Markus J Buehler

List of Publications by Year in descending order

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550	37,253	2197	5102
papers	citations	102 h-index	172 g-index

564	564	564	35413
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Interactive exploration of a hierarchical spider web structure with sound. Journal on Multimodal User Interfaces, 2022, 16, 71-85.	2.0	6
2	Bioinspired translation of classical music into de novo protein structures using deep learning and molecular modeling. Bioinspiration and Biomimetics, 2022, 17, 015001.	1.5	10
3	ColGen: An end-to-end deep learning model to predict thermal stability of de novo collagen sequences. Journal of the Mechanical Behavior of Biomedical Materials, 2022, 125, 104921.	1.5	15
4	A matter of sound. Physics World, 2022, 35, 35-39.	0.0	1
5	End-to-End Deep Learning Model to Predict and Design Secondary Structure Content of Structural Proteins. ACS Biomaterials Science and Engineering, 2022, 8, 1156-1165.	2.6	22
6	Rapid prediction of protein natural frequencies using graph neural networks. , 2022, 1, 277-285.		10
7	Biomimicry for natural and synthetic composites and use of machine learning in hierarchical design. , 2022, , 141-182.		1
8	DeepFlames: Neural network-driven self-assembly of flame particles into hierarchical structures. MRS Communications, 2022, 12, 257-265.	0.8	7
9	Deep learning based design of porous graphene for enhanced mechanical resilience. Computational Materials Science, 2022, 206, 111270.	1.4	12
10	Fundamental Investigation of Biomass Interaction for Green Composites: Experiments and Molecular Dynamics Simulations. Advanced Functional Materials, 2022, 32, .	7.8	11
11	DeepBuckle: Extracting physical behavior directly from empirical observation for a material agnostic approach to analyze and predict buckling. Journal of the Mechanics and Physics of Solids, 2022, 164, 104909.	2.3	6
12	Generative design, manufacturing, and molecular modeling of 3D architected materials based on natural language input. APL Materials, 2022, 10, .	2.2	20
13	SARS-CoV-2 Infectionâ"Of Music and Mechanics of Its Spikes! A Perspective. ACS Nano, 2022, 16, 6949-6955.	7.3	2
14	End-to-end prediction of multimaterial stress fields and fracture patterns using cycle-consistent adversarial and transformer neural networks. Biomedical Engineering Advances, 2022, 4, 100038.	2.2	19
15	Prediction of atomic stress fields using cycle-consistent adversarial neural networks based on unpaired and unmatched sparse datasets. Materials Advances, 2022, 3, 6280-6290.	2.6	7
16	PRESTO: Rapid protein mechanical strength prediction with an end-to-end deep learning model. Extreme Mechanics Letters, 2022, 55, 101803.	2.0	9
17	Role of the Mineral in the Self-Healing of Cracks in Human Enamel. ACS Nano, 2022, 16, 10273-10280.	7.3	9
18	FieldPerceiver: Domain agnostic transformer model to predict multiscale physical fields and nonlinear material properties through neural ologs. Materials Today, 2022, 57, 9-25.	8.3	31

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19	Understanding Plant Biomass via Computational Modeling. Advanced Materials, 2021, 33, e2003206.	11.1	34
20	Effect of the silica nanoparticle size on the osteoinduction of biomineralized silk-silica nanocomposites. Acta Biomaterialia, 2021, 120, 203-212.	4.1	19
21	Comparative Analysis of Nanomechanical Features of Coronavirus Spike Proteins and Correlation with Lethality and Infection Rate. Matter, 2021, 4, 265-275.	5.0	20
22	Tuning Mechanical Properties in Polycrystalline Solids Using a Deep Generative Framework. Advanced Engineering Materials, 2021, 23, 2001339.	1.6	13
23	WebNet: A biomateriomic three-dimensional spider web neural net. Extreme Mechanics Letters, 2021, 42, 101034.	2.0	10
24	A perspective on musical representations of folded protein nanostructures. Nano Futures, 2021, 5, 012501.	1.0	7
25	Molecular origin of viscoelasticity in mineralized collagen fibrils. Biomaterials Science, 2021, 9, 3390-3400.	2.6	13
26	Transition-metal coordinate bonds for bioinspired macromolecules with tunable mechanical properties. Nature Reviews Materials, 2021, 6, 421-436.	23.3	148
27	Deep learning model to predict complex stress and strain fields in hierarchical composites. Science Advances, 2021, 7, .	4.7	127
28	Deep learning model to predict fracture mechanisms of graphene. Npj 2D Materials and Applications, 2021, 5, .	3.9	43
29	Surface adhesion of viruses and bacteria: Defend only and/or vibrationally extinguish also?! A perspective. MRS Advances, 2021, 6, 355-361.	0.5	4
30	A coarse-grained mechanical model for folding and unfolding of tropoelastin with possible mutations. Acta Biomaterialia, 2021, 134, 477-489.	4.1	4
31	Designing and fabricating materials from fire using sonification and deep learning. IScience, 2021, 24, 102873.	1.9	11
32	In situ three-dimensional spider web construction and mechanics. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	7
33	Fuzzy binding model of molecular interactions between tropoelastin and integrin alphaVbeta3. Biophysical Journal, 2021, 120, 3138-3151.	0.2	4
34	End-to-end deep learning method to predict complete strain and stress tensors for complex hierarchical composite microstructures. Journal of the Mechanics and Physics of Solids, 2021, 154, 104506.	2.3	68
35	Frank-van der Merwe growth in bilayer graphene. Matter, 2021, 4, 3339-3353.	5.0	20
36	Deep learning approach to assess damage mechanics of bone tissue. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 123, 104761.	1.5	27

