Zhao Qin

List of Publications by Year
in descending order

122	6,082	70961 41	76769 74
papers	citations	h-index	g-index

126	126	126	8126
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	The mechanics and design of a lightweight three-dimensional graphene assembly. Science Advances, 2017, 3, e1601536.	4.7	331
2	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
3	Design and function of biomimetic multilayer water purification membranes. Science Advances, 2017, 3, e1601939.	4.7	221
4	Polymorphic regenerated silk fibers assembled through bioinspired spinning. Nature Communications, 2017, 8, 1387.	5.8	208
5	Fatigue-resistant adhesion of hydrogels. Nature Communications, 2020, 11, 1071.	5.8	187
6	Molecular level detection and localization of mechanical damage in collagen enabled by collagen hybridizing peptides. Nature Communications, 2017, 8, 14913.	5.8	183
7	Hierarchical Structure Controls Nanomechanical Properties of Vimentin Intermediate Filaments. PLoS ONE, 2009, 4, e7294.	1.1	163
8	Protective role of Arapaima gigas fish scales: Structure and mechanical behavior. Acta Biomaterialia, 2014, 10, 3599-3614.	4.1	161
9	Ultrathin thermoresponsive self-folding 3D graphene. Science Advances, 2017, 3, e1701084.	4.7	144
10	Mechanical exfoliation of two-dimensional materials. Journal of the Mechanics and Physics of Solids, 2018, 115, 248-262.	2.3	143
11	Boneâ€Inspired Materials by Design: Toughness Amplification Observed Using 3D Printing and Testing. Advanced Engineering Materials, 2016, 18, 1354-1363.	1.6	138
12	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
13	Structural optimization of 3D-printed synthetic spider webs for high strength. Nature Communications, 2015, 6, 7038.	5.8	136
14	The hidden structure of human enamel. Nature Communications, 2019, 10, 4383.	5.8	134
15	Atomically Sharp Crack Tips in Monolayer MoS₂ and Their Enhanced Toughness by Vacancy Defects. ACS Nano, 2016, 10, 9831-9839.	7.3	130
16	Molecular mechanics of polycrystalline graphene with enhanced fracture toughness. Extreme Mechanics Letters, 2015, 2, 52-59.	2.0	118
17	Thickness of Hydroxyapatite Nanocrystal Controls Mechanical Properties of the Collagenâ€“Hydroxyapatite Interface. Langmuir, 2012, 28, 1982-1992.	1.6	103
18	Printing of stretchable silk membranes for strain measurements. Lab on A Chip, 2016, 16, 2459-2466.	3.1	99

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19	Mechanical property of carbon nanotubes with intramolecular junctions: Molecular dynamics simulations. Physics Letters, Section A: General, Atomic and Solid State Physics, 2008, 372, 6661-6666.	0.9	97
20	Sub-nanometre channels embedded in two-dimensional materials. Nature Materials, 2018, 17, 129-133.	13.3	97
21	Electrospinning Piezoelectric Fibers for Biocompatible Devices. Advanced Healthcare Materials, 2020, 9, e1901287.	3.9	90
22	Three-Dimensional-Printing of Bio-Inspired Composites. Journal of Biomechanical Engineering, 2016, 138, 021006.	0.6	89
23	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
24	Molecular deformation mechanisms of the wood cell wall material. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 42, 198-206.	1.5	82
25	Effect of Wrinkles on the Surface Area of Graphene: Toward the Design of Nanoelectronics. Nano Letters, 2014, 14, 6520-6525.	4.5	81
26	Protein-free formation of bone-like apatite: New insights into the key role of carbonation. Biomaterials, 2017, 127, 75-88.	5.7	77
27	Defect-Tolerant Bioinspired Hierarchical Composites: Simulation and Experiment. ACS Biomaterials Science and Engineering, 2015, 1, 295-304.	2.6	75
28	Impact tolerance in mussel thread networks by heterogeneous material distribution. Nature Communications, 2013, 4, 2187.	5.8	71
29	Optimization of Composite Fracture Properties: Method, Validation, and Applications. Journal of Applied Mechanics, Transactions ASME, 2016, 83, .	1.1	69
30	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
31	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
32	Artificial intelligence design algorithm for nanocomposites optimized for shear crack resistance. Nano Futures, 2019, 3, 035001.	1.0	57
33	Molecular mechanics of mussel adhesion proteins. Journal of the Mechanics and Physics of Solids, 2014, 62, 19-30.	2.3	56
34	Strong fatigue-resistant nanofibrous hydrogels inspired by lobster underbelly. Matter, 2021, 4, 1919-1934.	5.0	56
35	A multi-scale approach to understand the mechanobiology of intermediate filaments. Journal of Biomechanics, 2010, 43, 15-22.	0.9	53
36	Intercalated water layers promote thermal dissipation at bioâ€“nano interfaces. Nature Communications, 2016, 7, 12854.	5.8	52

