Matt Tirrell

List of Publications by Year
in descending order

131 papers	8,373 citations	41258 49 h-index	48187 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. Surface Science, 2002, 500, 61-83.	0.8	417
2	Phase behaviour and complex coacervation of aqueous polypeptide solutions. Soft Matter, 2012, 8, 9396-9405.	1.2	288
3	Adhesion and Friction Mechanisms of Polymer-on-Polymer Surfaces. Science, 2002, 297, 379-382.	6.0	278
4	Targeting atherosclerosis by using modular, multifunctional micelles. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 9815-9819.	3.3	250
5	Protein Encapsulation via Polypeptide Complex Coacervation. ACS Macro Letters, 2014, 3, 1088-1091.	2.3	241
6	Phase Behavior and Salt Partitioning in Polyelectrolyte Complex Coacervates. Macromolecules, 2018, 51, 2988-2995.	2.2	241
7	Phase Behavior and Coacervation of Aqueous Poly(acrylic acid)â˜Poly(allylamine) Solutions. Macromolecules, 2010, 43, 2518-2528.	2.2	216
8	Chirality-selected phase behaviour in ionic polypeptide complexes. Nature Communications, 2015, 6, 6052.	5.8	208
9	Selfâ€Assembled Peptide Amphiphile Micelles Containing a Cytotoxic Tâ€Cell Epitope Promote a Protective Immune Response In Vivo. Advanced Materials, 2012, 24, 3845-3849.	11.1	207
10	The Effect of Salt on the Complex Coacervation of Vinyl Polyelectrolytes. Polymers, 2014, 6, 1756-1772.	2.0	204
11	Adhesion and Surface Interactions of a Selfâ€Healing Polymer with Multiple Hydrogenâ€Bonding Groups. Advanced Functional Materials, 2014, 24, 2322-2333.	7.8	202
12	Bottom-up design of biomimetic assemblies. Advanced Drug Delivery Reviews, 2004, 56, 1537-1563.	6.6	198
13	Oligonucleotideâ€"Peptide Complexes: Phase Control by Hybridization. Journal of the American Chemical Society, 2018, 140, 1632-1638.	6.6	172
14	Self-assembling peptide-based building blocks in medical applications. Advanced Drug Delivery Reviews, 2017, 110-111, 65-79.	6.6	169
15	Structural properties of soluble peptide amphiphile micelles. Soft Matter, 2011, 7, 9572.	1.2	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. Macromolecules, 2013, 46, 2376-2390.	2.2	157
17	Direct Force Measurements at Polymer Brush Surfaces by Atomic Force Microscopy. Macromolecules, 1998, 31, 4297-4300.	2.2	155
18	Fibrin-binding, peptide amphiphile micelles for targeting glioblastoma. Biomaterials, 2014, 35, 1249-1256.	5.7	144

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19	Multivalent counterions diminish the lubricity of polyelectrolyte brushes. Science, 2018, 360, 1434-1438.	6.0	137
20	Structure and rheology of polyelectrolyte complex coacervates. Soft Matter, 2018, 14, 2454-2464.	1.2	136
21	Interfacial Tension of Polyelectrolyte Complex Coacervate Phases. ACS Macro Letters, 2014, 3, 565-568.	2.3	135
22	Self-assembly of block copolymers with a strongly charged and a hydrophobic block in a selective, polar solvent. Micelles and adsorbed layers. Macromolecules, 1993, 26, 4310-4315.	2.2	117
23	Effects of Polymer and Salt Concentration on the Structure and Properties of Triblock Copolymer Coacervate Hydrogels. Macromolecules, 2013, 46, 1512-1518.	2.2	113
24	A pH-Triggered, Self-Assembled, and Bioprintable Hybrid Hydrogel Scaffold for Mesenchymal Stem Cell Based Bone Tissue Engineering. ACS Applied Materials & Interfaces, 2019, 11, 8749-8762.	4.0	112
25	Effect of the Lipid Chain Melting Transition on the Stability of DSPE-PEG(2000) Micelles. Langmuir, 2009, 25, 7279-7286.	1.6	109
26	Complex coacervation of poly(ethylene-imine)/polypeptide aqueous solutions: Thermodynamic and rheological characterization. Journal of Colloid and Interface Science, 2013, 398, 39-50.	5.0	108