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37	Multiscale Modeling and Applications of Bioinspired Materials with Gyroid Structures. Springer Series in Materials Science, 2021, , 629-644.	0.4	1
38	Artificial intelligence and machine learning in design of mechanical materials. Materials Horizons, 2021, 8, 1153-1172.	6.4	237
39	Words to Matter: De novo Architected Materials Design Using Transformer Neural Networks. Frontiers in Materials, 2021, 8, .	1.2	18
40	Role of Methylene Diphenyl Diisocyanate (MDI) Additives on SBS-Modified Asphalt with Improved Thermal Stability and Mechanical Performance. Energy & Fuels, 2021, 35, 17629-17641.	2.5	9
41	Screening and Understanding Li Adsorption on Two-Dimensional Metallic Materials by Learning Physics and Physics-Simplified Learning. Jacs Au, 2021, 1, 1904-1914.	3.6	12
42	Encoding and exploring latent design space of optimal material structures via a VAE-LSTM model. Forces in Mechanics, 2021, 5, 100054.	1.3	14
43	A deep learning augmented genetic algorithm approach to polycrystalline 2D material fracture discovery and design. Applied Physics Reviews, 2021, 8, .	5.5	25
44	Electrospinning Piezoelectric Fibers for Biocompatible Devices. Advanced Healthcare Materials, 2020, 9, e1901287.	3.9	90
45	Melanin Biopolymers: Tailoring Chemical Complexity for Materials Design. Angewandte Chemie, 2020, 132, 11292-11301.	1.6	14
46	Melanin Biopolymers: Tailoring Chemical Complexity for Materials Design. Angewandte Chemie - International Edition, 2020, 59, 11196-11205.	7.2	121
47	De novo topology optimization of total ossicular replacement prostheses. Journal of the Mechanical Behavior of Biomedical Materials, 2020, 103, 103541.	1.5	18
48	Observations of 3 nm Silk Nanofibrils Exfoliated from Natural Silkworm Silk Fibers. , 2020, 2, 153-160.		37
49	A semi-supervised approach to architected materials design using graph neural networks. Extreme Mechanics Letters, 2020, 41, 101029.	2.0	35
50	Using Deep Learning to Predict Fracture Patterns in Crystalline Solids. Matter, 2020, 3, 197-211.	5.0	93
51	Nonlinear mechanics of lamin filaments and the meshwork topology build an emergent nuclear lamina. Nature Communications, 2020, 11, 6205.	5.8	40
52	Mesomechanics of a three-dimensional spider web. Journal of the Mechanics and Physics of Solids, 2020, 144, 104096.	2.3	10
53	Accumulation of collagen molecular unfolding is the mechanism of cyclic fatigue damage and failure in collagenous tissues. Science Advances, 2020, 6, eaba2795.	4.7	60
54	Chirality-Dependent Second Harmonic Generation of MoS₂ Nanoscroll with Enhanced Efficiency. ACS Nano, 2020, 14, 13333-13342.	7.3	34

