Michael F Hagan

List of Publications by Year
in descending order

100 papers	6,535 citations	57758 44 h-index	66911 78 g-index
109 all docs	109 docs citations	109 times ranked	5345 citing authors

#	Article	IF	Citations
1	Structure and Dynamics of a Phase-Separating Active Colloidal Fluid. Physical Review Letters, 2013, 110, 055701.	7.8	631
2	Dynamic Pathways for Viral Capsid Assembly. Biophysical Journal, 2006, 91, 42-54.	0.5	349
3	Mechanisms of Virus Assembly. Annual Review of Physical Chemistry, 2015, 66, 217-239.	10.8	273
4	Orientational order of motile defects in activeÂnematics. Nature Materials, 2015, 14, 1110-1115.	27.5	246
5	Reconfigurable self-assembly through chiral control of interfacial tension. Nature, 2012, 481, 348-351.	27.8	206
6	Origin of nanomechanical cantilever motion generated from biomolecular interactions. Proceedings of the National Academy of Sciences of the United States of America, 2001, 98, 1560-1564.	7.1	200
7	Dynamics of self-propelled particles under strong confinement. Soft Matter, 2014, 10, 5609-5617.	2.7	193
8	Sitting at the Edge: How Biomolecules use Hydrophobicity to Tune Their Interactions and Function. Journal of Physical Chemistry B, 2012, 116, 2498-2503.	2.6	191
9	Spontaneous segregation of self-propelled particles with different motilities. Soft Matter, 2012, 8, 2527.	2.7	178
10	The energy landscape of adenylate kinase during catalysis. Nature Structural and Molecular Biology, 2015, 22, 124-131.	8.2	150
11	Reentrant phase behavior in active colloids with attraction. Physical Review E, 2013, 88, 012305.	2.1	147
12	Nanomechanical Forces Generated by Surface Grafted DNA. Journal of Physical Chemistry B, 2002, 106, 10163-10173.	2.6	139
13	Topological structure and dynamics of three-dimensional active nematics. Science, 2020, 367, 1120-1124.	12.6	135
14	Modeling Viral Capsid Assembly. Advances in Chemical Physics, 2014, 155, 1-68.	0.3	120
15	Atomistic understanding of kinetic pathways for single base-pair binding and unbinding in DNA. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 13922-13927.	7.1	117
16	Programmable icosahedral shell system for virus trapping. Nature Materials, 2021, 20, 1281-1289.	27.5	116
17	The role of collective motion in examples of coarsening and self-assembly. Soft Matter, 2009, 5, 1251-1262.	2.7	113
18	Viral genome structures are optimal for capsid assembly. ELife, 2013, 2, e00632.	6.0	113

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19	Hybridization dynamics of surface immobilized DNA. Journal of Chemical Physics, 2004, 120, 4958-4968.	3.0	100
20	Excitable Patterns in Active Nematics. Physical Review Letters, 2011, 106, 218101.	7.8	100
21	Encapsulation of a polymer by an icosahedral virus. Physical Biology, 2010, 7, 045003.	1.8	98
22	Understanding the Concentration Dependence of Viral Capsid Assembly Kineticsâ€"the Origin of the Lag Time and Identifying the Critical Nucleus Size. Biophysical Journal, 2010, 98, 1065-1074.	0.5	95
23	Recent advances in coarse-grained modeling of virus assembly. Current Opinion in Virology, 2016, 18, 36-43.	5.4	94
24	Mechanisms of kinetic trapping in self-assembly and phase transformation. Journal of Chemical Physics, 2011, 135, 104115.	3.0	93
25	Flagellar dynamics of a connected chain of active, polar, Brownian particles. Journal of the Royal Society Interface, 2014, 11, 20130884.	3.4	91
26	An Examination of the Electrostatic Interactions between the N-Terminal Tail of the Brome Mosaic Virus Coat Protein and Encapsidated RNAs. Journal of Molecular Biology, 2012, 419, 284-300.	4.2	83
27	Pathways for Virus Assembly around Nucleic Acids. Journal of Molecular Biology, 2014, 426, 3148-3165.	4.2	83
28	Mechanisms of Size Control and Polymorphism in Viral Capsid Assembly. Nano Letters, 2008, 8, 3850-3857.	9.1	82
29	Banding, excitability and chaos in active nematic suspensions. Nonlinearity, 2012, 25, 2245-2269.	1.4	76
30	Free energy landscape of activation in a signalling protein at atomic resolution. Nature Communications, 2015, 6, 7284.	12.8	75
31	Dynamical self-regulation in self-propelled particle flows. Physical Review E, 2012, 85, 061903.	2.1	70
32	A theory for viral capsid assembly around electrostatic cores. Journal of Chemical Physics, 2009, 130, 114902.	3.0	68
33	Differential assembly of Hepatitis B Virus core protein on single- and double-stranded nucleic acid suggest the dsDNA-filled core is spring-loaded. Virology, 2012, 430, 20-29.	2.4	68
34	Controlling viral capsid assembly with templating. Physical Review E, 2008, 77, 051904.	2.1	66
35	Dynamics and density distribution of strongly confined noninteracting nonaligning self-propelled particles in a nonconvex boundary. Physical Review E, 2015, 91, 012125.	2.1	65
36	Insensitivity of active nematic liquid crystal dynamics to topological constraints. Physical Review E, 2018, 97, 012702.	2.1	62

