Markus J Buehler

List of Publications by Year
in descending order

550 papers	37,253 citations	1883 102 h-index	4419 172 g-index
564 all docs	564 docs citations	564 times ranked	30820 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 <i>Spikes</i>! 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: First<i>MRS Bulletin Impact</i>articles 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 <i>de novo</i> 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 <i>in vivo</i> 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 <i>de Novo</i> 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 <i>Bombyx mori</i> 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
188	Three-Dimensional-Printing of Bio-Inspired Composites. Journal of Biomechanical Engineering, 2016, 138, 021006.	0.6	89
189	Mechanical Properties of Hierarchical Protein Materials. , 2016, , 1915-1926.		0
190	Solving the Controversy on the Wetting Transparency of Graphene. Scientific Reports, 2015, 5, 15526.	1.6	29
191	Structureâ€"mechanics relationships of collagen fibrils in the osteogenesis imperfecta mouse model. Journal of the Royal Society Interface, 2015, 12, 20150701.	1.5	51
192	Influence of cross-link structure, density and mechanical properties in the mesoscale deformation mechanisms of collagen fibrils. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 52, 1-13.	1.5	300
193	Predictive modelling-based design and experiments for synthesis and spinning of bioinspired silk fibres. Nature Communications, 2015, 6, 6892.	5.8	118
194	Peeling Silicene From Model Silver Substrates in Molecular Dynamics Simulations. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	1.1	8
195	Molecular mechanics of polycrystalline graphene with enhanced fracture toughness. Extreme Mechanics Letters, 2015, 2, 52-59.	2.0	118
196	Mechanics of trichocyte alpha-keratin fibers: Experiment, theory, and simulation. Journal of Materials Research, 2015, 30, 26-35.	1.2	12
197	Mesoscale mechanics of twisting carbon nanotube yarns. Nanoscale, 2015, 7, 5435-5445.	2.8	51
198	Osmotic pressure induced tensile forces in tendon collagen. Nature Communications, 2015, 6, 5942.	5.8	167

#	Article	IF	Citations
199	Probability distribution of fracture elongation, strength and toughness of notched rectangular blocks with lognormal Young's modulus. Journal of the Mechanics and Physics of Solids, 2015, 84, 116-129.	2.3	9
200	Nonlinear Viscous Water at Nanoporous Two-Dimensional Interfaces Resists High-Speed Flow through Cooperativity. Nano Letters, 2015, 15, 3939-3944.	4.5	42
201	Mechanical Properties and Failure of Biopolymers: Atomistic Reactions to Macroscale Response. Topics in Current Chemistry, 2015, 369, 317-343.	4.0	14
202	Random Bulk Properties of Heterogeneous Rectangular Blocks With Lognormal Young's Modulus: Effective Moduli. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	1.1	13
203	Structural optimization of 3D-printed synthetic spider webs for high strength. Nature Communications, 2015, 6, 7038.	5.8	136
204	Folding creases through bending. Nature Materials, 2015, 14, 366-368.	13.3	19
205	Defect-Tolerant Bioinspired Hierarchical Composites: Simulation and Experiment. ACS Biomaterials Science and Engineering, 2015, 1, 295-304.	2.6	75
206	The tail domain of lamin B1 is more strongly modulated by divalent cations than lamin A. Nucleus, 2015, 6, 203-211.	0.6	7
207	Directed self-assembly of end-functionalized nanofibers: from percolated networks to liquid crystal-like phases. Nanotechnology, 2015, 26, 205602.	1.3	6
208	Crumpling deformation regimes of monolayer graphene on substrate: a molecular mechanics study. Journal of Physics Condensed Matter, 2015, 27, 345401.	0.7	16
209	Matriarch: A Python Library for Materials Architecture. ACS Biomaterials Science and Engineering, 2015, 1, 1009-1015.	2.6	12
210	Silkâ€"Its Mysteries, How It Is Made, and How It Is Used. ACS Biomaterials Science and Engineering, 2015, 1, 864-876.	2.6	85
211	Molecular deformation mechanisms of the wood cell wall material. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 42, 198-206.	1.5	82
212	Molecular asphaltene models based on Clar sextet theory. RSC Advances, 2015, 5, 753-759.	1.7	82
213	Tensile deformation and failure of amyloid and amyloid-like protein fibrils. Nanotechnology, 2014, 25, 105703.	1.3	37
214	Molecular mechanics of elastic and bendable caffeine co-crystals. Physical Chemistry Chemical Physics, 2014, 16, 13165.	1.3	30
215	Molecular mechanics and performance of crosslinked amorphous polymer adhesives. Journal of Materials Research, 2014, 29, 1077-1085.	1.2	19
216	A robust nanoscale experimental quantification of fracture energy in a bilayer material system. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 11990-11995.	3.3	48

#	Article	IF	Citations
217	Structureâ€“functionâ€“propertyâ€“design interplay in biopolymers: Spider silk. Acta Biomaterialia, 2014, 10, 1612-1626.	4.1	206
218	Molecular biomechanics of collagen molecules. Materials Today, 2014, 17, 70-76.	8.3	93
219	Coupled continuum and discrete analysis of random heterogeneous materials: Elasticity and fracture. Journal of the Mechanics and Physics of Solids, 2014, 63, 481-490.	2.3	58
220	Effect of sequence features on assembly of spider silk block copolymers. Journal of Structural Biology, 2014, 186, 412-419.	1.3	27
221	Excitonic effects from geometric order and disorder explain broadband optical absorption in eumelanin. Nature Communications, 2014, 5, 3859.	5.8	127
222	Modeling and additive manufacturing of bio-inspired composites with tunable fracture mechanical properties. Soft Matter, 2014, 10, 4436.	1.2	111
223	Protective role of Arapaima gigas fish scales: Structure and mechanical behavior. Acta Biomaterialia, 2014, 10, 3599-3614.	4.1	161
224	Modelling the mechanics of partially mineralized collagen fibrils, fibres and tissue. Journal of the Royal Society Interface, 2014, 11, 20130835.	1.5	74
225	What's Inside the Box? â€“ Lengthâ€Scales that Govern Fracture Processes of Polymer Fibers. Advanced Materials, 2014, 26, 412-417.	11.1	36
226	Spinning silk from music: The art of creating new materials. New Scientist, 2014, 221, 30-31.	0.0	0
227	Mechanics of collagenâ€“hydroxyapatite model nanocomposites. Mechanics Research Communications, 2014, 58, 17-23.	1.0	40
228	Molecular mechanics of mussel adhesion proteins. Journal of the Mechanics and Physics of Solids, 2014, 62, 19-30.	2.3	56
229	Tensile strength of carbyne chains in varied chemical environments and structural lengths. Nanotechnology, 2014, 25, 371001.	1.3	13
230	Flaw tolerance promoted by dissipative deformation mechanisms between material building blocks. Philosophical Magazine Letters, 2014, 94, 592-600.	0.5	0
231	Polydopamine and Eumelanin: From Structureâ€“Property Relationships to a Unified Tailoring Strategy. Accounts of Chemical Research, 2014, 47, 3541-3550.	7.6	514
232	Combinatorial molecular optimization of cement hydrates. Nature Communications, 2014, 5, 4960.	5.8	358
233	Effect of Wrinkles on the Surface Area of Graphene: Toward the Design of Nanoelectronics. Nano Letters, 2014, 14, 6520-6525.	4.5	81
234	Tuning heterogeneous poly(dopamine) structures and mechanics: in silico covalent cross-linking and thin film nanoindentation. Soft Matter, 2014, 10, 457-464.	1.2	55

