitterionic block-copolymer, based on glutamic acid and lysine, reduces the biofouling of UF and RO membranes. Journal of Membrane Science, 2018, 549, 507-514.	8.2	38
66	Non-equilibrium phenomena and kinetic pathways in self-assembled polyelectrolyte complexes. Journal of Chemical Physics, 2018, 149, 163330.	3.0	38
67	Synthesis and Assembly of Designer Styrenic Diblock Polyelectrolytes. ACS Macro Letters, 2018, 7, 726-733.	4.8	38
68	The effect of multivalent counterions to the structure of highly dense polystyrene sulfonate brushes. Polymer, 2016, 98, 448-453.	3.8	37
69	Counterion distribution in a spherical charged sparse brush. European Physical Journal E, 2001, 6, 109-115.	1.6	36
70	Chemical processing by self-assembly. AIChE Journal, 2001, 47, 1706-1710.	3.6	36
71	Modular materials by self-assembly. AIChE Journal, 2005, 51, 2386-2390.	3.6	35
72	Directing the phase behavior of polyelectrolyte complexes using chiral patterned peptides. European Physical Journal: Special Topics, 2016, 225, 1805-1815.	2.6	35

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73	Internalization of p53 ¹⁴ Peptide Amphiphiles and Subsequent Endosomal Disruption Results in SJS-1 Cell Death. <i>Molecular Pharmaceutics</i> , 2010, 7, 2173-2184.	4.6	34
74	Modular Peptide Amphiphile Micelles Improving an Antibody-Mediated Immune Response to Group A Streptococcus. <i>ACS Biomaterials Science and Engineering</i> , 2017, 3, 144-152.	5.2	34
75	Impact of wet-dry cycling on the phase behavior and compartmentalization properties of complex coacervates. <i>Nature Communications</i> , 2020, 11, 5423.	12.8	33
76	Polyampholyte physics: Liquid-liquid phase separation and biological condensates. <i>Current Opinion in Colloid and Interface Science</i> , 2021, 54, 101457.	7.4	32
77	Limit Cycles in Dynamic Adhesion and Friction Processes: A Discussion. <i>Journal of Adhesion</i> , 2006, 82, 933-943.	3.0	31
78	Advances in the Structural Design of Polyelectrolyte Complex Micelles. <i>Journal of Physical Chemistry B</i> , 2021, 125, 7076-7089.	2.6	31
79	Gelatin-Derived Graphene-Silicate Hybrid Materials Are Biocompatible and Synergistically Promote BMP9-Induced Osteogenic Differentiation of Mesenchymal Stem Cells. <i>ACS Applied Materials & Interfaces</i> , 2017, 9, 15922-15932.	8.0	30
80	Transient surface patterns during adhesion and coalescence of thin liquid films. <i>Soft Matter</i> , 2007, 3, 88-93.	2.7	26
81	Cooperative DNA binding and assembly by a bZip peptide-amphiphile. <i>Soft Matter</i> , 2010, 6, 1035.	2.7	26
82	Expanding the structural diversity of polyelectrolyte complexes and polyzwitterions. <i>Current Opinion in Solid State and Materials Science</i> , 2021, 25, 100897.	11.5	25
83	Cathepsin-Mediated Cleavage of Peptides from Peptide Amphiphiles Leads to Enhanced Intracellular Peptide Accumulation. <i>Bioconjugate Chemistry</i> , 2017, 28, 2316-2326.	3.6	23
84	The Non-Peptidic Part Determines the Internalization Mechanism and Intracellular Trafficking of Peptide Amphiphiles. <i>PLoS ONE</i> , 2013, 8, e54611.	2.5	23
85	Ion-Specific Effects of Divalent Ions on the Structure of Polyelectrolyte Brushes. <i>Langmuir</i> , 2019, 35, 15564-15572.	3.5	22
86	Mechanism of Dissociation Kinetics in Polyelectrolyte Complex Micelles. <i>Macromolecules</i> , 2020, 53, 102-111.	4.8	22
87	Effect of mixed solvents on polyelectrolyte complexes with salt. <i>Colloid and Polymer Science</i> , 2020, 298, 887-894.	2.1	22