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55	Reaching the horizon: FirstMRS Bulletin Impactarticles published. MRS Bulletin, 2020, 45, 879-879.	1.7	0
56	Machine learning model for fast prediction of the natural frequencies of protein molecules. RSC Advances, 2020, 10, 16607-16615.	1.7	11
57	Synergistic Rollâ€toâ€Roll Transfer and Doping of CVDâ€Graphene Using Parylene for Ambientâ€Stable and Ultraâ€Lightweight Photovoltaics. Advanced Functional Materials, 2020, 30, 2001924.	7.8	45
58	Sonification based de novo protein design using artificial intelligence, structure prediction, and analysis using molecular modeling. APL Bioengineering, 2020, 4, 016108.	3.3	36
59	Mechanics of Mineralized Collagen Fibrils upon Transient Loads. ACS Nano, 2020, 14, 8307-8316.	7.3	22
60	Perspectives on three-dimensional printing of self-assembling materials and structures. Current Opinion in Biomedical Engineering, 2020, 15, 59-67.	1.8	21
61	Artificial intelligence method to design and fold alpha-helical structural proteins from the primary amino acid sequence. Extreme Mechanics Letters, 2020, 36, 100652.	2.0	31
62	The Order-Disorder Continuum: Linking Predictions of Protein Structure and Disorder through Molecular Simulation. Scientific Reports, 2020, 10, 2068.	1.6	13
63	Adverse effects of Alport syndrome-related Gly missense mutations on collagen type IV: Insights from molecular simulations and experiments. Biomaterials, 2020, 240, 119857.	5.7	18
64	Wave Propagation and Energy Dissipation in Collagen Molecules. ACS Biomaterials Science and Engineering, 2020, 6, 1367-1374.	2.6	24
65	Exploration of Biomass-Derived Activated Carbons for Use in Vanadium Redox Flow Batteries. ACS Sustainable Chemistry and Engineering, 2020, 8, 9472-9482.	3.2	33
66	Multiscale structural insights of load bearing bamboo: A computational modeling approach. Journal of the Mechanical Behavior of Biomedical Materials, 2020, 107, 103743.	1.5	25
67	Probing the Role of Bone Lamellar Patterns through Collagen Microarchitecture Mapping, Numerical Modeling, and 3Dâ€Printing. Advanced Engineering Materials, 2020, 22, .	1.6	10
68	New horizons for MRS Bulletin. MRS Bulletin, 2020, 45, 6-6.	1.7	1
69	Liquified protein vibrations, classification and cross-paradigm de novo image generation using deep neural networks. Nano Futures, 2020, 4, 035004.	1.0	12
70	Multiscale Modeling of Lignocellulosic Biomass. , 2020, , 1627-1648.		1
71	Silk-Based Hierarchical Materials for High Mechanical Performance at the Interface of Modeling, Synthesis, and Characterization. , 2020, , 1547-1574.		0
72	Multiscale Modeling of Structural Materials: Chemistry and Mechanical Performance. , 2020, , 1541-1546.		0