27	Adhesion and Friction of Polymer Surfaces:Â The Effect of Chain Ends. Macromolecules, 2005, 38, 3491-3503.	2.2	107
28	Molecular engineering solutions for therapeutic peptide delivery. Chemical Society Reviews, 2017, 46, 6553-6569.	18.7	103
29	Gel phase formation in dilute triblock copolyelectrolyte complexes. Nature Communications, 2017, 8, 14131.	5.8	92
30	Neural stem cell adhesion and proliferation on phospholipid bilayers functionalized with RGD peptides. Biomaterials, 2010, 31, 8706-8715.	5.7	89
31	Inhibition of atherosclerosis-promoting microRNAs via targeted polyelectrolyte complex micelles. Journal of Materials Chemistry B, 2014, 2, 8142-8153.	2.9	89
32	pH-responsive branched peptide amphiphile hydrogel designed for applications in regenerative medicine with potential as injectable tissue scaffolds. Journal of Materials Chemistry, 2012, 22, 19447.	6.7	84
33	Structure of Polyelectrolyte Brushes in the Presence of Multivalent Counterions. Macromolecules, 2016, 49, 5609-5617.	2.2	84
34	Selfâ€Assembly of Î±â€Helical Polypeptides Driven by Complex Coacervation. Angewandte Chemie - International Edition, 2015, 54, 11128-11132.	7.2	81
35	Multivalent ions induce lateral structural inhomogeneities in polyelectrolyte brushes. Science Advances, 2017, 3, eaao1497.	4.7	79
36	Partitioning and Enhanced Self-Assembly of Actin in Polypeptide Coacervates. Biophysical Journal, 2018, 114, 1636-1645.	0.2	78

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37	Mechanisms of Peptide Amphiphile Internalization by SJSA-1 Cells <i>in Vitro</i>. Biochemistry, 2009, 48, 3304-3314.	1.2	74
38	Structureâ€"Property Relationships of Oligonucleotide Polyelectrolyte Complex Micelles. Nano Letters, 2018, 18, 7111-7117.	4.5	68
39	Controlling Complex Coacervation via Random Polyelectrolyte Sequences. ACS Macro Letters, 2019, 8, 1296-1302.	2.3	63
40	Active targeting of early and mid-stage atherosclerotic plaques using self-assembled peptide amphiphile micelles. Biomaterials, 2014, 35, 8678-8686.	5.7	61
41	Polyelectrolyte Complex Coacervation across a Broad Range of Charge Densities. Macromolecules, 2021, 54, 6878-6890.	2.2	60
42	Small Angle Neutron Scattering Study of Complex Coacervate Micelles and Hydrogels Formed from Ionic Diblock and Triblock Copolymers. Journal of Physical Chemistry B, 2014, 118, 13011-13018.	1.2	57
43	In vivo biodistribution and clearance of peptide amphiphile micelles. Nanomedicine: Nanotechnology, Biology, and Medicine, 2015, 11, 479-487.	1.7	56
44	A molecular view of the role of chirality in charge-driven polypeptide complexation. Soft Matter, 2015, 11, 1525-1538.	1.2	55
45	Effect of the Peptide Secondary Structure on the Peptide Amphiphile Supramolecular Structure and Interactions. Langmuir, 2011, 27, 6163-6170.	1.6	54
46	Adhesion and Detachment Mechanisms between Polymer and Solid Substrate Surfaces: Using Polystyreneâ€"Mica as a Model System. Macromolecules, 2016, 49, 5223-5231.	2.2	54
47	Effects of Non-Electrostatic Intermolecular Interactions on the Phase Behavior of pH-Sensitive Polyelectrolyte Complexes. Macromolecules, 2020, 53, 7835-7844.	2.2	54
48	Phosphate-Containing Polyethylene Glycol Polymers Prevent Lethal Sepsis by Multidrug-Resistant Pathogens. Antimicrobial Agents and Chemotherapy, 2014, 58, 966-977.	1.4	53
49	Effect of Solvent Quality on the Phase Behavior of Polyelectrolyte Complexes. Macromolecules, 2021, 54, 105-114.	2.2	53
50	Gadolinium-Functionalized Peptide Amphiphile Micelles for Multimodal Imaging of Atherosclerotic Lesions. ACS Omega, 2016, 1, 996-1003.	1.6	49