88	Antifouling Properties of a Self-Assembling Glutamic Acid-Lysine Zwitterionic Polymer Surface Coating. <i>Langmuir</i> , 2019, 35, 1699-1713.	3.5	21
89	Polymersomes Decorated with the SARS-CoV-2 Spike Protein Receptor-Binding Domain Elicit Robust Humoral and Cellular Immunity. <i>ACS Central Science</i> , 2021, 7, 1368-1380.	11.3	21
90	Fluid mechanical shear induces structural transitions in assembly of a peptide-lipid conjugate. <i>Soft Matter</i> , 2011, 7, 8856.	2.7	20

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91	Peptide contour length determines equilibrium secondary structure in proteinâ€analogous micelles. <i>Biopolymers</i> , 2013, 99, 573-581.	2.4	20
92	Physical Property Scaling Relationships for Polyelectrolyte Complex Micelles. <i>Macromolecules</i> , 2021, 54, 6585-6594.	4.8	20
93	Targeted polyelectrolyte complex micelles treat vascular complications inÂvivo. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	20
94	Spatiotemporal Formation and Growth Kinetics of Polyelectrolyte Complex Micelles with Millisecond Resolution. <i>ACS Macro Letters</i> , 2020, 9, 1674-1680.	4.8	17
95	Interparticle Interactions in Dilute Solutions of Polyelectrolyte Complex Micelles. <i>ACS Macro Letters</i> , 2019, 8, 819-825.	4.8	16
96	Harnessing the Therapeutic Potential of Biomacromolecules through Intracellular Delivery of Nucleic Acids, Peptides, and Proteins. <i>Advanced Healthcare Materials</i> , 2022, 11, e2102600.	7.6	15
97	Selfâ€assembly and applications of nucleic acid solidâ€state films. <i>Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology</i> , 2011, 3, 479-500.	6.1	14
98	Challenges in nucleic acidâ€lipid films for transfection. <i>AICHE Journal</i> , 2013, 59, 3203-3213.	3.6	14
99	Preferential targeting of MCL-1 by a hydrocarbon-stapled BIM BH3 peptide. <i>Oncotarget</i> , 2019, 10, 6219-6233.	1.8	13
100	A Scaling Model for Osmotic Energy of Polymer Brushes. <i>Macromolecules</i> , 2000, 33, 9146-9151.	4.8	12
101	Activating the Intrinsic Pathway of Apoptosis Using BIM BH3 Peptides Delivered by Peptide Amphiphiles with Endosomal Release. <i>Materials</i> , 2019, 12, 2567.	2.9	11
102	Comparing Zwitterionic and PEG Exteriors of Polyelectrolyte Complex Micelles. <i>Molecules</i> , 2020, 25, 2553.	3.8	11
103	Harnessing Peptide Binding to Capture and Reclaim Phosphate. <i>Journal of the American Chemical Society</i> , 2021, 143, 4440-4450.	13.7	11
104	Polymers at the Interface with Biology. <i>Biomacromolecules</i> , 2018, 19, 3151-3162.	5.4	10
105	Structure and dynamics of lipid membranes interacting with antivirulence end-phosphorylated polyethylene glycol block copolymers. <i>Soft Matter</i> , 2020, 16, 983-989.	2.7	10
106	Complex coacervation of statistical polyelectrolytes: role of monomer sequences and formation of inhomogeneous coacervates. <i>Molecular Systems Design and Engineering</i> , 2021, 6, 790-804.	3.4	10
107	Supramolecular Materials Comprising Nucleic Acid Biopolymers. <i>Macromolecular Symposia</i> , 2008, 264, 13-17.	0.7	9
108	De Novo Synthesis of Phosphorylated Triblock Copolymers with Pathogen Virulence-Suppressing Properties That Prevent Infection-Related Mortality. <i>ACS Biomaterials Science and Engineering</i> , 2017, 3, 2076-2085.	5.2	9