#	Article	IF	Citations
235	Role of Intrafibrillar Collagen Mineralization in Defining the Compressive Properties of Nascent Bone. Biomacromolecules, 2014, 15, 2494-2500.	2.6	64
236	Interfacial binding and aggregation of lamin A tail domains associated with Hutchinsonâ€“Gilford progeria syndrome. Biophysical Chemistry, 2014, 195, 43-48.	1.5	12
237	Biological materials by design. Journal of Physics Condensed Matter, 2014, 26, 073101.	0.7	22
238	Age- and diabetes-related nonenzymatic crosslinks in collagen fibrils: Candidate amino acids involved in Advanced Glycation End-products. Matrix Biology, 2014, 34, 89-95.	1.5	113
239	Thermal transport in monolayer graphene oxide: Atomistic insights into phonon engineering through surface chemistry. Carbon, 2014, 77, 351-359.	5.4	62
240	Middle School Classroom Materials--Structure and Failure of Wood: A Computational and Micrographic Examination. Microscopy and Microanalysis, 2014, 20, 2154-2155.	0.2	0
241	Mechanics of fragmentation of crocodile skin and other thin films. Scientific Reports, 2014, 4, 4966.	1.6	25
242	Computational Materials Science of Bionanomaterials: Structure, Mechanical Properties and Applications of Elastin and Collagen Proteins. , 2014, , 941-962.		5
243	Silk and Web Synergy: The Merging of Material and Structural Performance. Biologically-inspired Systems, 2014, , 219-268.	0.4	2
244	Impact tolerance in mussel thread networks by heterogeneous material distribution. Nature Communications, 2013, 4, 2187.	5.8	71
245	Molecular Mechanics of Disulfide Bonded Alpha-Helical Protein Filaments. BioNanoScience, 2013, 3, 85-94.	1.5	2
246	The effect of non-covalent functionalization on the thermal conductance of graphene/organic interfaces. Nanotechnology, 2013, 24, 165702.	1.3	92
247	Calcium Causes a Conformational Change in Lamin A Tail Domain that Promotes Farnesyl-Mediated Membrane Association. Biophysical Journal, 2013, 104, 2246-2253.	0.2	15
248	Mechanical Playersâ€"The Role of Intermediate Filaments inÂCell Mechanics and Organization. Biophysical Journal, 2013, 105, 1733-1734.	0.2	11
249	Structure and mechanism of maximum stability of isolated alpha-helical protein domains at a critical length scale. European Physical Journal E, 2013, 36, 53.	0.7	30
250	Mesoscale mechanics of wood cell walls under axial strain. Soft Matter, 2013, 9, 7138.	1.2	62
251	Comparison of Synthetic Dopamineâ€“Eumelanin Formed in the Presence of Oxygen and Cu²⁺ Cations as Oxidants. Langmuir, 2013, 29, 12754-12761.	1.6	75
252	Critical cross-linking to mechanically couple polyelectrolytes and flexible molecules. Soft Matter, 2013, 9, 1076-1090.	1.2	11

#	Article	IF	Citations
253	Mechanics and molecular filtration performance of graphyne nanoweb membranes for selective water purification. Nanoscale, 2013, 5, 11801.	2.8	135
254	Multifunctionality and control of the crumpling and unfolding of large-area graphene. Nature Materials, 2013, 12, 321-325.	13.3	735
255	Effect of sodium chloride on the structure and stability of spider silk's N-terminal protein domain. Biomaterials Science, 2013, 1, 276.	2.6	36
256	Deformation behavior and mechanical properties of amyloid protein nanowires. Journal of the Mechanical Behavior of Biomedical Materials, 2013, 19, 43-49.	1.5	12
257	Spidermans Geheimnis. Physik in Unserer Zeit, 2013, 44, 72-79.	0.0	0
258	Webs measure up. Nature Materials, 2013, 12, 185-187.	13.3	30
259	Materiomics: An â€<i>omics</i> Approach to Biomaterials Research. Advanced Materials, 2013, 25, 802-824.	11.1	134
260	Bio-Inspired Carbon Nanotubeâ€“Polymer Composite Yarns with Hydrogen Bond-Mediated Lateral Interactions. ACS Nano, 2013, 7, 3434-3446.	7.3	103
261	Atomistic Investigation of Load Transfer Between DWNT Bundles â€œCrosslinkedâ€•by PMMA Oligomers. Advanced Functional Materials, 2013, 23, 1883-1892.	7.8	48
262	Materials by designâ€”A perspective from atoms to structures. MRS Bulletin, 2013, 38, 169-176.	1.7	30
263	Molecular mechanics of mineralized collagen fibrils in bone. Nature Communications, 2013, 4, 1724.	5.8	381
264	Synergetic Material and Structure Optimization Yields Robust Spider Web Anchorages. Small, 2013, 9, 2747-2756.	5.2	46
265	Multi-scale modeling of biomaterials and tissues. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2013, , 13-55.	0.3	5
266	Tough Composites Inspired by Mineralized Natural Materials: Computation, 3D printing, and Testing. Advanced Functional Materials, 2013, 23, 4629-4638.	7.8	310
267	Fracture mechanics of hydroxyapatite single crystals under geometric confinement. Journal of the Mechanical Behavior of Biomedical Materials, 2013, 20, 184-191.	1.5	31
268	Nanoconfinement and the Strength of Biopolymers. Annual Review of Biophysics, 2013, 42, 651-673.	4.5	47
269	Mechanism of friction in rotating carbon nanotube bearings. Journal of the Mechanics and Physics of Solids, 2013, 61, 652-673.	2.3	86
270	Self-Assembly of Tetramers of 5,6-Dihydroxyindole Explains the Primary Physical Properties of Eumelanin: Experiment, Simulation, and Design. ACS Nano, 2013, 7, 1524-1532.	7.3	145