51	Open-to-Air RAFT Polymerization in Complex Solvents: From Whisky to Fermentation Broth. ACS Macro Letters, 2018, 7, 406-411.	2.3	48
52	Monocyteâ€Targeting Supramolecular Micellar Assemblies: A Molecular Diagnostic Tool for Atherosclerosis. Advanced Healthcare Materials, 2015, 4, 367-376.	3.9	46
53	Lateral Structure Formation in Polyelectrolyte Brushes Induced by Multivalent Ions. Macromolecules, 2017, 50, 1225-1235.	2.2	46
54	Bridging contributions to polyelectrolyte brush collapse in multivalent salt solutions. Journal of Polymer Science Part A, 2016, 54, 284-291.	2.5	45

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55	Comparing Solvophobic and Multivalent Induced Collapse in Polyelectrolyte Brushes. ACS Macro Letters, 2017, 6, 155-160.	2.3	45
56	Polyelectrolyte Complexes: Fluid or Solid?. ACS Central Science, 2018, 4, 532-533.	5.3	45
57	Structural Evolution of Polyelectrolyte Complex Core Micelles and Ordered-Phase Bulk Materials. Macromolecules, 2014, 47, 8026-8032.	2.2	44
58	Complex Coacervation in Polyelectrolytes from a Coarse-Grained Model. Macromolecules, 2018, 51, 6717-6723.	2.2	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.	23.0	43
60	Recent Advances in Targeted, Selfâ€Assembling Nanoparticles to Address Vascular Damage Due to Atherosclerosis. Advanced Healthcare Materials, 2015, 4, 2408-2422.	3.9	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.	1.5	39
62	Polyelectrolyte Complexation of Oligonucleotides by Charged Hydrophobicâ€"Neutral Hydrophilic Block Copolymers. Polymers, 2019, 11, 83.	2.0	39
63	Solid-to-Liquid Phase Transition in Polyelectrolyte Complexes. Macromolecules, 2020, 53, 7944-7953.	2.2	39
64	Structure, Morphology, and Rheology of Polyelectrolyte Complex Hydrogels Formed by Self-Assembly of Oppositely Charged Triblock Polyelectrolytes. Macromolecules, 2020, 53, 5763-5774.	2.2	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.	4.1	38
66	Non-equilibrium phenomena and kinetic pathways in self-assembled polyelectrolyte complexes. Journal of Chemical Physics, 2018, 149, 163330.	1.2	38
67	Synthesis and Assembly of Designer Styrenic Diblock Polyelectrolytes. ACS Macro Letters, 2018, 7, 726-733.	2.3	38
68	The effect of multivalent counterions to the structure of highly dense polystyrene sulfonate brushes. Polymer, 2016, 98, 448-453.	1.8	37
69	Counterion distribution in a spherical charged sparse brush. European Physical Journal E, 2001, 6, 109-115.	0.7	36
70	Chemical processing by self-assembly. AIChE Journal, 2001, 47, 1706-1710.	1.8	36
71	Modular materials by self-assembly. AIChE Journal, 2005, 51, 2386-2390.	1.8	35
72	Directing the phase behavior of polyelectrolyte complexes using chiral patterned peptides. European Physical Journal: Special Topics, 2016, 225, 1805-1815.	1.2	35

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73	Internalization of p53_{14â˜’29} Peptide Amphiphiles and Subsequent Endosomal Disruption Results in SJSA-1 Cell Death. Molecular Pharmaceutics, 2010, 7, 2173-2184.	2.3	34
74	Modular Peptide Amphiphile Micelles Improving an Antibody-Mediated Immune Response to Group A Streptococcus. ACS Biomaterials Science and Engineering, 2017, 3, 144-152.	2.6	34
75	Impact of wet-dry cycling on the phase behavior and compartmentalization properties of complex coacervates. Nature Communications, 2020, 11, 5423.	5.8	33
76	Polyampholyte physics: Liquidâ€“liquid phase separation and biological condensates. Current Opinion in Colloid and Interface Science, 2021, 54, 101457.	3.4	32