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37	Nanomechanical properties of vimentin intermediate filament dimers. Nanotechnology, 2009, 20, 425101.	1.3	51
38	Mesoscale mechanics of twisting carbon nanotube yarns. Nanoscale, 2015, 7, 5435-5445.	2.8	51
39	Self-Folding Hybrid Graphene Skin for 3D Biosensing. Nano Letters, 2019, 19, 1409-1417.	4.5	49
40	Cooperative deformation of hydrogen bonds in beta-strands and beta-sheet nanocrystals. Physical Review E, 2010, 82, 061906.	0.8	44
41	Intermediate filament-deficient cells are mechanically softer at large deformation: A multi-scale simulation study. Acta Biomaterialia, 2010, 6, 2457-2466.	4.1	43
42	Structure and stability of the lamin A tail domain and HGPS mutant. Journal of Structural Biology, 2011, 175, 425-433.	1.3	43
43	Material Function of Mycelium-Based Bio-Composite: A Review. Frontiers in Materials, 2021, 8, .	1.2	43
44	Flaw Tolerance of Nuclear Intermediate Filament Lamina under Extreme Mechanical Deformation. ACS Nano, 2011, 5, 3034-3042.	7.3	42
45	Nonlinear Viscous Water at Nanoporous Two-Dimensional Interfaces Resists High-Speed Flow through Cooperativity. Nano Letters, 2015, 15, 3939-3944.	4.5	42
46	Natural hydrogel in American lobster: A soft armor with high toughness and strength. Acta Biomaterialia, 2019, 88, 102-110.	4.1	42
47	Nacre-inspired design of graphene oxideâ€“polydopamine nanocomposites for enhanced mechanical properties and multi-functionalities. Nano Futures, 2017, 1, 011003.	1.0	41
48	Reversible MoS₂ Origami with Spatially Resolved and Reconfigurable Photosensitivity. Nano Letters, 2019, 19, 7941-7949.	4.5	41
49	Interlocking Friction Governs the Mechanical Fracture of Bilayer MoS₂. ACS Nano, 2018, 12, 3600-3608.	7.3	40
50	Nonlinear mechanics of lamin filaments and the meshwork topology build an emergent nuclear lamina. Nature Communications, 2020, 11, 6205.	5.8	40
51	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
52	Unusually low and density-insensitive thermal conductivity of three-dimensional gyroid graphene. Nanoscale, 2017, 9, 13477-13484.	2.8	38
53	Superior flexibility of super carbon nanotubes: Molecular dynamics simulations. Applied Physics Letters, 2007, 91, .	1.5	36
54	ROBUSTNESS-STRENGTH PERFORMANCE OF HIERARCHICAL ALPHA-HELICAL PROTEIN FILAMENTS. International Journal of Applied Mechanics, 2009, 01, 85-112.	1.3	36

