Matt Tirrell

List of Publications by Year
in descending order

131 papers	8,373 citations	47409 49 h-index	54771 88 g-index
142 all docs	142 docs citations	142 times ranked	9145 citing authors

#	Article	IF	Citations
1	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
2	Harnessing the Therapeutic Potential of Biomacromolecules through Intracellular Delivery of Nucleic Acids, Peptides, and Proteins. Advanced Healthcare Materials, 2022, 11, e2102600.	3.9	15
3	Parameter estimation for X-ray scattering analysis with Hamiltonian Markov Chain Monte Carlo. Journal of Synchrotron Radiation, 2022, 29, 721-731.	1.0	2
4	SAXS methods for investigating macromolecular and self-assembled polyelectrolyte complexes. Methods in Enzymology, 2021, 646, 223-259.	0.4	1
5	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
6	Harnessing Peptide Binding to Capture and Reclaim Phosphate. Journal of the American Chemical Society, 2021, 143, 4440-4450.	6.6	11
7	Expanding the structural diversity of polyelectrolyte complexes and polyzwitterions. Current Opinion in Solid State and Materials Science, 2021, 25, 100897.	5.6	25
8	Advances in the Structural Design of Polyelectrolyte Complex Micelles. Journal of Physical Chemistry B, 2021, 125, 7076-7089.	1.2	31
9	Physical Property Scaling Relationships for Polyelectrolyte Complex Micelles. Macromolecules, 2021, 54, 6585-6594.	2.2	20
10	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
11	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
12	Polyelectrolyte Complex Coacervation across a Broad Range of Charge Densities. Macromolecules, 2021, 54, 6878-6890.	2.2	60
13	Polyampholyte physics: Liquidâ€"liquid phase separation and biological condensates. Current Opinion in Colloid and Interface Science, 2021, 54, 101457.	3.4	32
14	Protein primary structure correlates with calcium oxalate stone matrix preference. PLoS ONE, 2021, 16, e0257515.	1.1	7
15	Effect of Solvent Quality on the Phase Behavior of Polyelectrolyte Complexes. Macromolecules, 2021, 54, 105-114.	2.2	53
16	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
17	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
18	Mechanism of Dissociation Kinetics in Polyelectrolyte Complex Micelles. Macromolecules, 2020, 53, 102-111.	2.2	22

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19	Structure and dynamics of lipid membranes interacting with antivirulence end-phosphorylated polyethylene glycol block copolymers. Soft Matter, 2020, 16, 983-989.	1.2	10
20	Think Small for Big Impact. Advanced Functional Materials, 2020, 30, 1909678.	7.8	0
21	Probing Diffuse Polymer Brush Interfaces Using Resonant Soft X-ray Scattering. Synchrotron Radiation News, 2020, 33, 24-30.	0.2	2
22	Impact of wet-dry cycling on the phase behavior and compartmentalization properties of complex coacervates. Nature Communications, 2020, 11, 5423.	5.8	33
23	Effects of Non-Electrostatic Intermolecular Interactions on the Phase Behavior of pH-Sensitive Polyelectrolyte Complexes. Macromolecules, 2020, 53, 7835-7844.	2.2	54
24	Solid-to-Liquid Phase Transition in Polyelectrolyte Complexes. Macromolecules, 2020, 53, 7944-7953.	2.2	39
25	Spatiotemporal Formation and Growth Kinetics of Polyelectrolyte Complex Micelles with Millisecond Resolution. ACS Macro Letters, 2020, 9, 1674-1680.	2.3	17
26	Assembly and Characterization of Polyelectrolyte Complex Micelles. Journal of Visualized Experiments, 2020, , .	0.2	6
27	Comparing Zwitterionic and PEG Exteriors of Polyelectrolyte Complex Micelles. Molecules, 2020, 25, 2553.	1.7	11
28	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
29	Effect of mixed solvents on polyelectrolyte complexes with salt. Colloid and Polymer Science, 2020, 298, 887-894.	1.0	22
30	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
31	Ion-Specific Effects of Divalent Ions on the Structure of Polyelectrolyte Brushes. Langmuir, 2019, 35, 15564-15572.	1.6	22
32	Integrating Systems Thinking into Teaching Emerging Technologies. Journal of Chemical Education, 2019, 96, 2805-2813.	1.1	6
33	Activating the Intrinsic Pathway of Apoptosis Using BIM BH3 Peptides Delivered by Peptide Amphiphiles with Endosomal Release. Materials, 2019, 12, 2567.	1.3	11
34	Controlling Complex Coacervation via Random Polyelectrolyte Sequences. ACS Macro Letters, 2019, 8, 1296-1302.	2.3	63
35	Polyelectrolyte Complexation of Oligonucleotides by Charged Hydrophobicâ€"Neutral Hydrophilic Block Copolymers. Polymers, 2019, 11, 83.	2.0	39
36	Interparticle Interactions in Dilute Solutions of Polyelectrolyte Complex Micelles. ACS Macro Letters, 2019, 8, 819-825.	2.3	16