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73	Sonification of a 3-D Spider Web and Reconstitution for Musical Composition Using Granular Synthesis. Computer Music Journal, 2020, 44, 43-59.	0.3	5
74	Natureâ€™s Way: Hierarchical Strengthening through Weakness. Matter, 2019, 1, 302-303.	5.0	15
75	Coarse-grained model of tropoelastin self-assembly into nascent fibrils. Materials Today Bio, 2019, 3, 100016.	2.6	13
76	Additive Manufacturing Approaches for Hydroxyapatiteâ€Reinforced Composites. Advanced Functional Materials, 2019, 29, 1903055.	7.8	109
77	Conductive Silkâ€Based Composites Using Biobased Carbon Materials. Advanced Materials, 2019, 31, e1904720.	11.1	52
78	Design and Fabrication of Silk Templated Electronic Yarns and Applications in Multifunctional Textiles. Matter, 2019, 1, 1411-1425.	5.0	98
79	Artificial intelligence design algorithm for nanocomposites optimized for shear crack resistance. Nano Futures, 2019, 3, 035001.	1.0	57
80	Reversible MoS₂ Origami with Spatially Resolved and Reconfigurable Photosensitivity. Nano Letters, 2019, 19, 7941-7949.	4.5	41
81	Atomically Sharp Dual Grain Boundaries in 2D WS₂ Bilayers. Small, 2019, 15, e1902590.	5.2	13
82	Congratulations: 100th issue of the journal of the mechanical behavior of biomedical materials. Journal of the Mechanical Behavior of Biomedical Materials, 2019, 100, 103450.	1.5	0
83	The hidden structure of human enamel. Nature Communications, 2019, 10, 4383.	5.8	134
84	Remarkably Distinct Mechanical Flexibility in Three Structurally Similar Semiconducting Organic Crystals Studied by Nanoindentation and Molecular Dynamics. Chemistry of Materials, 2019, 31, 1391-1402.	3.2	84
85	Allysine modifications perturb tropoelastin structure and mobility on a local and global scale. Matrix Biology Plus, 2019, 2, 100002.	1.9	12
86	Molecular dynamics study of the mechanical properties of polydisperse pressure-sensitive adhesives. International Journal of Adhesion and Adhesives, 2019, 92, 58-64.	1.4	5
87	A Self-Consistent Sonification Method to Translate Amino Acid Sequences into Musical Compositions and Application in Protein Design Using Artificial Intelligence. ACS Nano, 2019, 13, 7471-7482.	7.3	85
88	Anisotropic Fracture Dynamics Due to Local Lattice Distortions. ACS Nano, 2019, 13, 5693-5702.	7.3	19
89	Analysis of the vibrational and sound spectrum of over 100,000 protein structures and application in sonification. Extreme Mechanics Letters, 2019, 29, 100460.	2.0	17
90	Grain Boundaries as Electrical Conduction Channels in Polycrystalline Monolayer WS₂. ACS Applied Materials & Interfaces, 2019, 11, 10189-10197.	4.0	17

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91	Spider dragline silk as torsional actuator driven by humidity. Science Advances, 2019, 5, eaau9183.	4.7	108
92	Dynamic pigmentary and structural coloration within cephalopod chromatophore organs. Nature Communications, 2019, 10, 1004.	5.8	105
93	Paraffin-enabled graphene transfer. Nature Communications, 2019, 10, 867.	5.8	185
94	Multiscale Design of Graphyneâ€Based Materials for Highâ€Performance Separation Membranes. Advanced Materials, 2019, 31, e1805665.	11.1	30
95	Sounds interesting: can sonification help us design new proteins?. Expert Review of Proteomics, 2019, 16, 875-879.	1.3	17
96	Biological Material Interfaces as Inspiration for Mechanical and Optical Material Designs. Chemical Reviews, 2019, 119, 12279-12336.	23.0	121
97	Self-Folding Hybrid Graphene Skin for 3D Biosensing. Nano Letters, 2019, 19, 1409-1417.	4.5	49
98	Mechanical behavior of nanocomposites. MRS Bulletin, 2019, 44, 19-24.	1.7	42
99	Atomic-scale hardening mechanisms apply on larger scales in â€˜architectedâ€™ materials. Nature, 2019, 565, 303-304.	13.7	8
100	Tropoelastin is a Flexible Molecule that Retains its Canonical Shape. Macromolecular Bioscience, 2019, 19, 1800250.	2.1	19
101	Multiscale Modeling of Silk and Silkâ€Based Biomaterialsâ€”A Review. Macromolecular Bioscience, 2019, 19, e1800253.	2.1	40
102	Multiscale modeling of keratin, collagen, elastin and related human diseases: Perspectives from atomistic to coarse-grained molecular dynamics simulations. Extreme Mechanics Letters, 2018, 20, 112-124.	2.0	39
103	Materials-by-design: computation, synthesis, and characterization from atoms to structures. Physica Scripta, 2018, 93, 053003.	1.2	32
104	Nanofibrils in nature and materials engineering. Nature Reviews Materials, 2018, 3, .	23.3	455
105	The different distribution of enzymatic collagen cross-links found in adult and children bone result in different mechanical behavior of collagen. Bone, 2018, 110, 107-114.	1.4	27
106	Integration of Stiff Graphene and Tough Silk for the Design and Fabrication of Versatile Electronic Materials. Advanced Functional Materials, 2018, 28, 1705291.	7.8	148
107	Highâ€Strength, Durable Allâ€Silk Fibroin Hydrogels with Versatile Processability toward Multifunctional Applications. Advanced Functional Materials, 2018, 28, 1704757.	7.8	133
108	Interlocking Friction Governs the Mechanical Fracture of Bilayer MoS₂. ACS Nano, 2018, 12, 3600-3608.	7.3	40