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55	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
56	Imaging and analysis of a three-dimensional spider web architecture. Journal of the Royal Society Interface, 2018, 15, 20180193.	1.5	36
57	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
58	Materials-by-design: computation, synthesis, and characterization from atoms to structures. Physica Scripta, 2018, 93, 053003.	1.2	32
59	Delivering Single-Walled Carbon Nanotubes to the Nucleus Using Engineered Nuclear Protein Domains. ACS Applied Materials & Interfaces, 2016, 8, 3524-3534.	4.0	31
60	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
61	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
62	Webs measure up. Nature Materials, 2013, 12, 185-187.	13.3	30
63	Experimental and theoretical studies on the morphogenesis of bacterial biofilms. Soft Matter, 2017, 13, 7389-7397.	1.2	30
64	Multiscale Design of Graphyneâ€Based Materials for Highâ€Performance Separation Membranes. Advanced Materials, 2019, 31, e1805665.	11.1	30
65	Peptoid Residues Make Diverse, Hyperstable Collagen Triple-Helices. Journal of the American Chemical Society, 2021, 143, 10910-10919.	6.6	28
66	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
67	Molecular mechanics of dihydroxyphenylalanine at a silica interface. Applied Physics Letters, 2012, 101, 083702.	1.5	27
68	Mechanics of fragmentation of crocodile skin and other thin films. Scientific Reports, 2014, 4, 4966.	1.6	25
69	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
70	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
71	Controllable Fabrication of Inhomogeneous Microcapsules for Triggered Release by Osmotic Pressure. Small, 2019, 15, e1903087.	5.2	23
72	Biological materials by design. Journal of Physics Condensed Matter, 2014, 26, 073101.	0.7	22

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73	Coiled-coil intermediate filament stutter instability and molecular unfolding. Computer Methods in Biomechanics and Biomedical Engineering, 2011, 14, 483-489.	0.9	21
74	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
75	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
76	Molecular mechanics and performance of crosslinked amorphous polymer adhesives. Journal of Materials Research, 2014, 29, 1077-1085.	1.2	19
77	Improving the performance of pressure sensitive adhesives by tuning the crosslinking density and locations. Polymer, 2018, 154, 164-171.	1.8	19
78	Anisotropic Fracture Dynamics Due to Local Lattice Distortions. ACS Nano, 2019, 13, 5693-5702.	7.3	19
79	Bioinspired design of functionalised graphene. Molecular Simulation, 2012, 38, 695-703.	0.9	17
80	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
81	Crumpling deformation regimes of monolayer graphene on substrate: a molecular mechanics study. Journal of Physics Condensed Matter, 2015, 27, 345401.	0.7	16
82	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
83	Cooperative deformation of carboxyl groups in functionalized carbon nanotubes. International Journal of Solids and Structures, 2012, 49, 2418-2423.	1.3	14
84	Mechanical Properties and Failure of Biopolymers: Atomistic Reactions to Macroscale Response. Topics in Current Chemistry, 2015, 369, 317-343.	4.0	14
85	Tensile strength of carbyne chains in varied chemical environments and structural lengths. Nanotechnology, 2014, 25, 371001.	1.3	13
86	Why mussel byssal plaques are tiny yet strong in attachment. Matter, 2022, 5, 710-724.	5.0	13
87	Plasticity of Intermediate Filament Subunits. PLoS ONE, 2010, 5, e12115.	1.1	12
88	Interfacial binding and aggregation of lamin A tail domains associated with Hutchinsonâ€“Gilford progeria syndrome. Biophysical Chemistry, 2014, 195, 43-48.	1.5	12
89	Mechanical Anisotropy in Two-Dimensional Selenium Atomic Layers. Nano Letters, 2021, 21, 8043-8050.	4.5	12
90	Atomistically Informed Mesoscale Model of Alpha-Helical Protein Domains. International Journal for Multiscale Computational Engineering, 2009, 7, 237-250.	0.8	12

