Michael Engel

List of Publications by Year
in descending order

71 papers	6,684 citations	109137 35 h-index	85405 71 g-index
74 all docs	74 docs citations	74 times ranked	7092 citing authors

#	Article	IF	Citations
1	Self-Assembly of Colloidal Nanocrystals: From Intricate Structures to Functional Materials. Chemical Reviews, 2016, 116, 11220-11289.	23.0	1,485
2	Predictive Self-Assembly of Polyhedra into Complex Structures. Science, 2012, 337, 453-457.	6.0	882
3	Disordered, quasicrystalline and crystalline phases of densely packed tetrahedra. Nature, 2009, 462, 773-777.	13.7	394
4	Competition of shape and interaction patchiness for self-assembling nanoplates. Nature Chemistry, 2013, 5, 466-473.	6.6	278
5	Understanding shape entropy through local dense packing. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, E4812-21.	3.3	199
6	Hard-disk equation of state: First-order liquid-hexatic transition in two dimensions with three simulation methods. Physical Review E, 2013, 87, 042134.	0.8	192
7	Crystalline Assemblies and Densest Packings of a Family of Truncated Tetrahedra and the Role of Directional Entropic Forces. ACS Nano, 2012, 6, 609-614.	7.3	190
8	Entropically Patchy Particles: Engineering Valence through Shape Entropy. ACS Nano, 2014, 8, 931-940.	7.3	175
9	Emergent Collective Phenomena in a Mixture of Hard Shapes through Active Rotation. Physical Review Letters, 2014, 112, 075701.	2.9	170
10	Clathrate colloidal crystals. Science, 2017, 355, 931-935.	6.0	162
11	Self-Assembly of Monatomic Complex Crystals and Quasicrystals with a Double-Well Interaction Potential. Physical Review Letters, 2007, 98, 225505.	2.9	154
12	Shape-dependent ordering of gold nanocrystals into large-scale superlattices. Nature Communications, 2017, 8, 14038.	5.8	141
13	Computational self-assembly of a one-component icosahedral quasicrystal. Nature Materials, 2015, 14, 109-116.	13.3	129
14	Magic number colloidal clusters as minimum free energy structures. Nature Communications, 2018, 9, 5259.	5.8	119
15	Rotating robots move collectively and self-organize. Nature Communications, 2018, 9, 931.	5.8	116
16	Quasicrystalline nanocrystal superlattice with partial matching rules. Nature Materials, 2017, 16, 214-219.	13.3	114
17	Band gap formation and Anderson localization in disordered photonic materials with structural correlations. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 9570-9574.	3.3	109
18	Shape Alloys of Nanorods and Nanospheres from Self-Assembly. Nano Letters, 2013, 13, 4980-4988.	4.5	104

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19	A Directional Entropic Force Approach to Assemble Anisotropic Nanoparticles into Superlattices. Angewandte Chemie - International Edition, 2013, 52, 13980-13984.	7.2	90
20	Role of Short-Range Order and Hyperuniformity in the Formation of Band Gaps in Disordered Photonic Materials. Physical Review Letters, 2016, 117, 053902.	2.9	88
21	Dense Crystalline Dimer Packings of Regular Tetrahedra. Discrete and Computational Geometry, 2010, 44, 253-280.	0.4	87
22	Controlled Self-Assembly of Periodic and Aperiodic Cluster Crystals. Physical Review Letters, 2014, 113, 098304.	2.9	79
23	Phase diagram of hard tetrahedra. Journal of Chemical Physics, 2011, 135, 194101.	1.2	76
24	Shape control and compartmentalization in active colloidal cells. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, E4642-50.	3.3	67
25	Shape and Symmetry Determine Two-Dimensional Melting Transitions of Hard Regular Polygons. Physical Review X, 2017, 7, .	2.8	61
26	Entropic colloidal crystallization pathways via fluidâ€“fluid transitions and multidimensional prenucleation motifs. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 14843-14851.	3.3	60
27	Structural Color of Colloidal Clusters as a Tool to Investigate Structure and Dynamics. Advanced Functional Materials, 2020, 30, 1907730.	7.8	59
28	Massively parallel Monte Carlo for many-particle simulations on GPUs. Journal of Computational Physics, 2013, 254, 27-38.	1.9	58
29	Degenerate Quasicrystal of Hard Triangular Bipyramids. Physical Review Letters, 2011, 107, 215702.	2.9	49
30	Effect of lattice mismatch and shell thickness on strain in core@shell nanocrystals. Nanoscale Advances, 2020, 2, 1105-1114.	2.2	45
31	Free Energy Landscape of Colloidal Clusters in Spherical Confinement. ACS Nano, 2019, 13, 9005-9015.	7.3	42
32	Metastable orientational order of colloidal discoids. Nature Communications, 2015, 6, 8507.	5.8	40
33	Dynamics of particle flips in two-dimensional quasicrystals. Physical Review B, 2010, 82, .	1.1	38
34	Achieving Highly Durable Random Alloy Nanocatalysts through Intermetallic Cores. ACS Nano, 2019, 13, 4008-4017.	7.3	37
35	Complexity in Surfaces of Densest Packings for Families of Polyhedra. Physical Review X, 2014, 4, .	2.8	36
36	Imaging the kinetics of anisotropic dissolution of bimetallic coreâ€“shell nanocubes using graphene liquid cells. Nature Communications, 2020, 11, 3041.	5.8	36