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109	Mechanical exfoliation of two-dimensional materials. Journal of the Mechanics and Physics of Solids, 2018, 115, 248-262.	2.3	143
110	Predicting rates of in vivo degradation of recombinant spider silk proteins. Journal of Tissue Engineering and Regenerative Medicine, 2018, 12, e97-e105.	1.3	21
111	De novo composite design based on machine learning algorithm. Extreme Mechanics Letters, 2018, 18, 19-28.	2.0	306
112	Sub-nanometre channels embedded in two-dimensional materials. Nature Materials, 2018, 17, 129-133.	13.3	97
113	Silk-Based Hierarchical Materials for High Mechanical Performance at the Interface of Modeling, Synthesis, and Characterization. , 2018, , 1-28.		1
114	Polydopamine and eumelanin models in various oxidation states. Physical Chemistry Chemical Physics, 2018, 20, 28135-28143.	1.3	25
115	Fabrication and Characterization of Recombinant Silkâ€Elastinâ€Likeâ€Protein (SELP) Fiber. Macromolecular Bioscience, 2018, 18, e1800265.	2.1	26
116	Multiscale Modeling of Lignocellulosic Biomass. , 2018, , 1-22.		1
117	Multiscale Modeling of Structural Materials: Chemistry and Mechanical Performance. , 2018, , 1-6.		0
118	Imaging and analysis of a three-dimensional spider web architecture. Journal of the Royal Society Interface, 2018, 15, 20180193.	1.5	36
119	Molecular characterization and atomistic model of biocrude oils from hydrothermal liquefaction of microalgae. Algal Research, 2018, 35, 262-273.	2.4	19
120	Combining In Silico Design and Biomimetic Assembly: A New Approach for Developing Highâ€Performance Dynamic Responsive Bioâ€Nanomaterials. Advanced Materials, 2018, 30, e1802306.	11.1	34
121	Molecular model of human tropoelastin and implications of associated mutations. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 7338-7343.	3.3	35
122	Multiscale Mechanics of Triply Periodic Minimal Surfaces of Three-Dimensional Graphene Foams. Nano Letters, 2018, 18, 4845-4853.	4.5	57
123	Biopolymer nanofibrils: Structure, modeling, preparation, and applications. Progress in Polymer Science, 2018, 85, 1-56.	11.8	312
124	Tensan Silk-Inspired Hierarchical Fibers for Smart Textile Applications. ACS Nano, 2018, 12, 6968-6977.	7.3	85
125	Bioinspired hierarchical composite design using machine learning: simulation, additive manufacturing, and experiment. Materials Horizons, 2018, 5, 939-945.	6.4	354
126	Tunable mechanical properties through texture control of polycrystalline additively manufactured materials using adjoint-based gradient optimization. Acta Mechanica, 2018, 229, 4033-4044.	1.1	11

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127	Hierarchical nanostructures for functional materials. Nanotechnology, 2018, 29, 280201.	1.3	7
128	Unraveling the molecular mechanisms of thermo-responsive properties of silk-elastin-like proteins by integrating multiscale modeling and experiment. Journal of Materials Chemistry B, 2018, 6, 3727-3734.	2.9	21
129	The Rise of Hierarchical Nanostructured Materials from Renewable Sources: Learning from Nature. ACS Nano, 2018, 12, 7425-7433.	7.3	128
130	Improving the performance of pressure sensitive adhesives by tuning the crosslinking density and locations. Polymer, 2018, 154, 164-171.	1.8	19
131	Intracellular Pathways Involved in Bone Regeneration Triggered by Recombinant Silkâ€“Silica Chimeras. Advanced Functional Materials, 2018, 28, 1702570.	7.8	31
132	The mechanics and design of a lightweight three-dimensional graphene assembly. Science Advances, 2017, 3, e1601536.	4.7	331
133	Computational smart polymer design based on elastin protein mutability. Biomaterials, 2017, 127, 49-60.	5.7	49
134	Advanced Structural Materials by Bioinspiration. Advanced Engineering Materials, 2017, 19, 1600787.	1.6	103
135	Protein-free formation of bone-like apatite: New insights into the key role of carbonation. Biomaterials, 2017, 127, 75-88.	5.7	77
136	Ion Effect and Metal-Coordinated Cross-Linking for Multiscale Design of Nereis Jaw Inspired Mechanomutable Materials. ACS Nano, 2017, 11, 1858-1868.	7.3	24
137	Synergistic Integration of Experimental and Simulation Approaches for the de Novo Design of Silk-Based Materials. Accounts of Chemical Research, 2017, 50, 866-876.	7.6	45
138	Nacre-inspired design of graphene oxideâ€“polydopamine nanocomposites for enhanced mechanical properties and multi-functionalities. Nano Futures, 2017, 1, 011003.	1.0	41
139	Multiscale Modeling of Muscular-Skeletal Systems. Annual Review of Biomedical Engineering, 2017, 19, 435-457.	5.7	32
140	Printing nature: Unraveling the role of nacre's mineral bridges. Journal of the Mechanical Behavior of Biomedical Materials, 2017, 76, 135-144.	1.5	119
141	Hierarchically Enhanced Impact Resistance of Bioinspired Composites. Advanced Materials, 2017, 29, 1700060.	11.1	259
142	In Situ Mechanical Interrogation of Single Nuclear Lamins Suggests the Lamina is a Robust Framework. Biophysical Journal, 2017, 112, 469a.	0.2	0
143	Modeling and Experiment Reveal Structure and Nanomechanics across the Inverse Temperature Transition in B. mori Silk-Elastin-like Protein Polymers. ACS Biomaterials Science and Engineering, 2017, 3, 2889-2899.	2.6	20
144	Molecular level detection and localization of mechanical damage in collagen enabled by collagen hybridizing peptides. Nature Communications, 2017, 8, 14913.	5.8	183