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91	Evaluation of Threshold Voltage for 30 nm Symmetric Double Gate (SDG) MOSFET and It's Variation with Process Parameters. Journal of Computational and Theoretical Nanoscience, 2008, 5, 619-626.	0.4	11
92	Quantitative Estimates of Bio-Remodeling on Coastal Rock Surfaces. Journal of Marine Science and Engineering, 2016, 4, 37.	1.2	11
93	Solvent Responsive Selfâ€Folding of 3D Photosensitive Graphene Architectures. Advanced Intelligent Systems, 2023, 5, 2000195.	3.3	11
94	Machine learning model for fast prediction of the natural frequencies of protein molecules. RSC Advances, 2020, 10, 16607-16615.	1.7	11
95	Probing the Role of Bone Lamellar Patterns through Collagen Microarchitecture Mapping, Numerical Modeling, and 3Dâ€Printing. Advanced Engineering Materials, 2020, 22, .	1.6	10
96	Cooperativity governs the size and structure of biological interfaces. Journal of Biomechanics, 2012, 45, 2778-2783.	0.9	9
97	Effect of Mechanical Milling on Photoluminescence of Î³-Alumina Nanoparticles. Journal of Nanoscience and Nanotechnology, 2008, 8, 1414-1416.	0.9	8
98	Peeling Silicene From Model Silver Substrates in Molecular Dynamics Simulations. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	1.1	8
99	Multiscale understanding in fracture resistance of bamboo skin. Extreme Mechanics Letters, 2021, 49, 101480.	2.0	8
100	Influence of Water on the Frequency of Carbon Nanotube Oscillators. Journal of Computational and Theoretical Nanoscience, 2008, 5, 1403-1407.	0.4	8
101	Carbon dioxide enhances fragility of ice crystals. Journal Physics D: Applied Physics, 2012, 45, 445302.	1.3	7
102	Computational and theoretical modeling of intermediate filament networks: Structure, mechanics and disease. Acta Mechanica Sinica/Lixue Xuebao, 2012, 28, 941-950.	1.5	7
103	The tail domain of lamin B1 is more strongly modulated by divalent cations than lamin A. Nucleus, 2015, 6, 203-211.	0.6	7
104	Multiscale mechanics of the lateral pressure effect on enhancing the load transfer between polymer coated CNTs. Nanoscale, 2017, 9, 5565-5576.	2.8	7
105	Hierarchical nanostructures for functional materials. Nanotechnology, 2018, 29, 280201.	1.3	7
106	Mechanical properties of crosslinks controls failure mechanism of hierarchical intermediate filament networks. Theoretical and Applied Mechanics Letters, 2012, 2, 014005.	1.3	6
107	Molecular Modeling and Mechanics of Acrylic Adhesives on a Graphene Substrate with Roughness. BioNanoScience, 2016, 6, 177-184.	1.5	5
108	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

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109	The design of strongly bonded nanoarchitected carbon materials for high specific strength and modulus. Carbon, 2022, 195, 387-394.	5.4	5
110	Dynamic Failure of a Lamina Meshwork in Cell Nuclei under Extreme Mechanical Deformation. BioNanoScience, 2011, 1, 14-23.	1.5	4
111	Bioinspired Graphene Nanogut. Journal of Applied Mechanics, Transactions ASME, 2013, 80, .	1.1	4
112	Viscoelastic relaxation time and structural evolution during length contraction of spider silk protein nanostructures. MRS Communications, 2013, 3, 185-190.	0.8	3
113	Structural, Mechanical and Functional Properties of Intermediate Filaments from the Atomistic to the Cellular Scales. , 2011, , 117-166.		2
114	Design, manufacture, and testing of customized sterilizable respirator. Journal of the Mechanical Behavior of Biomedical Materials, 2022, 131, 105248.	1.5	2
115	Silk-Based Hierarchical Materials for High Mechanical Performance at the Interface of Modeling, Synthesis, and Characterization. , 2018, , 1-28.		1
116	Multiscale Modeling and Applications of Bioinspired Materials with Gyroid Structures. Springer Series in Materials Science, 2021, , 629-644.	0.4	1
117	Molecular dynamics simulations of deformation and rupture of super carbon nanotubes under tension. Journal of Nanoscience and Nanotechnology, 2008, 8, 6274-82.	0.9	1
118	Design of lightweight and ultrastrong nanoarchitected carbon by a coarse-grained model. Composites Part A: Applied Science and Manufacturing, 2022, 161, 107066.	3.8	1
119	Structure Prediction and Nanomechanical Properties of Human Vimentin Intermediate Filament Dimers. , 2009, , .		0
120	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
121	In Situ Mechanical Interrogation of Single Nuclear Lamins Suggests the Lamina is a Robust Framework. Biophysical Journal, 2017, 112, 469a.	0.2	0
122	Silk-Based Hierarchical Materials for High Mechanical Performance at the Interface of Modeling, Synthesis, and Characterization. , 2020, , 1547-1574.		0