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37	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
38	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
39	Antifouling Properties of a Self-Assembling Glutamic Acid-Lysine Zwitterionic Polymer Surface Coating. Langmuir, 2019, 35, 1699-1713.	1.6	21
40	Preferential targeting of MCL-1 by a hydrocarbon-stapled BIM BH3 peptide. Oncotarget, 2019, 10, 6219-6233.	0.8	13
41	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
42	Partitioning and Enhanced Self-Assembly of Actin in Polypeptide Coacervates. Biophysical Journal, 2018, 114, 1636-1645.	0.2	78
43	Phase Behavior and Salt Partitioning in Polyelectrolyte Complex Coacervates. Macromolecules, 2018, 51, 2988-2995.	2.2	241
44	Structure and rheology of polyelectrolyte complex coacervates. Soft Matter, 2018, 14, 2454-2464.	1.2	136
45	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
46	Oligonucleotideâ€"Peptide Complexes: Phase Control by Hybridization. Journal of the American Chemical Society, 2018, 140, 1632-1638.	6.6	172
47	Open-to-Air RAFT Polymerization in Complex Solvents: From Whisky to Fermentation Broth. ACS Macro Letters, 2018, 7, 406-411.	2.3	48
48	Preface: Special Topic on Chemical Physics of Charged Macromolecules. Journal of Chemical Physics, 2018, 149, 163001.	1.2	1
49	Synthesis and Purification of Homogeneous Lipid-Based Peptide Nanocarriers by Overcoming Phospholipid Ester Hydrolysis. ACS Omega, 2018, 3, 14144-14150.	1.6	9
50	Structureâ€"Property Relationships of Oligonucleotide Polyelectrolyte Complex Micelles. Nano Letters, 2018, 18, 7111-7117.	4.5	68
51	Polyelectrolyte Complexes: Fluid or Solid?. ACS Central Science, 2018, 4, 532-533.	5.3	45
52	Multivalent counterions diminish the lubricity of polyelectrolyte brushes. Science, 2018, 360, 1434-1438.	6.0	137
53	Non-equilibrium phenomena and kinetic pathways in self-assembled polyelectrolyte complexes. Journal of Chemical Physics, 2018, 149, 163330.	1.2	38
54	Effect of temperature on the structure and dynamics of triblock polyelectrolyte gels. Journal of Chemical Physics, 2018, 149, 163310.	1.2	9

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55	Polymers at the Interface with Biology. Biomacromolecules, 2018, 19, 3151-3162.	2.6	10
56	Complex Coacervation in Polyelectrolytes from a Coarse-Grained Model. Macromolecules, 2018, 51, 6717-6723.	2.2	44
57	Synthesis and Assembly of Designer Styrenic Diblock Polyelectrolytes. ACS Macro Letters, 2018, 7, 726-733.	2.3	38
58	Peptide Amphiphile Micelles for Vaccine Delivery. Methods in Molecular Biology, 2018, 1798, 277-292.	0.4	7
59	Comparing Solvophobic and Multivalent Induced Collapse in Polyelectrolyte Brushes. ACS Macro Letters, 2017, 6, 155-160.	2.3	45
60	Lateral Structure Formation in Polyelectrolyte Brushes Induced by Multivalent Ions. Macromolecules, 2017, 50, 1225-1235.	2.2	46
61	Gel phase formation in dilute triblock copolyelectrolyte complexes. Nature Communications, 2017, 8, 14131.	5.8	92
62	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
63	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
64	Molecular engineering solutions for therapeutic peptide delivery. Chemical Society Reviews, 2017, 46, 6553-6569.	18.7	103
65	Cathepsin-Mediated Cleavage of Peptides from Peptide Amphiphiles Leads to Enhanced Intracellular Peptide Accumulation. Bioconjugate Chemistry, 2017, 28, 2316-2326.	1.8	23
66	Self-assembling peptide-based building blocks in medical applications. Advanced Drug Delivery Reviews, 2017, 110-111, 65-79.	6.6	169
67	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
68	Multivalent ions induce lateral structural inhomogeneities in polyelectrolyte brushes. Science Advances, 2017, 3, eaao1497.	4.7	79
69	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
70	Bridging contributions to polyelectrolyte brush collapse in multivalent salt solutions. Journal of Polymer Science Part A, 2016, 54, 284-291.	2.5	45
71	Gadolinium-Functionalized Peptide Amphiphile Micelles for Multimodal Imaging of Atherosclerotic Lesions. ACS Omega, 2016, 1, 996-1003.	1.6	49
72	Structure of Polyelectrolyte Brushes in the Presence of Multivalent Counterions. Macromolecules, 2016, 49, 5609-5617.	2.2	84