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145	Multiscale mechanics of the lateral pressure effect on enhancing the load transfer between polymer coated CNTs. Nanoscale, 2017, 9, 5565-5576.	2.8	7
146	Design and function of biomimetic multilayer water purification membranes. Science Advances, 2017, 3, e1601939.	4.7	221
147	Structural Insights into the Glycine Pair Motifs in Type III Collagen. ACS Biomaterials Science and Engineering, 2017, 3, 269-278.	2.6	3
148	Ultrathin thermoresponsive self-folding 3D graphene. Science Advances, 2017, 3, e1701084.	4.7	144
149	Unraveling the Molecular Requirements for Macroscopic Silk Supercontraction. ACS Nano, 2017, 11, 9750-9758.	7.3	40
150	Algorithm-driven design of fracture resistant composite materials realized through additive manufacturing. Additive Manufacturing, 2017, 17, 47-54.	1.7	38
151	Unusually low and density-insensitive thermal conductivity of three-dimensional gyroid graphene. Nanoscale, 2017, 9, 13477-13484.	2.8	38
152	Effect of Terminal Modification on the Molecular Assembly and Mechanical Properties of Proteinâ€Based Block Copolymers. Macromolecular Bioscience, 2017, 17, 1700095.	2.1	10
153	Mutable polyelectrolyte tube arrays: mesoscale modeling and lateral force microscopy. Soft Matter, 2017, 13, 5543-5557.	1.2	3
154	Computational Framework to Predict Failure and Performance of Bone-Inspired Materials. ACS Biomaterials Science and Engineering, 2017, 3, 3236-3243.	2.6	22
155	Integrated Multiscale Biomaterials Experiment and Modeling. ACS Biomaterials Science and Engineering, 2017, 3, 2628-2632.	2.6	7
156	Polymorphic regenerated silk fibers assembled through bioinspired spinning. Nature Communications, 2017, 8, 1387.	5.8	208
157	Predicting Silk Fiber Mechanical Properties through Multiscale Simulation and Protein Design. ACS Biomaterials Science and Engineering, 2017, 3, 1542-1556.	2.6	32
158	Polydopamine and eumelanin molecular structures investigated with ab initio calculations. Chemical Science, 2017, 8, 1631-1641.	3.7	162
159	Integrated Modeling and Experimental Approaches to Control Silica Modification of Design Silk-Based Biomaterials. ACS Biomaterials Science and Engineering, 2017, 3, 2877-2888.	2.6	14
160	Single-crystal-to-single-crystal phase transition by thermosalient effect in isomorphous Schiff base. Acta Crystallographica Section A: Foundations and Advances, 2017, 73, C710-C710.	0.0	0
161	Quantitative Estimates of Bio-Remodeling on Coastal Rock Surfaces. Journal of Marine Science and Engineering, 2016, 4, 37.	1.2	11
162	Boneâ€Inspired Materials by Design: Toughness Amplification Observed Using 3D Printing and Testing. Advanced Engineering Materials, 2016, 18, 1354-1363.	1.6	138