#	Article	IF	Citations
271	Sequenceâ€"Structureâ€"Property Relationships of Recombinant Spider Silk Proteins: Integration of Biopolymer Design, Processing, and Modeling. Advanced Functional Materials, 2013, 23, 241-253.	7.8	61
272	Bioinspired Graphene Nanogut. Journal of Applied Mechanics, Transactions ASME, 2013, 80, .	1.1	4
273	Failure of Graphdiyne: Structurally Directed Delocalized Crack Propagation. Journal of Applied Mechanics, Transactions ASME, 2013, 80, .	1.1	14
274	Tough and stiff composites with simple building blocks. Journal of Materials Research, 2013, 28, 1295-1303.	1.2	31
275	Molecular modeling of protein materials: case study of elastin. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 063001.	0.8	18
276	Carbon Nanotubes: Atomistic Investigation of Load Transfer Between DWNT Bundles â€œCrosslinkedâ€•by PMMA Oligomers (Adv. Funct. Mater. 15/2013). Advanced Functional Materials, 2013, 23, 1976-1976.	7.8	0
277	Nanoindentation study of size effects in nickelâ€"graphene nanocomposites. Philosophical Magazine Letters, 2013, 93, 196-203.	0.5	49
278	Viscoelastic relaxation time and structural evolution during length contraction of spider silk protein nanostructures. MRS Communications, 2013, 3, 185-190.	0.8	3
279	The Future of Biomateriomics. Springer Series in Materials Science, 2012, , 425-430.	0.4	0
280	The role of capture spiral silk properties in the diversification of orb webs. Journal of the Royal Society Interface, 2012, 9, 3240-3248.	1.5	34
281	Heat dissipation at a grapheneâ€"substrate interface. Journal of Physics Condensed Matter, 2012, 24, 475305.	0.7	48
282	Multiscale modeling of organic-inorganic interface: From molecular dynamics simulation to finite element modeling. Materials Research Society Symposia Proceedings, 2012, 1466, 38.	0.1	3
283	Molecular mechanics of dihydroxyphenylalanine at a silica interface. Applied Physics Letters, 2012, 101, 083702.	1.5	27
284	Mechanical properties of crosslinks controls failure mechanism of hierarchical intermediate filament networks. Theoretical and Applied Mechanics Letters, 2012, 2, 014005.	1.3	6
285	Bioinspired design of functionalised graphene. Molecular Simulation, 2012, 38, 695-703.	0.9	17
286	Characterization of the intrinsic strength between epoxy and silica using a multiscale approach. Journal of Materials Research, 2012, 27, 1787-1796.	1.2	62
287	Carbon dioxide enhances fragility of ice crystals. Journal Physics D: Applied Physics, 2012, 45, 445302.	1.3	7
288	Influence of geometry on mechanical properties of bio-inspired silica-based hierarchical materials. Bioinspiration and Biomimetics, 2012, 7, 036024.	1.5	62

#	Article	IF	Citations
289	Unlocking Nature: Case Studies. Springer Series in Materials Science, 2012, , 299-356.	0.4	0
290	The Materiome. Springer Series in Materials Science, 2012, , 27-60.	0.4	1
291	The Challenges of Biological Materials. Springer Series in Materials Science, 2012, , 61-107.	0.4	0
292	Universality-Diversity Paradigm: Music, Materiomics, and Category Theory. Springer Series in Materials Science, 2012, , 109-169.	0.4	2
293	Set in stone? A perspective on the concrete sustainability challenge. MRS Bulletin, 2012, 37, 395-402.	1.7	49
294	Computational and theoretical modeling of intermediate filament networks: Structure, mechanics and disease. Acta Mechanica Sinica/Lixue Xuebao, 2012, 28, 941-950.	1.5	7
295	Materials by design: Merging proteins and music. Nano Today, 2012, 7, 488-495.	6.2	38
296	A review of combined experimental and computational procedures for assessing biopolymer structureâ€“processâ€“property relationships. Biomaterials, 2012, 33, 8240-8255.	5.7	76
297	Tuning the Mechanical Properties of Graphene Oxide Paper and Its Associated Polymer Nanocomposites by Controlling Cooperative Intersheet Hydrogen Bonding. ACS Nano, 2012, 6, 2008-2019.	7.3	409
298	Advanced Hybrid Materials: Design and Applications. European Journal of Inorganic Chemistry, 2012, 2012, 5092-5093.	1.0	11
299	Cooperativity governs the size and structure of biological interfaces. Journal of Biomechanics, 2012, 45, 2778-2783.	0.9	9
300	Osteogenesis imperfecta mutations lead to local tropocollagen unfolding and disruption of H-bond network. RSC Advances, 2012, 2, 3890.	1.7	15
301	Comparative analysis of nanomechanics of protein filaments under lateral loading. Nanoscale, 2012, 4, 1177-1183.	2.8	30
302	Selective hydrogen purification through graphdiyne under ambient temperature and pressure. Nanoscale, 2012, 4, 4587.	2.8	194
303	Geometry and temperature effects of the interfacial thermal conductance in copperâ€“ and nickelâ€“graphene nanocomposites. Journal of Physics Condensed Matter, 2012, 24, 245301.	0.7	79
304	Structure and Mechanical Properties of Human Trichocyte Keratin Intermediate Filament Protein. Biomacromolecules, 2012, 13, 3522-3532.	2.6	51
305	Variation of Weak Polyelectrolyte Persistence Length through an Electrostatic Contour Length. Macromolecules, 2012, 45, 8067-8082.	2.2	44
306	Viscoelastic properties of model segments of collagen molecules. Matrix Biology, 2012, 31, 141-149.	1.5	144

#	Article	IF	Citations
307	Vascularized free tissue transfer for reconstruction of ablative defects in oral and oropharyngeal cancer patients undergoing salvage surgery following concomitant chemoradiation. International Journal of Oral and Maxillofacial Surgery, 2012, 41, 733-738.	0.7	31
308	Cooperative deformation of carboxyl groups in functionalized carbon nanotubes. International Journal of Solids and Structures, 2012, 49, 2418-2423.	1.3	14
309	Hydration and distance dependence of intermolecular shearing between collagen molecules in a model microfibril. Journal of Biomechanics, 2012, 45, 2079-2083.	0.9	67
310	Natural stiffening increases flaw tolerance of biological fibers. Physical Review E, 2012, 86, 041902.	0.8	15
311	Hydration of Calcium Oxide Surface Predicted by Reactive Force Field Molecular Dynamics. Langmuir, 2012, 28, 4187-4197.	1.6	190
312	Taking a leaf from nature's book. Nature Nanotechnology, 2012, 7, 417-419.	15.6	14
313	Structural and Mechanical Differences between Collagen Homo- and Heterotrimers: Relevance for the Molecular Origin of Brittle Bone Disease. Biophysical Journal, 2012, 102, 640-648.	0.2	113
314	Viscoelastic Properties of Collagen at the Molecular Scale. Biophysical Journal, 2012, 102, 261a.	0.2	0
315	Nonlinear material behaviour of spider silk yields robust webs. Nature, 2012, 482, 72-76.	13.7	383
316	Thickness of Hydroxyapatite Nanocrystal Controls Mechanical Properties of the Collagenâ€"Hydroxyapatite Interface. Langmuir, 2012, 28, 1982-1992.	1.6	103
317	Extended graphynes: simple scaling laws for stiffness, strength and fracture. Nanoscale, 2012, 4, 7797.	2.8	167
318	Micrororobotics. , 2012, , 1436-1436.		0
319	Category Theory Based Solution for the Building Block Replacement Problem in Materials Design. Advanced Engineering Materials, 2012, 14, 810-817.	1.6	25
320	A Materiomics Approach to Spider Silk: Protein Molecules to Webs. Jom, 2012, 64, 214-225.	0.9	58
321	Molecular mechanism of force induced stabilization of collagen against enzymatic breakdown. Biomaterials, 2012, 33, 3852-3859.	5.7	61
322	Sequence-structure correlations in silk: Poly-Ala repeat of N. clavipes MaSp1 is naturally optimized at a critical length scale. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 7, 30-40.	1.5	69
323	Tunable nanomechanics of protein disulfide bonds in redox microenvironments. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 5, 32-40.	1.5	52
324	Molecular mechanics of silk nanostructures under varied mechanical loading. Biopolymers, 2012, 97, 408-417.	1.2	49