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73	Directing the phase behavior of polyelectrolyte complexes using chiral patterned peptides. European Physical Journal: Special Topics, 2016, 225, 1805-1815.	1.2	35
74	The effect of multivalent counterions to the structure of highly dense polystyrene sulfonate brushes. Polymer, 2016, 98, 448-453.	1.8	37
75	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
76	Recent Advances in Targeted, Selfâ€Assembling Nanoparticles to Address Vascular Damage Due to Atherosclerosis. Advanced Healthcare Materials, 2015, 4, 2408-2422.	3.9	40
77	Monocyteâ€Targeting Supramolecular Micellar Assemblies: A Molecular Diagnostic Tool for Atherosclerosis. Advanced Healthcare Materials, 2015, 4, 367-376.	3.9	46
78	Selfâ€Assembly of Î±â€Helical Polypeptides Driven by Complex Coacervation. Angewandte Chemie - International Edition, 2015, 54, 11128-11132.	7.2	81
79	A molecular view of the role of chirality in charge-driven polypeptide complexation. Soft Matter, 2015, 11, 1525-1538.	1.2	55
80	In vivo biodistribution and clearance of peptide amphiphile micelles. Nanomedicine: Nanotechnology, Biology, and Medicine, 2015, 11, 479-487.	1.7	56
81	Chirality-selected phase behaviour in ionic polypeptide complexes. Nature Communications, 2015, 6, 6052.	5.8	208
82	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
83	Editorial overview: Nanobiotechnology: A time-stamped cross-sectional analysis. Current Opinion in Biotechnology, 2015, 34, vii-ix.	3.3	0
84	Cathepsin-Cleavable BIM BH3 Peptide Amphiphiles Are Potent Inducers of Cellular Apoptosis. Blood, 2015, 126, 4438-4438.	0.6	0
85	Abstract 16526: Nanoparticle-mediated Targeting of Endothelial mir92a-PPAP2B Signaling Axis in Atherosclerosis. Circulation, 2015, 132, .	1.6	0
86	Structural Evolution of Polyelectrolyte Complex Core Micelles and Ordered-Phase Bulk Materials. Macromolecules, 2014, 47, 8026-8032.	2.2	44
87	Phosphate-Containing Polyethylene Glycol Polymers Prevent Lethal Sepsis by Multidrug-Resistant Pathogens. Antimicrobial Agents and Chemotherapy, 2014, 58, 966-977.	1.4	53
88	The Effect of Salt on the Complex Coacervation of Vinyl Polyelectrolytes. Polymers, 2014, 6, 1756-1772.	2.0	204
89	Adhesion and Surface Interactions of a Selfâ€Healing Polymer with Multiple Hydrogenâ€Bonding Groups. Advanced Functional Materials, 2014, 24, 2322-2333.	7.8	202
90	Inhibition of atherosclerosis-promoting microRNAs via targeted polyelectrolyte complex micelles. Journal of Materials Chemistry B, 2014, 2, 8142-8153.	2.9	89