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163	Design of Multistimuli Responsive Hydrogels Using Integrated Modeling and Genetically Engineered Silkâ€“Elastinâ€Like Proteins. Advanced Functional Materials, 2016, 26, 4113-4123.	7.8	83
164	Optimization of Composite Fracture Properties: Method, Validation, and Applications. Journal of Applied Mechanics, Transactions ASME, 2016, 83, .	1.1	69
165	Roadmap across the mesoscale for durable and sustainable cement paste â€“ A bioinspired approach. Construction and Building Materials, 2016, 115, 13-31.	3.2	39
166	Ultrathin Free-Standing Bombyx mori Silk Nanofibril Membranes. Nano Letters, 2016, 16, 3795-3800.	4.5	146
167	Integrated multiscale biomaterials experiment and modelling: a perspective. Interface Focus, 2016, 6, 20150098.	1.5	6
168	Strength and fracture toughness of heterogeneous blocks with joint lognormal modulus and failure strain. Journal of the Mechanics and Physics of Solids, 2016, 92, 72-86.	2.3	2
169	Biomimetic additive manufactured polymer composites for improved impact resistance. Extreme Mechanics Letters, 2016, 9, 317-323.	2.0	125
170	Atomically Sharp Crack Tips in Monolayer MoS₂ and Their Enhanced Toughness by Vacancy Defects. ACS Nano, 2016, 10, 9831-9839.	7.3	130
171	Large Deformation Mechanisms, Plasticity, and Failure of an Individual Collagen Fibril With Different Mineral Content. Journal of Bone and Mineral Research, 2016, 31, 380-390.	3.1	58
172	Studies of chain substitution caused sub-fibril level differences in stiffness and ultrastructure of wildtype and oim/oim collagen fibers using multifrequency-AFM and molecular modeling. Biomaterials, 2016, 107, 15-22.	5.7	24
173	Aqueous Peptideâ€“TiO₂ Interfaces: Isoenergetic Binding via Either Entropically or Enthalpically Driven Mechanisms. ACS Applied Materials & Interfaces, 2016, 8, 18620-18630.	4.0	45
174	Dynamic mechanics. Nature Materials, 2016, 15, 1054-1055.	13.3	28
175	Liquid Exfoliated Natural Silk Nanofibrils: Applications in Optical and Electrical Devices. Advanced Materials, 2016, 28, 7783-7790.	11.1	134
176	Intercalated water layers promote thermal dissipation at bioâ€“nano interfaces. Nature Communications, 2016, 7, 12854.	5.8	52
177	Structure and mechanics of interfaces in biological materials. Nature Reviews Materials, 2016, 1, .	23.3	486
178	Subtle balance of tropoelastin molecular shape and flexibility regulates dynamics and hierarchical assembly. Science Advances, 2016, 2, e1501145.	4.7	43
179	Molecular Modeling and Mechanics of Acrylic Adhesives on a Graphene Substrate with Roughness. BioNanoScience, 2016, 6, 177-184.	1.5	5
180	Conformation Transitions of Recombinant Spidroins via Integration of Time-Resolved FTIR Spectroscopy and Molecular Dynamic Simulation. ACS Biomaterials Science and Engineering, 2016, 2, 1298-1308.	2.6	21

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181	Printing of stretchable silk membranes for strain measurements. Lab on A Chip, 2016, 16, 2459-2466.	3.1	99
182	Nanomechanics of silk: the fundamentals of a strong, tough and versatile material. Nanotechnology, 2016, 27, 302001.	1.3	42
183	The Effective Modulus of Random Checkerboard Plates. Journal of Applied Mechanics, Transactions ASME, 2016, 83, .	1.1	2
184	Secondary Structure Transition and Critical Stress for a Model of Spider Silk Assembly. Biomacromolecules, 2016, 17, 427-436.	2.6	60
185	Delivering Single-Walled Carbon Nanotubes to the Nucleus Using Engineered Nuclear Protein Domains. ACS Applied Materials & Interfaces, 2016, 8, 3524-3534.	4.0	31
186	Categorical prototyping: incorporating molecular mechanisms into 3D printing. Nanotechnology, 2016, 27, 024002.	1.3	10
187	The nature of the silicaphilic fluorescence of PDMPO. Physical Chemistry Chemical Physics, 2016, 18, 5938-5948.	1.3	11
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