#	Article	IF	Citations
325	Deposition Mechanism and Properties of Thin Polydopamine Films for High Added Value Applications in Surface Science at the Nanoscale. BioNanoScience, 2012, 2, 16-34.	1.5	139
326	Biomateriomics. Springer Series in Materials Science, 2012, , .	0.4	51
327	Evidence of the Most Stretchable Egg Sac Silk Stalk, of the European Spider of the Year Meta menardi. PLoS ONE, 2012, 7, e30500.	1.1	28
328	Mechanical Characterization in Molecular Simulation. Springer Series in Materials Science, 2012, , 265-296.	0.4	0
329	Synthesis and Design. Springer Series in Materials Science, 2012, , 399-424.	0.4	1
330	Pathological Materiomics. Springer Series in Materials Science, 2012, , 357-398.	0.4	0
331	Computational Approaches and Simulation. Springer Series in Materials Science, 2012, , 213-263.	0.4	0
332	Breaking out of the cage. Nature Chemistry, 2011, 3, 837-839.	6.6	1
333	Self-folding and aggregation of amyloid nanofibrils. Nanoscale, 2011, 3, 1748.	2.8	46
334	Flaw Tolerance of Nuclear Intermediate Filament Lamina under Extreme Mechanical Deformation. ACS Nano, 2011, 5, 3034-3042.	7.3	42
335	Nanoconfinement of Spider Silk Fibrils Begets Superior Strength, Extensibility, and Toughness. Nano Letters, 2011, 11, 5038-5046.	4.5	222
336	Mechanics of Nano-Honeycomb Silica Structures: Size-Dependent Brittle-to-Ductile Transition. Journal of Nanomechanics & Micromechanics, 2011, 1, 112-118.	1.4	23
337	Structural, Mechanical and Functional Properties of Intermediate Filaments from the Atomistic to the Cellular Scales. , 2011, , 117-166.		2
338	Insights Into the Structure and Mechanics of a Mostly Disordered Protein: Lamin A and Progerin Tail Domians. Biophysical Journal, 2011, 100, 184a.	0.2	0
339	Structural hierarchies define toughness and defect-tolerance despite simple and mechanically inferior brittle building blocks. Scientific Reports, 2011, 1, 35.	1.6	163
340	Nanomechanics of functional and pathological amyloid materials. Nature Nanotechnology, 2011, 6, 469-479.	15.6	703
341	Structure and stability of the lamin A tail domain and HGPS mutant. Journal of Structural Biology, 2011, 175, 425-433.	1.3	43
342	Hierarchical Structure and Nanomechanics of Collagen Microfibrils from the Atomistic Scale Up. Nano Letters, 2011, 11, 757-766.	4.5	550

#	Article	IF	Citations
343	Flaw-tolerance in silk fibrils explains strength, extensibility and toughness of spider silk. Nature Precedings, 2011, , .	0.1	0
344	Structure and dynamics of human vimentin intermediate filament dimer and tetramer in explicit and implicit solvent models. Journal of Molecular Modeling, 2011, 17, 37-48.	0.8	27
345	Structural solution using molecular dynamics: Fundamentals and a case study of epoxy-silica interface. International Journal of Solids and Structures, 2011, 48, 2131-2140.	1.3	137
346	Dynamic Failure of a Lamina Meshwork in Cell Nuclei under Extreme Mechanical Deformation. BioNanoScience, 2011, 1, 14-23.	1.5	4
347	Reoccurring Patterns in Hierarchical Protein Materials and Music: The Power of Analogies. BioNanoScience, 2011, 1, 153-161.	1.5	35
348	Hierarchical Silica Nanostructures Inspired by Diatom Algae Yield Superior Deformability, Toughness, and Strength. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2011, 42, 3889-3897.	1.1	44
349	Superductile, Wavy Silica Nanostructures Inspired by Diatom Algae. Advanced Engineering Materials, 2011, 13, B405.	1.6	18
350	Mechanical properties of graphyne. Carbon, 2011, 49, 4111-4121.	5.4	385
351	Failure of AÎ²(1-40) amyloid fibrils under tensile loading. Biomaterials, 2011, 32, 3367-3374.	5.7	62
352	Atomistic study of the effect of crack tip ledges on the nucleation of dislocations in silicon single crystals at elevated temperature. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 4357-4364.	2.6	33
353	Triangular core as a universal strategy for stiff nanostructures in biology and biologically inspired materials. Materials Science and Engineering C, 2011, 31, 775-780.	3.8	14
354	Shaky foundations of hierarchical biological materials. Nano Today, 2011, 6, 332-338.	6.2	9
355	Molecular structure, mechanical behavior and failure mechanism of the C-terminal cross-link domain in type I collagen. Journal of the Mechanical Behavior of Biomedical Materials, 2011, 4, 153-161.	1.5	83
356	Multiscale aspects of mechanical properties of biological materials. Journal of the Mechanical Behavior of Biomedical Materials, 2011, 4, 125-127.	1.5	14
357	Packing efficiency and accessible surface area of crumpled graphene. Physical Review B, 2011, 84, .	1.1	110
358	Bond energy effects on strength, cooperativity and robustness of molecular structures. Interface Focus, 2011, 1, 734-743.	1.5	9
359	Coiled-coil intermediate filament stutter instability and molecular unfolding. Computer Methods in Biomechanics and Biomedical Engineering, 2011, 14, 483-489.	0.9	21
360	The minimal nanowire: Mechanical properties of carbyne. Europhysics Letters, 2011, 95, 16002.	0.7	79

#	Article	IF	Citations
361	Twisted and coiled ultralong multilayer graphene ribbons. Modelling and Simulation in Materials Science and Engineering, 2011, 19, 054003.	0.8	100
362	Category Theoretic Analysis of Hierarchical Protein Materials and Social Networks. PLoS ONE, 2011, 6, e23911.	1.1	48
363	Graphene Nanocutting Through Nanopatterned Vacancy Defects. Journal of Computational and Theoretical Nanoscience, 2010, 7, 354-359.	0.4	22
364	Comparative Study of Polymorphous Alzheimer's A<I>Î²</I>(1-40) Amyloid Nanofibrils and Microfibers. Journal of Computational and Theoretical Nanoscience, 2010, 7, 1279-1286.	0.4	20
365	<I>A Special Issue on</I> Computational and Theoretical Materiomics: Properties of Biological and <I>de novo</I> Bioinspired Materials. Journal of Computational and Theoretical Nanoscience, 2010, 7, 1201-1202.	0.4	0
366	Tu(r)ning weakness to strength. Nano Today, 2010, 5, 379-383.	6.2	117
367	Compressive deformation of ultralong amyloid fibrils. Acta Mechanica Sinica/Lixue Xuebao, 2010, 26, 977-986.	1.5	8
368	Failure of Alzheimerâ€™s AÎ²(1â€“40) amyloid nanofibrils under compressive loading. Jom, 2010, 62, 64-68.	0.9	9
369	A multi-scale approach to understand the mechanobiology of intermediate filaments. Journal of Biomechanics, 2010, 43, 15-22.	0.9	53
370	Atomistic simulation of nanomechanical properties of Alzheimerâ€™s AÎ²(1â€“40) amyloid fibrils under compressive and tensile loading. Journal of Biomechanics, 2010, 43, 1196-1201.	0.9	87
371	Current issues in research on structureâ€“property relationships in polymer nanocomposites. Polymer, 2010, 51, 3321-3343.	1.8	773
372	A single degree of freedom â€˜lollipopâ€™ model for carbon nanotube bundle formation. Journal of the Mechanics and Physics of Solids, 2010, 58, 409-427.	2.3	71
373	Intermediate filament-deficient cells are mechanically softer at large deformation: A multi-scale simulation study. Acta Biomaterialia, 2010, 6, 2457-2466.	4.1	43
374	Tearing Graphene Sheets From Adhesive Substrates Produces Tapered Nanoribbons. Small, 2010, 6, 1108-1116.	5.2	163
375	Multiscale mechanics of biological and biologically inspired materials and structures. Acta Mechanica Solida Sinica, 2010, 23, 471-483.	1.0	26
376	Mind the helical crack. Nature, 2010, 464, 42-43.	13.7	24
377	Nanoconfinement controls stiffness, strength and mechanical toughness of Î²-sheet crystals in silk. Nature Materials, 2010, 9, 359-367.	13.3	1,131
378	Strength in numbers. Nature Nanotechnology, 2010, 5, 172-174.	15.6	45