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109	Synthesis and Purification of Homogeneous Lipid-Based Peptide Nanocarriers by Overcoming Phospholipid Ester Hydrolysis. ACS Omega, 2018, 3, 14144-14150.	3.5	9
110	Effect of temperature on the structure and dynamics of triblock polyelectrolyte gels. Journal of Chemical Physics, 2018, 149, 163310.	3.0	9
111	Peptide Amphiphile Micelles for Vaccine Delivery. Methods in Molecular Biology, 2018, 1798, 277-292.	0.9	7
112	Protein primary structure correlates with calcium oxalate stone matrix preference. PLoS ONE, 2021, 16, e0257515.	2.5	7
113	Inhibiting Sterilization-Induced Oxidation of Large Molecule Therapeutics Packaged in Plastic Parenteral Vials. PDA Journal of Pharmaceutical Science and Technology, 2018, 72, 35-43.	0.5	6
114	Integrating Systems Thinking into Teaching Emerging Technologies. Journal of Chemical Education, 2019, 96, 2805-2813.	2.3	6
115	Enrichment and Distribution of Pb ²⁺ Ions in Zwitterionic Poly(cysteine methacrylate) Brushes at the Solid-Liquid Interface. Langmuir, 2019, 35, 17082-17089.	3.5	6
116	Assembly and Characterization of Polyelectrolyte Complex Micelles. Journal of Visualized Experiments, 2020, , .	0.3	6
117	A Novel Preparative Method of Silica Nanotubes by Utilizing Self-assembly and Disassembly of Peptide Amphiphiles. Chemistry Letters, 2012, 41, 95-97.	1.3	5
118	Nanometer-Scale Force Profiles of Short Single- and Double-Stranded DNA Molecules on a Gold Surface Measured Using a Surface Forces Apparatus. Langmuir, 2021, 37, 13346-13352.	3.5	4
119	Polymorphism in peptide self-assembly visualized. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2123197119.	7.1	4
120	An in situ shearing x-ray measurement system for exploring structures and dynamics at the solid-liquid interface. Review of Scientific Instruments, 2020, 91, 013908.	1.3	3
121	Probing Diffuse Polymer Brush Interfaces Using Resonant Soft X-ray Scattering. Synchrotron Radiation News, 2020, 33, 24-30.	0.8	2
122	Parameter estimation for X-ray scattering analysis with Hamiltonian Markov Chain Monte Carlo. Journal of Synchrotron Radiation, 2022, 29, 721-731.	2.4	2
123	The Influence of Block Copolymers on Silica-Filled Polyisoprene. Materials Research Society Symposia Proceedings, 2000, 661, KK7.3.1.	0.1	1
124	Imaging atherosclerotic plaques in vivo using peptide-functionalized iron oxide nanoparticles. , 2013, , .		1
125	Preface: Special Topic on Chemical Physics of Charged Macromolecules. Journal of Chemical Physics, 2018, 149, 163001.	3.0	1
126	SAXS methods for investigating macromolecular and self-assembled polyelectrolyte complexes. Methods in Enzymology, 2021, 646, 223-259.	1.0	1

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127	Cardiovascular Disease: Monocyteâ€Targeting Supramolecular Micellar Assemblies: A Molecular Diagnostic Tool for Atherosclerosis (Adv. Healthcare Mater. 3/2015). Advanced Healthcare Materials, 2015, 4, 324-324.	7.6	0
128	Editorial overview: Nanobiotechnology: A time-stamped cross-sectional analysis. Current Opinion in Biotechnology, 2015, 34, vii-ix.	6.6	0
129	Think Small for Big Impact. Advanced Functional Materials, 2020, 30, 1909678.	14.9	0
130	Cathepsin-Cleavable BIM BH3 Peptide Amphiphiles Are Potent Inducers of Cellular Apoptosis. Blood, 2015, 126, 4438-4438.	1.4	0
131	Abstract 16526: Nanoparticle-mediated Targeting of Endothelial mir92a-PPAP2B Signaling Axis in Atherosclerosis. Circulation, 2015, 132, .	1.6	0