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91	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
92	Interfacial Tension of Polyelectrolyte Complex Coacervate Phases. ACS Macro Letters, 2014, 3, 565-568.	2.3	135
93	Active targeting of early and mid-stage atherosclerotic plaques using self-assembled peptide amphiphile micelles. Biomaterials, 2014, 35, 8678-8686.	5.7	61
94	Protein Encapsulation via Polypeptide Complex Coacervation. ACS Macro Letters, 2014, 3, 1088-1091.	2.3	241
95	Fibrin-binding, peptide amphiphile micelles for targeting glioblastoma. Biomaterials, 2014, 35, 1249-1256.	5.7	144
96	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
97	Challenges in nucleic acidâ€lipid films for transfection. AIChE Journal, 2013, 59, 3203-3213.	1.8	14
98	Imaging atherosclerotic plaques in vivo using peptide-functionalized iron oxide nanoparticles. , 2013, , .		1
99	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
100	Effects of Polymer and Salt Concentration on the Structure and Properties of Triblock Copolymer Coacervate Hydrogels. Macromolecules, 2013, 46, 1512-1518.	2.2	113
101	Peptide contour length determines equilibrium secondary structure in proteinâ€analogous micelles. Biopolymers, 2013, 99, 573-581.	1.2	20
102	The Non-Peptidic Part Determines the Internalization Mechanism and Intracellular Trafficking of Peptide Amphiphiles. PLoS ONE, 2013, 8, e54611.	1.1	23
103	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
104	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
105	Phase behaviour and complex coacervation of aqueous polypeptide solutions. Soft Matter, 2012, 8, 9396-9405.	1.2	288
106	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
107	Fluid mechanical shear induces structural transitions in assembly of a peptideâ€"lipid conjugate. Soft Matter, 2011, 7, 8856.	1.2	20
108	Effect of the Peptide Secondary Structure on the Peptide Amphiphile Supramolecular Structure and Interactions. Langmuir, 2011, 27, 6163-6170.	1.6	54

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109	Structural properties of soluble peptide amphiphile micelles. Soft Matter, 2011, 7, 9572.	1.2	160
110	Selfâ€assembly and applications of nucleic acid solidâ€state films. Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology, 2011, 3, 479-500.	3.3	14
111	Neural stem cell adhesion and proliferation on phospholipid bilayers functionalized with RGD peptides. Biomaterials, 2010, 31, 8706-8715.	5.7	89
112	Internalization of p53_{14âˆ’29} Peptide Amphiphiles and Subsequent Endosomal Disruption Results in SJSA-1 Cell Death. Molecular Pharmaceutics, 2010, 7, 2173-2184.	2.3	34
113	Phase Behavior and Coacervation of Aqueous Poly(acrylic acid)âˆ’Poly(allylamine) Solutions. Macromolecules, 2010, 43, 2518-2528.	2.2	216
114	Cooperative DNA binding and assembly by a bZip peptide-amphiphile. Soft Matter, 2010, 6, 1035.	1.2	26
115	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
116	Effect of the Lipid Chain Melting Transition on the Stability of DSPE-PEG(2000) Micelles. Langmuir, 2009, 25, 7279-7286.	1.6	109
117	Mechanisms of Peptide Amphiphile Internalization by SJSA-1 Cells <i>in Vitro</i>. Biochemistry, 2009, 48, 3304-3314.	1.2	74
118	Supramolecular Materials Comprising Nucleic Acid Biopolymers. Macromolecular Symposia, 2008, 264, 13-17.	0.4	9
119	Transient surface patterns during adhesion and coalescence of thin liquid films. Soft Matter, 2007, 3, 88-93.	1.2	26
120	Limit Cycles in Dynamic Adhesion and Friction Processes: A Discussion. Journal of Adhesion, 2006, 82, 933-943.	1.8	31
121	Modular materials by self-assembly. AICHE Journal, 2005, 51, 2386-2390.	1.8	35
122	Adhesion and Friction of Polymer Surfaces:Â The Effect of Chain Ends. Macromolecules, 2005, 38, 3491-3503.	2.2	107
123	Bottom-up design of biomimetic assemblies. Advanced Drug Delivery Reviews, 2004, 56, 1537-1563.	6.6	198
124	The role of surface science in bioengineered materials. Surface Science, 2002, 500, 61-83.	0.8	417
125	Adhesion and Friction Mechanisms of Polymer-on-Polymer Surfaces. Science, 2002, 297, 379-382.	6.0	278
126	Counterion distribution in a spherical charged sparse brush. European Physical Journal E, 2001, 6, 109-115.	0.7	36

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127	Chemical processing by self-assembly. AICHE Journal, 2001, 47, 1706-1710.	1.8	36
128	The Influence of Block Copolymers on Silica-Filled Polyisoprene. Materials Research Society Symposia Proceedings, 2000, 661, KK7.3.1.	0.1	1
129	A Scaling Model for Osmotic Energy of Polymer Brushes. Macromolecules, 2000, 33, 9146-9151.	2.2	12
130	Direct Force Measurements at Polymer Brush Surfaces by Atomic Force Microscopy. Macromolecules, 1998, 31, 4297-4300.	2.2	155
131	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