Zhao Qin

List of Publications by Year
in descending order

122 papers	6,082 citations	70961 41 h-index	76769 74 g-index
126 all docs	126 docs citations	126 times ranked	8126 citing authors

#	Article	IF	Citations
1	Solvent Responsive Selfâ€Folding of 3D Photosensitive Graphene Architectures. Advanced Intelligent Systems, 2023, 5, 2000195.	3.3	11
2	Why mussel byssal plaques are tiny yet strong in attachment. Matter, 2022, 5, 710-724.	5.0	13
3	The design of strongly bonded nanoarchitected carbon materials for high specific strength and modulus. Carbon, 2022, 195, 387-394.	5.4	5
4	Design, manufacture, and testing of customized sterilizable respirator. Journal of the Mechanical Behavior of Biomedical Materials, 2022, 131, 105248.	1.5	2
5	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
6	Strong fatigue-resistant nanofibrous hydrogels inspired by lobster underbelly. Matter, 2021, 4, 1919-1934.	5.0	56
7	Peptoid Residues Make Diverse, Hyperstable Collagen Triple-Helices. Journal of the American Chemical Society, 2021, 143, 10910-10919.	6.6	28
8	Material Function of Mycelium-Based Bio-Composite: A Review. Frontiers in Materials, 2021, 8, .	1.2	43
9	Mechanical Anisotropy in Two-Dimensional Selenium Atomic Layers. Nano Letters, 2021, 21, 8043-8050.	4.5	12
10	Multiscale understanding in fracture resistance of bamboo skin. Extreme Mechanics Letters, 2021, 49, 101480.	2.0	8
11	Multiscale Modeling and Applications of Bioinspired Materials with Gyroid Structures. Springer Series in Materials Science, 2021, , 629-644.	0.4	1
12	Electrospinning Piezoelectric Fibers for Biocompatible Devices. Advanced Healthcare Materials, 2020, 9, e1901287.	3.9	90
13	Nonlinear mechanics of lamin filaments and the meshwork topology build an emergent nuclear lamina. Nature Communications, 2020, 11, 6205.	5.8	40
14	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
15	Machine learning model for fast prediction of the natural frequencies of protein molecules. RSC Advances, 2020, 10, 16607-16615.	1.7	11
16	Fatigue-resistant adhesion of hydrogels. Nature Communications, 2020, 11, 1071.	5.8	187
17	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
18	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

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19	Probing the Role of Bone Lamellar Patterns through Collagen Microarchitecture Mapping, Numerical Modeling, and 3Dâ€Printing. Advanced Engineering Materials, 2020, 22, .	1.6	10
20	Silk-Based Hierarchical Materials for High Mechanical Performance at the Interface of Modeling, Synthesis, and Characterization. , 2020, , 1547-1574.		0
21	Artificial intelligence design algorithm for nanocomposites optimized for shear crack resistance. Nano Futures, 2019, 3, 035001.	1.0	57
22	Reversible MoS₂ Origami with Spatially Resolved and Reconfigurable Photosensitivity. Nano Letters, 2019, 19, 7941-7949.	4.5	41
23	Controllable Fabrication of Inhomogeneous Microcapsules for Triggered Release by Osmotic Pressure. Small, 2019, 15, e1903087.	5.2	23
24	The hidden structure of human enamel. Nature Communications, 2019, 10, 4383.	5.8	134
25	Natural hydrogel in American lobster: A soft armor with high toughness and strength. Acta Biomaterialia, 2019, 88, 102-110.	4.1	42
26	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
27	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
28	Anisotropic Fracture Dynamics Due to Local Lattice Distortions. ACS Nano, 2019, 13, 5693-5702.	7.3	19
29	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
30	Multiscale Design of Graphyneâ€Based Materials for Highâ€Performance Separation Membranes. Advanced Materials, 2019, 31, e1805665.	11.1	30
31	Self-Folding Hybrid Graphene Skin for 3D Biosensing. Nano Letters, 2019, 19, 1409-1417.	4.5	49
32	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
33	Materials-by-design: computation, synthesis, and characterization from atoms to structures. Physica Scripta, 2018, 93, 053003.	1.2	32
34	Interlocking Friction Governs the Mechanical Fracture of Bilayer MoS₂. ACS Nano, 2018, 12, 3600-3608.	7.3	40
35	Mechanical exfoliation of two-dimensional materials. Journal of the Mechanics and Physics of Solids, 2018, 115, 248-262.	2.3	143
36	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

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37	Sub-nanometre channels embedded in two-dimensional materials. Nature Materials, 2018, 17, 129-133.	13.3	97
38	Silk-Based Hierarchical Materials for High Mechanical Performance at the Interface of Modeling, Synthesis, and Characterization. , 2018, , 1-28.		1
39	Imaging and analysis of a three-dimensional spider web architecture. Journal of the Royal Society Interface, 2018, 15, 20180193.	1.5	36
40	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
41	Hierarchical nanostructures for functional materials. Nanotechnology, 2018, 29, 280201.	1.3	7
42	Improving the performance of pressure sensitive adhesives by tuning the crosslinking density and locations. Polymer, 2018, 154, 164-171.	1.8	19
43	The mechanics and design of a lightweight three-dimensional graphene assembly. Science Advances, 2017, 3, e1601536.	4.7	331
44	Protein-free formation of bone-like apatite: New insights into the key role of carbonation. Biomaterials, 2017, 127, 75-88.	5.7	77
45	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
46	Nacre-inspired design of graphene oxideâ€"polydopamine nanocomposites for enhanced mechanical properties and multi-functionalities. Nano Futures, 2017, 1, 011003.	1.0	41
47	In Situ Mechanical Interrogation of Single Nuclear Lamins Suggests the Lamina is a Robust Framework. Biophysical Journal, 2017, 112, 469a.	0.2	0
48	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
49	Molecular level detection and localization of mechanical damage in collagen enabled by collagen hybridizing peptides. Nature Communications, 2017, 8, 14913.	5.8	183
50	Multiscale mechanics of the lateral pressure effect on enhancing the load transfer between polymer coated CNTs. Nanoscale, 2017, 9, 5565-5576.	2.8	7
51	Design and function of biomimetic multilayer water purification membranes. Science Advances, 2017, 3, e1601939.	4.7	221
52	Ultrathin thermoresponsive self-folding 3D graphene. Science Advances, 2017, 3, e1701084.	4.7	144
53	Experimental and theoretical studies on the morphogenesis of bacterial biofilms. Soft Matter, 2017, 13, 7389-7397.	1.2	30
54	Unusually low and density-insensitive thermal conductivity of three-dimensional gyroid graphene. Nanoscale, 2017, 9, 13477-13484.	2.8	38