#	Article	IF	Citations
379	Molecular and nanostructural mechanisms of deformation, strength and toughness of spider silk fibrils. Nature Precedings, 2010, , .	0.1	2
380	Hierarchical nanomechanics of collagen microfibrils. Nature Precedings, 2010, , .	0.1	0
381	Hierarchical nanomechanics of collagen microfibrils. Nature Precedings, 2010, , .	0.1	0
382	Failure of Abeta(1-40) amyloid fibrils under tensile loading. Nature Precedings, 2010, , .	0.1	0
383	Plasticity of Intermediate Filament Subunits. PLoS ONE, 2010, 5, e12115.	1.1	12
384	Materiomics: biological protein materials, from nano to macro. Nanotechnology, Science and Applications, 2010, 3, 127.	4.6	45
385	Hierarchical Structure Controls Nanomechanical Properties of Vimentin Intermediate Filaments. , 2010, , .		0
386	Computational multiscale studies of collagen tissues in the context of brittle bone disease<i>osteogenesis imperfecta</i>. Materials Research Society Symposia Proceedings, 2010, 1274, 1.	0.1	0
387	Direct atomistic simulation of brittle-to-ductile transition in silicon single crystals. Materials Research Society Symposia Proceedings, 2010, 1272, 1.	0.1	3
388	Atomistic Study of Crack-Tip Cleavage to Dislocation Emission Transition in Silicon Single Crystals. Physical Review Letters, 2010, 104, 235502.	2.9	49
389	<i>In silico</i>assembly and nanomechanical characterization of carbon nanotube buckypaper. Nanotechnology, 2010, 21, 265706.	1.3	93
390	Deformation micromechanisms of collagen fibrils under uniaxial tension. Journal of the Royal Society Interface, 2010, 7, 839-850.	1.5	113
391	Linking Genetics and Mechanics in Structural Protein Materials: A Case Study of an Alport Syndrome Mutation in Tropocollagen. Mathematics and Mechanics of Solids, 2010, 15, 755-770.	1.5	9
392	Energy landscape, structure and rate effects on strength properties of alpha-helical proteins. Journal of Physics Condensed Matter, 2010, 22, 035102.	0.7	11
393	Computational and Theoretical Materiomics: Properties of Biological and <I>de novo</I> Bioinspired Materials. Journal of Computational and Theoretical Nanoscience, 2010, 7, 1203-1209.	0.4	15
394	Molecular Dynamics Simulation of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>Î±</mml:mi></mml:math>-Helix to<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>Î²</mml:mi></mml:math>-Sheet Transition in Coiled Protein Filaments: Evidence for a Critical Filament Length Scale. Physical Review Letters, 2010, 104, 198304.	2.9	136
395	Alzheimer's AÎ²(1-40) Amyloid Fibrils Feature Size-Dependent Mechanical Properties. Biophysical Journal, 2010, 98, 2053-2062.	0.2	120
396	On the Mechanistic Origins of Toughness in Bone. Annual Review of Materials Research, 2010, 40, 25-53.	4.3	560

#	Article	IF	Citations
397	Mutations Alter the Geometry and Mechanical Properties of Alzheimerâ€™s AÎ²(1âˆ’40) Amyloid Fibrils. Biochemistry, 2010, 49, 8967-8977.	1.2	41
398	Nanostructure and molecular mechanics of spider dragline silk protein assemblies. Journal of the Royal Society Interface, 2010, 7, 1709-1721.	1.5	234
399	Molecular and Nanostructural Mechanisms of Deformation, Strength and Toughness of Spider Silk Fibrils. Nano Letters, 2010, 10, 2626-2634.	4.5	362
400	Publisher's Note: Hierarchical simulations for the design of supertough nanofibers inspired by spider silk [Phys. Rev. E82, 056103 (2010)]. Physical Review E, 2010, 82, .	0.8	1
401	Hierarchical simulations for the design of supertough nanofibers inspired by spider silk. Physical Review E, 2010, 82, 056103.	0.8	39
402	Cooperative deformation of hydrogen bonds in beta-strands and beta-sheet nanocrystals. Physical Review E, 2010, 82, 061906.	0.8	44
403	Coarse-Grained Model of Collagen Molecules Using an Extended MARTINI Force Field. Journal of Chemical Theory and Computation, 2010, 6, 1210-1218.	2.3	94
404	Bioinspired nanoporous silicon provides great toughness at great deformability. Computational Materials Science, 2010, 48, 303-309.	1.4	51
405	Atomistic model of the spider silk nanostructure. Applied Physics Letters, 2010, 96, .	1.5	84
406	Interface structure and mechanics between graphene and metal substrates: a first-principles study. Journal of Physics Condensed Matter, 2010, 22, 485301.	0.7	206
407	Mechanomutable properties of a PAA/PAH polyelectrolyte complex: rate dependence and ionization effects on tunable adhesion strength. Soft Matter, 2010, 6, 4175.	1.2	82
408	ATOMISTICALLY-INFORMED MESOSCALE MODEL OF DEFORMATION AND FAILURE OF BIOINSPIRED HIERARCHICAL SILICA NANOCOMPOSITES. International Journal of Applied Mechanics, 2010, 02, 699-717.	1.3	22
409	Mechanical energy transfer and dissipation in fibrous beta-sheet-rich proteins. Physical Review E, 2010, 81, 061910.	0.8	26
410	Geometry Controls Conformation of Graphene Sheets: Membranes, Ribbons, and Scrolls. ACS Nano, 2010, 4, 3869-3876.	7.3	227
411	How protein materials balance strength, robustness, and adaptability. HFSP Journal, 2010, 4, 26-40.	2.5	13
412	Bioinspired noncovalently crosslinked â€œfuzzyâ€•carbon nanotube bundles with superior toughness and strength. Journal of Materials Chemistry, 2010, 20, 10465.	6.7	38
413	<i>Colloquium</i>: Failure of molecules, bones, and the Earth itself. Reviews of Modern Physics, 2010, 82, 1459-1487.	16.4	42
414	Coarse-Graining Parameterization and Multiscale Simulation of Hierarchical Systems. Part I. , 2010, , 13-34.		4