77	Limit Cycles in Dynamic Adhesion and Friction Processes: A Discussion. Journal of Adhesion, 2006, 82, 933-943.	1.8	31
78	Advances in the Structural Design of Polyelectrolyte Complex Micelles. Journal of Physical Chemistry B, 2021, 125, 7076-7089.	1.2	31
79	Gelatin-Derived Grapheneâ€“Silicate Hybrid Materials Are Biocompatible and Synergistically Promote BMP9-Induced Osteogenic Differentiation of Mesenchymal Stem Cells. ACS Applied Materials & Interfaces, 2017, 9, 15922-15932.	4.0	30
80	Transient surface patterns during adhesion and coalescence of thin liquid films. Soft Matter, 2007, 3, 88-93.	1.2	26
81	Cooperative DNA binding and assembly by a bZip peptide-amphiphile. Soft Matter, 2010, 6, 1035.	1.2	26
82	Expanding the structural diversity of polyelectrolyte complexes and polyzwitterions. Current Opinion in Solid State and Materials Science, 2021, 25, 100897.	5.6	25
83	Cathepsin-Mediated Cleavage of Peptides from Peptide Amphiphiles Leads to Enhanced Intracellular Peptide Accumulation. Bioconjugate Chemistry, 2017, 28, 2316-2326.	1.8	23
84	The Non-Peptidic Part Determines the Internalization Mechanism and Intracellular Trafficking of Peptide Amphiphiles. PLoS ONE, 2013, 8, e54611.	1.1	23
85	Ion-Specific Effects of Divalent Ions on the Structure of Polyelectrolyte Brushes. Langmuir, 2019, 35, 15564-15572.	1.6	22
86	Mechanism of Dissociation Kinetics in Polyelectrolyte Complex Micelles. Macromolecules, 2020, 53, 102-111.	2.2	22
87	Effect of mixed solvents on polyelectrolyte complexes with salt. Colloid and Polymer Science, 2020, 298, 887-894.	1.0	22
88	Antifouling Properties of a Self-Assembling Glutamic Acid-Lysine Zwitterionic Polymer Surface Coating. Langmuir, 2019, 35, 1699-1713.	1.6	21
89	Polymersomes Decorated with the SARS-CoV-2 Spike Protein Receptor-Binding Domain Elicit Robust Humoral and Cellular Immunity. ACS Central Science, 2021, 7, 1368-1380.	5.3	21
90	Fluid mechanical shear induces structural transitions in assembly of a peptideâ€“lipid conjugate. Soft Matter, 2011, 7, 8856.	1.2	20

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91	Peptide contour length determines equilibrium secondary structure in proteinâ€analogous micelles. Biopolymers, 2013, 99, 573-581.	1.2	20
92	Physical Property Scaling Relationships for Polyelectrolyte Complex Micelles. Macromolecules, 2021, 54, 6585-6594.	2.2	20
93	Targeted polyelectrolyte complex micelles treat vascular complications inÂvivo. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	20
94	Spatiotemporal Formation and Growth Kinetics of Polyelectrolyte Complex Micelles with Millisecond Resolution. ACS Macro Letters, 2020, 9, 1674-1680.	2.3	17
95	Interparticle Interactions in Dilute Solutions of Polyelectrolyte Complex Micelles. ACS Macro Letters, 2019, 8, 819-825.	2.3	16
96	Harnessing the Therapeutic Potential of Biomacromolecules through Intracellular Delivery of Nucleic Acids, Peptides, and Proteins. Advanced Healthcare Materials, 2022, 11, e2102600.	3.9	15
97	Selfâ€assembly and applications of nucleic acid solidâ€state films. Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology, 2011, 3, 479-500.	3.3	14
98	Challenges in nucleic acidâ€lipid films for transfection. AIChE Journal, 2013, 59, 3203-3213.	1.8	14
99	Preferential targeting of MCL-1 by a hydrocarbon-stapled BIM BH3 peptide. Oncotarget, 2019, 10, 6219-6233.	0.8	13
100	A Scaling Model for Osmotic Energy of Polymer Brushes. Macromolecules, 2000, 33, 9146-9151.	2.2	12
101	Activating the Intrinsic Pathway of Apoptosis Using BIM BH3 Peptides Delivered by Peptide Amphiphiles with Endosomal Release. Materials, 2019, 12, 2567.	1.3	11