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37	Complex Crystals from Size-Disperse Spheres. Physical Review Letters, 2019, 122, 128005.	2.9	32
38	Unusual multiscale mechanics of biomimetic nanoparticle hydrogels. Nature Communications, 2018, 9, 181.	5.8	28
39	Functional materials and devices by self-assembly. MRS Bulletin, 2020, 45, 799-806.	1.7	27
40	Symmetry Considerations for the Targeted Assembly of Entropically Stabilized Colloidal Crystals via Voronoi Particles. ACS Nano, 2015, 9, 2336-2344.	7.3	26
41	Surfactants and rotelles in active chiral fluids. Science Advances, 2021, 7, .	4.7	24
42	Structural complexity in monodisperse systems of isotropic particles. Zeitschrift FÃ¼r Kristallographie, 2008, 223, 721-725.	1.1	23
43	Intermediate crystalline structures of colloids in shape space. Soft Matter, 2018, 14, 8692-8697.	1.2	23
44	Confirmation of the Random Tiling Hypothesis for a Decagonal Quasicrystal. Physical Review Letters, 2012, 109, 225502.	2.9	22
45	Non-close-packed three-dimensional quasicrystals. Journal of Physics Condensed Matter, 2017, 29, 234005.	0.7	22
46	Packing and self-assembly of truncated triangular bipyramids. Physical Review E, 2013, 88, 012127.	0.8	21
47	Symmetries in hard polygon systems determine plastic colloidal crystal mesophases in two dimensions. Soft Matter, 2019, 15, 2571-2579.	1.2	20
48	Complex order in soft matter. Nature, 2011, 471, 309-310.	13.7	19
49	Virial Coefficients and Equations of State for Hard Polyhedron Fluids. Langmuir, 2017, 33, 11788-11796.	1.6	19
50	Spontaneous Crystallization in Systems of Binary Hard Sphere Colloids. Physical Review Letters, 2020, 124, 218003.	2.9	18
51	Coloration in Supraparticles Assembled from Polyhedral Metalâ€Organic Framework Particles. Angewandte Chemie - International Edition, 2022, 61, .	7.2	18
52	Controlling Chirality of Entropic Crystals. Physical Review Letters, 2015, 115, 158303.	2.9	15
53	Efficient equilibration of hard spheres with Newtonian event chains. Journal of Chemical Physics, 2019, 150, 174108.	1.2	15
54	Macromolecular Ligand Engineering for Programmable Nanoprism Assembly. Journal of the American Chemical Society, 2021, 143, 16163-16172.	6.6	15

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55	Low-temperature structure ofÎ¾â€²-Al-Pd-Mn optimized byab initiomethods. Physical Review B, 2011, 84, .	1.1	14
56	A unified projection formalism for the Alâ€“Pdâ€“Mn quasi-crystal Îž-approximants and their metadislocations. Philosophical Magazine, 2005, 85, 2227-2247.	0.7	13
57	Particle Shape Control via Etching of Core@Shell Nanocrystals. ACS Nano, 2018, 12, 9186-9195.	7.3	11
58	Tiling models for metadislocations in AlPdMn approximants. Philosophical Magazine, 2006, 86, 979-984.	0.7	10
59	Stability of the decagonal quasicrystal in the Lennardâ€“Jonesâ€“Gauss system. Philosophical Magazine, 2008, 88, 1959-1965.	0.7	10
60	Entropic formation of a thermodynamically stable colloidal quasicrystal with negligible phason strain. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	10
61	Moving beyond the constraints of chemistry via crystal structure discovery with isotropic multiwell pair potentials. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	10
62	Structural variations inÏµ-type Alâ€“Pdâ€“(Mn, Fe) complex metallic alloy phases. Philosophical Magazine, 2008, 88, 507-521.	0.7	9
63	Entropic Stabilization of Tunable Planar Modulated Superstructures. Physical Review Letters, 2011, 106, 095504.	2.9	9
64	Structure factors of harmonic and anharmonic Fibonacci chains by molecular dynamics simulations. Physical Review B, 2007, 75, .	1.1	8
65	Phason dynamics in one-dimensional lattices. Physical Review B, 2010, 81, .	1.1	8
66	A triangular affair. Nature Physics, 2014, 10, 185-186.	6.5	3
67	Newtonian Event-Chain Monte Carlo and Collision Prediction with Polyhedral Particles. Journal of Chemical Theory and Computation, 2021, 17, 4686-4696.	2.3	3
68	Coloration in Supraparticles Assembled from Polyhedral Metalâ€Organic Framework Particles. Angewandte Chemie, 2022, 134, .	1.6	2
69	Efficient solution of particle shape functions for the analysis of powder total scattering data. Journal of Applied Crystallography, 2022, 55, 329-339.	1.9	2
70	Computational self-assembly of a one-component icosahedral quasicrystal. , 0, .		1
71	Computational self-assembly of complex crystals. Acta Crystallographica Section A: Foundations and Advances, 2016, 72, s94-s94.	0.0	0