#	Article	IF	Citations
415	Computational Scale Linking in Biological Protein Materials. , 2010, , 491-531.		0
416	Multiscale Modeling of Biological Protein Materials â€“ Deformation and Failure. Challenges and Advances in Computational Chemistry and Physics, 2010, , 473-533.	0.6	0
417	Molecular and Mesoscale Mechanisms of Osteogenesis Imperfecta Disease. , 2010, , .		0
418	Coarse-Graining Parameterization and Multiscale Simulation of Hierarchical Systems. Part II. , 2010, , 35-68.		0
419	Single molecule effects of osteogenesis imperfecta mutations in tropocollagen protein domains. Protein Science, 2009, 18, 161-168.	3.1	61
420	Osteogenesis Imperfecta: Molecular and Mesoscale Disease Mechanisms. , 2009, , .		0
421	Intermolecular slip mechanism in tropocollagen nanofibrils. International Journal of Materials Research, 2009, 100, 921-925.	0.1	23
422	Hierarchical Structure Controls Nanomechanical Properties of Vimentin Intermediate Filaments. PLoS ONE, 2009, 4, e7294.	1.1	163
423	Keten and Buehler Reply:. Physical Review Letters, 2009, 102, .	2.9	0
424	Meso-origami: Folding multilayer graphene sheets. Applied Physics Letters, 2009, 95, .	1.5	181
425	Cyclic tensile strain triggers a sequence of autocrine and paracrine signaling to regulate angiogenic sprouting in human vascular cells. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 15279-15284.	3.3	89
426	ROBUSTNESS-STRENGTH PERFORMANCE OF HIERARCHICAL ALPHA-HELICAL PROTEIN FILAMENTS. International Journal of Applied Mechanics, 2009, 01, 85-112.	1.3	36
427	Microscale Structural Model of Alzheimer's Aβ(1-40) Amyloid Fibril: Comparative Study of 2- and 3-fold Morphologies. Materials Research Society Symposia Proceedings, 2009, 1240, 1.	0.1	0
428	Alport Syndrome mutation changes molecular structure and nanomechanics of type IV tropocollagen. Materials Research Society Symposia Proceedings, 2009, 1187, 26.	0.1	0
429	Structure Prediction and Nanomechanical Properties of Human Vimentin Intermediate Filament Dimers. , 2009, , .		0
430	Microscale structural model of Alzheimer Aβ(1â€“40) amyloid fibril. Applied Physics Letters, 2009, 94, .	1.5	36
431	A multi-timescale strength model of alpha-helical protein domains. Journal of Physics Condensed Matter, 2009, 21, 035111.	0.7	20
432	Nanomechanical properties of vimentin intermediate filament dimers. Nanotechnology, 2009, 20, 425101.	1.3	51

#	Article	IF	Citations
433	Hierarchical graphene nanoribbon assemblies feature unique electronic and mechanical properties. Nanotechnology, 2009, 20, 375704.	1.3	27
434	Amino acid sequence dependence of nanoscale deformation mechanisms in alpha-helical protein filaments. Journal of Strain Analysis for Engineering Design, 2009, 44, 517-531.	1.0	6
435	Rupture Mechanics of Vimentin Intermediate Filament Tetramers. Journal of Engineering Mechanics - ASCE, 2009, 135, 422-433.	1.6	4
436	Size and Geometry Effects on Flow Stress in Bioinspired <i>de novo</i> Metalâ€matrix Nanocomposites. Advanced Engineering Materials, 2009, 11, 774-781.	1.6	3
437	A Constitutive Model of Soft Tissue: From Nanoscale Collagen to Tissue Continuum. Annals of Biomedical Engineering, 2009, 37, 1117-1130.	1.3	86
438	Merger of structure and material in nacre and bone â€“ Perspectives on de novo biomimetic materials. Progress in Materials Science, 2009, 54, 1059-1100.	16.0	659
439	Nanomechanical Characterization of the Triple Î²-Helix Domain in the Cell Puncture Needle of Bacteriophage T4 Virus. Cellular and Molecular Bioengineering, 2009, 2, 66-74.	1.0	17
440	Molecular Mechanics of Stutter Defects in Vimentin Intermediate Filaments. Experimental Mechanics, 2009, 49, 79-89.	1.1	10
441	Deformation and failure of protein materials in physiologically extreme conditions and disease. Nature Materials, 2009, 8, 175-188.	13.3	307
442	Firstâ€Principles Study of Elastic Constants and Interlayer Interactions of Complex Hydrated Oxides: Case Study of Tobermorite and Jennite. Journal of the American Ceramic Society, 2009, 92, 2323-2330.	1.9	190
443	Deformation rate controls elasticity and unfolding pathway of single tropocollagen molecules. Journal of the Mechanical Behavior of Biomedical Materials, 2009, 2, 130-137.	1.5	155
444	Hierarchical Nanostructures Are Crucial To Mitigate Ultrasmall Thermal Point Loads. Nano Letters, 2009, 9, 2065-2072.	4.5	29
445	Alport Syndrome mutations in type IV tropocollagen alter molecular structure and nanomechanical properties. Journal of Structural Biology, 2009, 168, 503-510.	1.3	39
446	A realistic molecular model of cement hydrates. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 16102-16107.	3.3	734
447	How Protein Materials Balance Strength, Robustness And Adaptability. Biophysical Journal, 2009, 96, 38a.	0.2	1
448	Molecular and Mesoscale Mechanisms of Osteogenesis Imperfecta Disease in Collagen Fibrils. Biophysical Journal, 2009, 97, 857-865.	0.2	123
449	Nanoengineering Heat Transfer Performance at Carbon Nanotube Interfaces. ACS Nano, 2009, 3, 2767-2775.	7.3	207
450	Strain controlled thermomutability of single-walled carbon nanotubes. Nanotechnology, 2009, 20, 185701.	1.3	130

#	Article	IF	Citations
451	Alpha-helical protein domains unify strength and robustness through hierarchical nanostructures. Nanotechnology, 2009, 20, 075103.	1.3	27
452	Nanomechanical sequencing of collagen: tropocollagen features heterogeneous elastic properties at the nanoscale. Integrative Biology (United Kingdom), 2009, 1, 452-459.	0.6	34
453	Plasticity and toughness in bone. Physics Today, 2009, 62, 41-47.	0.3	281
454	Mechanomutable carbon nanotube arrays. International Journal of Materials and Structural Integrity, 2009, 3, 161.	0.1	22
455	Defining Nascent Bone by the Molecular Nanomechanics of Mineralized Collagen Fibrils. , 2009, , .		1
456	Alpha-Helical Protein Networks Are Self-Protective and Flaw-Tolerant. PLoS ONE, 2009, 4, e6015.	1.1	68
457	Atomistically Informed Mesoscale Model of Alpha-Helical Protein Domains. International Journal for Multiscale Computational Engineering, 2009, 7, 237-250.	0.8	12
458	Elasticity and Strength of Beta-Sheet Protein Materials: Geometric Confinement and Size Effects. , 2009, , .		0
459	Deformation and Failure of Collagenous Tissues: A Multi-Scale Study. , 2009, , .		0
460	Molecular architecture of collagen fibrils: A critical length scale for tough fibrils. Current Applied Physics, 2008, 8, 440-442.	1.1	22
461	Elasticity, strength and resilience: A comparative study on mechanical signatures of Î±-Helix, Î²-sheet and tropocollagen domains. Nano Research, 2008, 1, 63.	5.8	43
462	Muscle dystrophy single point mutation in the 2B segment of lamin A does not affect the mechanical properties at the dimer level. Journal of Biomechanics, 2008, 41, 1295-1301.	0.9	8
463	Theoretical and computational hierarchical nanomechanics of protein materials: Deformation and fracture. Progress in Materials Science, 2008, 53, 1101-1241.	16.0	168
464	Nanomechanics of collagen fibrils under varying cross-link densities: Atomistic and continuum studies. Journal of the Mechanical Behavior of Biomedical Materials, 2008, 1, 59-67.	1.5	317
465	The strength limit in a bio-inspired metallic nanocomposite. Journal of the Mechanics and Physics of Solids, 2008, 56, 1086-1104.	2.3	31
466	Large deformation and fracture mechanics of a beta-helical protein nanotube: Atomistic and continuum modeling. Computer Methods in Applied Mechanics and Engineering, 2008, 197, 3203-3214.	3.4	27
467	Geometric Confinement Governs the Rupture Strength of H-bond Assemblies at a Critical Length Scale. Nano Letters, 2008, 8, 743-748.	4.5	213
468	Nanomechanical strength mechanisms of hierarchical biological materials and tissues. Computer Methods in Biomechanics and Biomedical Engineering, 2008, 11, 595-607.	0.9	26