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37	Classical Nucleation Theory Description of Active Colloid Assembly. Physical Review Letters, 2016, 117, 148002.	7.8	61
38	Emergent self-organization in active materials. Current Opinion in Cell Biology, 2016, 38, 74-80.	5.4	59
39	Measuring Cohesion between Macromolecular Filaments One Pair at a Time: Depletion-Induced Microtubule Bundling. Physical Review Letters, 2015, 114, 138102.	7.8	58
40	Hierarchical organization of chiral rafts in colloidal membranes. Nature, 2014, 513, 77-80.	27.8	54
41	Mechanisms of Capsid Assembly around a Polymer. Biophysical Journal, 2010, 99, 619-628.	0.5	52
42	Fluctuation-dissipation ratios in the dynamics of self-assembly. Physical Review E, 2007, 76, 021119.	2.1	49
43	Self-Limited Self-Assembly of Chiral Filaments. Physical Review Letters, 2010, 104, 258102.	7.8	49
44	Steady-state distributions of ideal active Brownian particles under confinement and forcing. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 043203.	2.3	48
45	Using Markov state models to study self-assembly. Journal of Chemical Physics, 2014, 140, 214101.	3.0	46
46	Equilibrium mechanisms of self-limiting assembly. Reviews of Modern Physics, 2021, 93, .	45.6	46
47	Mechanisms of Budding of Nanoscale Particles through Lipid Bilayers. Journal of Physical Chemistry B, 2012, 116, 9595-9603.	2.6	44
48	Self-assembly of 2D membranes from mixtures of hard rods and depleting polymers. Soft Matter, 2012, 8, 707-714.	2.7	44
49	Simulations Show that Virus Assembly and Budding Are Facilitated by Membrane Microdomains. Biophysical Journal, 2015, 108, 585-595.	0.5	42
50	The Role of Packaging Sites in Efficient and Specific Virus Assembly. Journal of Molecular Biology, 2015, 427, 2451-2467.	4.2	39
51	Many-molecule encapsulation by an icosahedral shell. ELife, 2016, 5, .	6.0	36
52	Membrane Charge Directs the Outcome of F-BAR Domain Lipid Binding and Autoregulation. Cell Reports, 2015, 13, 2597-2609.	6.4	35
53	The role of the encapsulated cargo in microcompartment assembly. PLoS Computational Biology, 2018, 14, e1006351.	3.2	33
54	Probing the transition state in enzyme catalysis by high-pressure NMR dynamics. Nature Catalysis, 2019, 2, 726-734.	34.4	30

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55	Optimal Control of Active Nematics. Physical Review Letters, 2020, 125, 178005.	7.8	29
56	Two-step crystallization and solidâ€“solid transitions in binary colloidal mixtures. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 27927-27933.	7.1	29
57	Mechanisms of Scaffold-Mediated Microcompartment Assembly and Size Control. ACS Nano, 2021, 15, 4197-4212.	14.6	29
58	Evidence Against the â€œYâ€"T Couplingâ€•Mechanism of Activation in the Response Regulator NtrC. Journal of Molecular Biology, 2014, 426, 1554-1567.	4.2	27
59	Allosteric Control of Icosahedral Capsid Assembly. Journal of Physical Chemistry B, 2016, 120, 6306-6318.	2.6	27
60	Pair Potential of Charged Colloidal Stars. Physical Review Letters, 2009, 102, 108302.	7.8	26
61	Why Enveloped Viruses Need Coresâ€"The Contribution of a Nucleocapsid Core to Viral Budding. Biophysical Journal, 2018, 114, 619-630.	0.5	25
62	Nanoparticles binding to lipid membranes: from vesicle-based gels to vesicle tubulation and destruction. Nanoscale, 2019, 11, 18464-18474.	5.6	23
63	Confinement-Induced Self-Pumping in 3D Active Fluids. Physical Review Letters, 2020, 125, 268003.	7.8	23
64	Machine learning forecasting of active nematics. Soft Matter, 2021, 17, 738-747.	2.7	22
65	Vesicle shape transformations driven by confined active filaments. Nature Communications, 2021, 12, 7247.	12.8	22
66	The interplay between activity and filament flexibility determines the emergent properties of active nematics. Soft Matter, 2019, 15, 94-101.	2.7	21
67	Gradation (approx. 10 size states) of synaptic strength by quantal addition of structural modules. Philosophical Transactions of the Royal Society B: Biological Sciences, 2017, 372, 20160328.	4.0	20
68	Kinetic constraints on self-assembly into closed supramolecular structures. Scientific Reports, 2017, 7, 12295.	3.3	18
69	Equilibrium mappings in polar-isotropic confined active particles. European Physical Journal E, 2017, 40, 61.	1.6	18
70	Multiscale Microtubule Dynamics in Active Nematics. Physical Review Letters, 2021, 127, 148001.	7.8	18
71	Gaussian curvature and the budding kinetics of enveloped viruses. PLoS Computational Biology, 2019, 15, e1006602.	3.2	17
72	Avidity and surface mobility in multivalent ligandâ€“receptor binding. Nanoscale, 2021, 13, 12602-12612.	5.6	17