102	Comparing Zwitterionic and PEG Exteriors of Polyelectrolyte Complex Micelles. Molecules, 2020, 25, 2553.	1.7	11
103	Harnessing Peptide Binding to Capture and Reclaim Phosphate. Journal of the American Chemical Society, 2021, 143, 4440-4450.	6.6	11
104	Polymers at the Interface with Biology. Biomacromolecules, 2018, 19, 3151-3162.	2.6	10
105	Structure and dynamics of lipid membranes interacting with antivirulence end-phosphorylated polyethylene glycol block copolymers. Soft Matter, 2020, 16, 983-989.	1.2	10
106	Complex coacervation of statistical polyelectrolytes: role of monomer sequences and formation of inhomogeneous coacervates. Molecular Systems Design and Engineering, 2021, 6, 790-804.	1.7	10
107	Supramolecular Materials Comprising Nucleic Acid Biopolymers. Macromolecular Symposia, 2008, 264, 13-17.	0.4	9
108	De Novo Synthesis of Phosphorylated Triblock Copolymers with Pathogen Virulence-Suppressing Properties That Prevent Infection-Related Mortality. ACS Biomaterials Science and Engineering, 2017, 3, 2076-2085.	2.6	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.	1.6	9
110	Effect of temperature on the structure and dynamics of triblock polyelectrolyte gels. Journal of Chemical Physics, 2018, 149, 163310.	1.2	9
111	Peptide Amphiphile Micelles for Vaccine Delivery. Methods in Molecular Biology, 2018, 1798, 277-292.	0.4	7
112	Protein primary structure correlates with calcium oxalate stone matrix preference. PLoS ONE, 2021, 16, e0257515.	1.1	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.	0.3	6
114	Integrating Systems Thinking into Teaching Emerging Technologies. Journal of Chemical Education, 2019, 96, 2805-2813.	1.1	6
115	Enrichment and Distribution of Pb²⁺ Ions in Zwitterionic Poly(cysteine methacrylate) Brushes at the Solidâ€“Liquid Interface. Langmuir, 2019, 35, 17082-17089.	1.6	6
116	Assembly and Characterization of Polyelectrolyte Complex Micelles. Journal of Visualized Experiments, 2020, , .	0.2	6
117	A Novel Preparative Method of Silica Nanotubes by Utilizing Self-assembly and Disassembly of Peptide Amphiphiles. Chemistry Letters, 2012, 41, 95-97.	0.7	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.	1.6	4
119	Polymorphism in peptide self-assembly visualized. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2123197119.	3.3	4
120	An in situ shearing x-ray measurement system for exploring structures and dynamics at the solidâ€“liquid interface. Review of Scientific Instruments, 2020, 91, 013908.	0.6	3
121	Probing Diffuse Polymer Brush Interfaces Using Resonant Soft X-ray Scattering. Synchrotron Radiation News, 2020, 33, 24-30.	0.2	2
122	Parameter estimation for X-ray scattering analysis with Hamiltonian Markov Chain Monte Carlo. Journal of Synchrotron Radiation, 2022, 29, 721-731.	1.0	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.	1.2	1
126	SAXS methods for investigating macromolecular and self-assembled polyelectrolyte complexes. Methods in Enzymology, 2021, 646, 223-259.	0.4	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.	3.9	0
128	Editorial overview: Nanobiotechnology: A time-stamped cross-sectional analysis. Current Opinion in Biotechnology, 2015, 34, vii-ix.	3.3	0
129	Think Small for Big Impact. Advanced Functional Materials, 2020, 30, 1909678.	7.8	0
130	Cathepsin-Cleavable BIM BH3 Peptide Amphiphiles Are Potent Inducers of Cellular Apoptosis. Blood, 2015, 126, 4438-4438.	0.6	0
131	Abstract 16526: Nanoparticle-mediated Targeting of Endothelial mir92a-PPAP2B Signaling Axis in Atherosclerosis. Circulation, 2015, 132, .	1.6	0