#	Article	IF	Citations
469	Asymptotic Strength Limit of Hydrogen-Bond Assemblies in Proteins at Vanishing Pulling Rates. Physical Review Letters, 2008, 100, 198301.	2.9	77
470	Crystal size controlled deformation mechanism: Breakdown of dislocation mediated plasticity in single nanocrystals under geometric confinement. Physical Review B, 2008, 77, .	1.1	13
471	Strength limit of entropic elasticity in beta-sheet protein domains. Physical Review E, 2008, 78, 061913.	0.8	35
472	Atomistic Approach Predicts Resonance Frequency of Viral Capsids for Mechanodestruction Treatment. MRS Bulletin, 2008, 33, 166-166.	1.7	0
473	Multi-Paradigm Modeling of Fracture of a Silicon Single Crystal under Mode II Shear Loading. Journal of Algorithms and Computational Technology, 2008, 2, 203-222.	0.4	1
474	Hierarchical Coexistence of Universality and Diversity Controls Robustness and Multi-Functionality in Protein Materials. Journal of Computational and Theoretical Nanoscience, 2008, 5, 1193-1204.	0.4	25
475	Self-folding of single- and multiwall carbon nanotubes. Applied Physics Letters, 2007, 90, 073107.	1.5	60
476	Threshold Crack Speed Controls Dynamical Fracture of Silicon Single Crystals. Physical Review Letters, 2007, 99, 165502.	2.9	121
477	Geometric confinement governs the rupture strength of H-bond assemblies at a critical length scale. Materials Research Society Symposia Proceedings, 2007, 1061, 1.	0.1	136
478	Asymptotic Strength Limit of Hydrogen Bond Assemblies in Proteins at Vanishing Pulling Rates. Materials Research Society Symposia Proceedings, 2007, 1062, 1.	0.1	0
479	Hierarchies, multiple energy barriers, and robustness govern the fracture mechanics of Î±-helical and Î²-sheet protein domains. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 16410-16415.	3.3	193
480	Hierarchical chemo-nanomechanics of proteins: entropic elasticity, protein unfolding and molecular fracture. Journal of Mechanics of Materials and Structures, 2007, 2, 1019-1057.	0.4	28
481	Entropic Elasticity Controls Nanomechanics of Single Tropocollagen Molecules. Biophysical Journal, 2007, 93, 37-43.	0.2	189
482	Molecular nanomechanics of nascent bone: fibrillar toughening by mineralization. Nanotechnology, 2007, 18, 295102.	1.3	243
483	Fracture mechanics of protein materials. Materials Today, 2007, 10, 46-58.	8.3	209
484	Superelasticity, energy dissipation and strain hardening of vimentin coiled-coil intermediate filaments: atomistic and continuum studies. Journal of Materials Science, 2007, 42, 8771-8787.	1.7	64
485	Nano- and micromechanical properties of hierarchical biological materials and tissues. Journal of Materials Science, 2007, 42, 8765-8770.	1.7	29
486	Chemical Complexity in Mechanical Deformation of Metals. International Journal for Multiscale Computational Engineering, 2007, 5, 181-202.	0.8	2

#	Article	IF	Citations
487	Superelasticity of Vimentin Coiled-Coil Intermediate Filaments: Atomistic and Continuum Studies. , 2007, , .		0
488	Nature designs tough collagen: Explaining the nanostructure of collagen fibrils. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 12285-12290.	3.3	640
489	Self-Folding and Unfolding of Carbon Nanotubes. Journal of Engineering Materials and Technology, Transactions of the ASME, 2006, 128, 3-10.	0.8	37
490	Atomistic and continuum modeling of mechanical properties of collagen: Elasticity, fracture, and self-assembly. Journal of Materials Research, 2006, 21, 1947-1961.	1.2	256
491	Cracking and adhesion at small scales: atomistic and continuum studies of flaw tolerant nanostructures. Modelling and Simulation in Materials Science and Engineering, 2006, 14, 799-816.	0.8	65
492	Self-Assembled CNT-Based Electronic Devices. MRS Bulletin, 2006, 31, 503-503.	1.7	1
493	Dynamical fracture instabilities due to local hyperelasticity at crack tips. Nature, 2006, 439, 307-310.	13.7	251
494	Mechanics of Protein Crystals: Atomistic Modeling of Elasticity and Fracture. Journal of Computational and Theoretical Nanoscience, 2006, 3, 670-683.	0.4	12
495	Large-Scale Hierarchical Molecular Modeling of Nanostructured Biological Materials. Journal of Computational and Theoretical Nanoscience, 2006, 3, 603-623.	0.4	19
496	Multiparadigm Modeling of Dynamical Crack Propagation in Silicon Using a Reactive Force Field. Physical Review Letters, 2006, 96, 095505.	2.9	214
497	Mesoscale modeling of mechanics of carbon nanotubes: Self-assembly, self-folding, and fracture. Journal of Materials Research, 2006, 21, 2855-2869.	1.2	179
498	Atomistic Modeling of Elasticity and Fracture of a (10,10) Single Wall Carbon Nanotube. Materials Research Society Symposia Proceedings, 2006, 924, 1.	0.1	1
499	Reactive Force Field Studies of Large-Deformation of Hybrid Carbon Nanotube-Metal Nanowires. Materials Research Society Symposia Proceedings, 2006, 963, 1.	0.1	0
500	Atomistic Studies of Crack Branching at Bimaterial Interfaces: Preliminary Results. Materials Research Society Symposia Proceedings, 2006, 929, 1.	0.1	0
501	Dynamical Fracture Instabilities Due to Local Hyperelasticity at Crack Tips. Materials Research Society Symposia Proceedings, 2006, 929, 1.	0.1	2
502	Entropic Elasticity Controls Nanomechanics of Single Tropocollagen Molecules. Materials Research Society Symposia Proceedings, 2006, 975, 1.	0.1	0
503	Threshold crack speed in dynamic fracture of silicon. Materials Research Society Symposia Proceedings, 2006, 978, .	0.1	3
504	Quantization of crack speeds in dynamic fracture of silicon: Multiparadigm ReaxFF modeling. Materials Research Society Symposia Proceedings, 2006, 910, 7.	0.1	1