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73	Synchronized oscillations, traveling waves, and jammed clusters induced by steric interactions in active filament arrays. Soft Matter, 2021, 17, 1091-1104.	2.7	15
74	Defects and Chirality in the Nanoparticle-Directed Assembly of Spherocylindrical Shells of Virus Coat Proteins. ACS Nano, 2018, 12, 5323-5332.	14.6	14
75	Simulations of HIV Capsid Protein Dimerization Reveal the Effect of Chemistry and Topography on the Mechanism of Hydrophobic Protein Association. Biophysical Journal, 2012, 103, 1363-1369.	0.5	13
76	Self-assembly of convex particles on spherocylindrical surfaces. Soft Matter, 2018, 14, 5728-5740.	2.7	13
77	Statistical properties of a tangentially driven active filament. Journal of Statistical Mechanics: Theory and Experiment, 2020, 2020, 013216.	2.3	13
78	Active liquid crystals powered by force-sensing DNA-motor clusters. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	13
79	The allosteric switching mechanism in bacteriophage MS2. Journal of Chemical Physics, 2016, 145, 035101.	3.0	12
80	Prolonging assembly through dissociation: A self-assembly paradigm in microtubules. Physical Review E, 2011, 83, 051904.	2.1	11
81	Response of active Brownian particles to boundary driving. Physical Review E, 2019, 100, 042610.	2.1	11
82	Thermodynamic Size Control in Curvature-Frustrated Tubules: Self-Limitation with Open Boundaries. ACS Nano, 2022, 16, 9077-9085.	14.6	11
83	Structure, dynamics and phase behavior of short rod inclusions dissolved in a colloidal membrane. Soft Matter, 2019, 15, 7033-7042.	2.7	9
84	Equation of state of colloidal membranes. Soft Matter, 2019, 15, 6791-6802.	2.7	9
85	Theoretical calculation of the phase behavior of colloidal membranes. Physical Review E, 2011, 84, 051402.	2.1	8
86	Interaction of chiral rafts in self-assembled colloidal membranes. Physical Review E, 2016, 93, 032706.	2.1	8
87	Theory of microphase separation in bidisperse chiral membranes. Physical Review E, 2017, 96, 012704.	2.1	8
88	Steady states of active Brownian particles interacting with boundaries. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 013208.	2.3	8
89	Conformational switching of chiral colloidal rafts regulates raftâ€"raft attractions and repulsions. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 15792-15801.	7.1	7
90	All twist and no bend makes raft edges splay: Spontaneous curvature of domain edges in colloidal membranes. Science Advances, 2020, 6, eaba2331.	10.3	6

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91	Tiling a tubule: how increasing complexity improves the yield of self-limited assembly. Journal of Physics Condensed Matter, 2022, 34, 134003.	1.8	6
92	Faceted particles formed by the frustrated packing of anisotropic colloids on curved surfaces. Soft Matter, 2016, 12, 8990-8998.	2.7	5
93	Probing a self-assembledfdvirus membrane with a microtubule. Physical Review E, 2016, 93, 062608.	2.1	3
94	Microcompartment assembly around multicomponent fluid cargoes. Journal of Chemical Physics, 2022, 156, .	3.0	2
95	Structure and Dynamics of a Phase-Separating Active Colloidal Fluid. Biophysical Journal, 2013, 104, 640a.	0.5	1
96	Mechanisms Of Viral Capsid Assembly Around A Polymer. Biophysical Journal, 2009, 96, 420a.	0.5	0
97	Dynamic Encapsidation of a Flexible Polymer by an Icosahedral Virus. Biophysical Journal, 2011, 100, 402a.	0.5	0
98	Brownian Dynamics Simulations of Polymer Mediated Capsid Assembly. Biophysical Journal, 2013, 104, 413a-414a.	0.5	0
99	Activation Mechanism of a Signaling Protein at Atomic Resolution. Biophysical Journal, 2015, 108, 376a.	0.5	0
100	Identifying the Factors that Control the Size of Bacterial Microcompartments. Biophysical Journal, 2018, 114, 374a.	0.5	0