#	Article	IF	Citations
505	Hierarchical nanomechanics of vimentin alpha helical coiled-coil proteins. Materials Research Society Symposia Proceedings, 2006, 978, .	0.1	1
506	Modeling Dynamic Fracture Using Large-Scale Atomistic Simulations. , 2006, , 1-68.		5
507	Large-Scale Hierarchical Molecular Modeling of Nanostructured Biological Materials. Journal of Computational and Theoretical Nanoscience, 2006, 3, 603-623.	0.4	10
508	Mechanics of Protein Crystals: Atomistic Modeling of Elasticity and Fracture. Journal of Computational and Theoretical Nanoscience, 2006, 3, 670-683.	0.4	10
509	Atomistic Studies of Flaw Tolerant Nanoscale Structural Links in Biological Materials. , 2006, , 139-150.		1
510	Copper Nanowires Broken into Nanospheres by Rayleigh Instability. MRS Bulletin, 2005, 30, 5-6.	1.7	7
511	Researchers Elucidate the Structure of the Proteinâ€"Mineral Interface in Bone. MRS Bulletin, 2005, 30, 572-573.	1.7	0
512	Two-dimensional discrete dislocation models of deformation in polycrystalline thin metal films on substrates. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 400-401, 260-263.	2.6	10
513	Multiscale Modeling of Deformation in Polycrystalline Thin Metal Films on Substrates. Advanced Engineering Materials, 2005, 7, 165-169.	1.6	16
514	The dynamical complexity of work-hardening: a large-scale molecular dynamics simulation. Acta Mechanica Sinica/Lixue Xuebao, 2005, 21, 103-111.	1.5	28
515	The Computational Materials Design Facility (CMDF): A powerful framework for multi-paradigm multi-scale simulations. Materials Research Society Symposia Proceedings, 2005, 894, 1.	0.1	6
516	A Mother-Daughter Mechanism of Mode I cracks: Supersonic Crack Motion Along Interfaces of Dissimilar Materials. Materials Research Society Symposia Proceedings, 2005, 904, 1.	0.1	1
517	Nanopipettes and Nanoparticles Enable Detection of Single DNA Molecules. MRS Bulletin, 2005, 30, 332-333.	1.7	0
518	Atomistic modeling of elasticity, plasticity and fracture of protein crystals. Materials Research Society Symposia Proceedings, 2005, 898, 1.	0.1	1
519	Multi-paradigm multi-scale modeling of dynamical crack propagation in silicon using the ReaxFF reactive force field. Materials Research Society Symposia Proceedings, 2005, 904, 1.	0.1	1
520	Flaw Tolerant Nanostructures of Biological Materials. , 2005, , 131-138.		6
521	Hierarchical multi-scale modelling of plasticity of submicron thin metal films. Modelling and Simulation in Materials Science and Engineering, 2004, 12, S391-S413.	0.8	28
522	Constrained Grain Boundary Diffusion In Thin Copper Films. Materials Research Society Symposia Proceedings, 2004, 821, 36.	0.1	8

#	Article	IF	Citations
523	Hyperelastic effects in brittle materials failure. Materials Research Society Symposia Proceedings, 2004, 821, 204.	0.1	0
524	Topology Optimization of Smart Structures Using a Homogenization Approach. Journal of Intelligent Material Systems and Structures, 2004, 15, 655-667.	1.4	37
525	Deformation Mechanisms of Very Long Single-Wall Carbon Nanotubes Subject to Compressive Loading. Journal of Engineering Materials and Technology, Transactions of the ASME, 2004, 126, 245-249.	0.8	111
526	Analysis of a one-billion atom simulation of work-hardening in ductile materials. Materials Research Society Symposia Proceedings, 2004, 821, 270.	0.1	0
527	A Motherâ€daughterâ€granddaughter mechanism of shear dominated intersonic crack motion along interfaces of dissimilar materials. Journal of the Chinese Institute of Engineers, Transactions of the Chinese Institute of Engineers,Series A/Chung-kuo Kung Ch'eng Hsuch K'an, 2004, 27, 763-769.	0.6	6
528	Biegen und Brechen im Supercomputer: Duktile Verformungen und sprÃ¶de BrÃ¼che von Kristallen. Physik in Unserer Zeit, 2004, 35, 30-37.	0.0	5
529	Atomistic and continuum studies of stress and strain fields near a rapidly propagating crack in a harmonic lattice. Theoretical and Applied Fracture Mechanics, 2004, 41, 21-42.	2.1	46
530	Atomic plasticity: description and analysis of a one-billion atom simulation of ductile materials failure. Computer Methods in Applied Mechanics and Engineering, 2004, 193, 5257-5282.	3.4	55
531	Stress and energy flow field near a rapidly propagating mode I crack. Lecture Notes in Computational Science and Engineering, 2004, , 143-156.	0.1	9
532	Optimal Sensor Design and Control of Piezoelectric Laminate Beams. IEEE Transactions on Control Systems Technology, 2004, 12, 148-155.	3.2	21
533	WS2 Nanotubes Synthesized for Lithium Storage. MRS Bulletin, 2004, 29, 787-788.	1.7	0
534	Optical Waveguiding Observed in CdS Nanowires. MRS Bulletin, 2004, 29, 909-910.	1.7	0
535	Charge Transfer across Nanocrystalline Metal Oxide/DNA Interfaces Enables DNA Recognition. MRS Bulletin, 2004, 29, 609-610.	1.7	0
536	Molecules Self-Assembled on Nanowire FETs Serve as Multilevel Memory Element. MRS Bulletin, 2004, 29, 230-230.	1.7	0
537	Numerical homogenization of active material finite-element cells. Communications in Numerical Methods in Engineering, 2003, 19, 977-989.	1.3	5
538	Atomistic and continuum studies of crack-like diffusion wedges and associated dislocation mechanisms in thin films on substrates. Journal of the Mechanics and Physics of Solids, 2003, 51, 2105-2125.	2.3	47
539	Hyperelasticity governs dynamic fracture at a critical length scale. Nature, 2003, 426, 141-146.	13.7	292
540	Atomistic and continuum studies of a suddenly stopping supersonic crack. Computational Materials Science, 2003, 28, 385-408.	1.4	19

#	Article	IF	Citations
541	A Discrete Dislocation Plasticity Model of Creep in Polycrystalline Thin Films. Defect and Diffusion Forum, 2003, 224-225, 107-126.	0.4	15
542	Atomistic and Continuum Studies of Diffusional Creep and Associated Dislocation Mechanisms in thin Films on Substrates. Materials Research Society Symposia Proceedings, 2003, 779, 471.	0.1	2
543	<title>Topology optimization of smart structures using a homogenization approach</title>. , 2002, , .		4
544	Serratus Fascia â€œSandwichâ€•Free-Tissue Transfer for Complex Dorsal Hand and Wrist Avulsion Injuries. Journal of Reconstructive Microsurgery, 1999, 15, 315-320.	1.0	28
545	Bilateral carpal tunnel syndrome in a normal child. Journal of Hand Surgery, 1994, 19, 913-914.	0.7	7
546	The Relationship of Functional Return to Varying Methods of Nerve Repair. Journal of Reconstructive Microsurgery, 1990, 6, 61-69.	1.0	31
547	Introducing materiomics. , 0, , 1-12.		0
548	Hierarchical coexistence of universality and diversity controls robustness and multi-functionality in intermediate filament protein networks. Nature Precedings, 0, , .	0.1	5
549	Shock Loading of Bone-Inspired Metallic Nanocomposites. Solid State Phenomena, 0, 139, 11-22.	0.3	3
550	Nanoconfinement of spider silk fibrils begets superior strength, extensibility and toughness. Nature Precedings, 0, , .	0.1	1