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55	Polymorphic regenerated silk fibers assembled through bioinspired spinning. Nature Communications, 2017, 8, 1387.	5.8	208
56	Quantitative Estimates of Bio-Remodeling on Coastal Rock Surfaces. Journal of Marine Science and Engineering, 2016, 4, 37.	1.2	11
57	Boneâ€Inspired Materials by Design: Toughness Amplification Observed Using 3D Printing and Testing. Advanced Engineering Materials, 2016, 18, 1354-1363.	1.6	138
58	Optimization of Composite Fracture Properties: Method, Validation, and Applications. Journal of Applied Mechanics, Transactions ASME, 2016, 83, .	1.1	69
59	Atomically Sharp Crack Tips in Monolayer MoS₂ and Their Enhanced Toughness by Vacancy Defects. ACS Nano, 2016, 10, 9831-9839.	7.3	130
60	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
61	Intercalated water layers promote thermal dissipation at bioâ€“nano interfaces. Nature Communications, 2016, 7, 12854.	5.8	52
62	Molecular Modeling and Mechanics of Acrylic Adhesives on a Graphene Substrate with Roughness. BioNanoScience, 2016, 6, 177-184.	1.5	5
63	Printing of stretchable silk membranes for strain measurements. Lab on A Chip, 2016, 16, 2459-2466.	3.1	99
64	Delivering Single-Walled Carbon Nanotubes to the Nucleus Using Engineered Nuclear Protein Domains. ACS Applied Materials & Interfaces, 2016, 8, 3524-3534.	4.0	31
65	Three-Dimensional-Printing of Bio-Inspired Composites. Journal of Biomechanical Engineering, 2016, 138, 021006.	0.6	89
66	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
67	Peeling Silicene From Model Silver Substrates in Molecular Dynamics Simulations. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	1.1	8
68	Molecular mechanics of polycrystalline graphene with enhanced fracture toughness. Extreme Mechanics Letters, 2015, 2, 52-59.	2.0	118
69	Mesoscale mechanics of twisting carbon nanotube yarns. Nanoscale, 2015, 7, 5435-5445.	2.8	51
70	Nonlinear Viscous Water at Nanoporous Two-Dimensional Interfaces Resists High-Speed Flow through Cooperativity. Nano Letters, 2015, 15, 3939-3944.	4.5	42
71	Mechanical Properties and Failure of Biopolymers: Atomistic Reactions to Macroscale Response. Topics in Current Chemistry, 2015, 369, 317-343.	4.0	14
72	Structural optimization of 3D-printed synthetic spider webs for high strength. Nature Communications, 2015, 6, 7038.	5.8	136

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73	Defect-Tolerant Bioinspired Hierarchical Composites: Simulation and Experiment. ACS Biomaterials Science and Engineering, 2015, 1, 295-304.	2.6	75
74	The tail domain of lamin B1 is more strongly modulated by divalent cations than lamin A. Nucleus, 2015, 6, 203-211.	0.6	7
75	Crumpling deformation regimes of monolayer graphene on substrate: a molecular mechanics study. Journal of Physics Condensed Matter, 2015, 27, 345401.	0.7	16
76	Molecular deformation mechanisms of the wood cell wall material. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 42, 198-206.	1.5	82
77	Molecular mechanics and performance of crosslinked amorphous polymer adhesives. Journal of Materials Research, 2014, 29, 1077-1085.	1.2	19
78	Protective role of Arapaima gigas fish scales: Structure and mechanical behavior. Acta Biomaterialia, 2014, 10, 3599-3614.	4.1	161
79	Molecular mechanics of mussel adhesion proteins. Journal of the Mechanics and Physics of Solids, 2014, 62, 19-30.	2.3	56
80	Tensile strength of carbyne chains in varied chemical environments and structural lengths. Nanotechnology, 2014, 25, 371001.	1.3	13
81	Effect of Wrinkles on the Surface Area of Graphene: Toward the Design of Nanoelectronics. Nano Letters, 2014, 14, 6520-6525.	4.5	81
82	Interfacial binding and aggregation of lamin A tail domains associated with Hutchinsonâ€“Gilford progeria syndrome. Biophysical Chemistry, 2014, 195, 43-48.	1.5	12
83	Biological materials by design. Journal of Physics Condensed Matter, 2014, 26, 073101.	0.7	22
84	Mechanics of fragmentation of crocodile skin and other thin films. Scientific Reports, 2014, 4, 4966.	1.6	25
85	Impact tolerance in mussel thread networks by heterogeneous material distribution. Nature Communications, 2013, 4, 2187.	5.8	71
86	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
87	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
88	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
89	Webs measure up. Nature Materials, 2013, 12, 185-187.	13.3	30
90	Bioinspired Graphene Nanogut. Journal of Applied Mechanics, Transactions ASME, 2013, 80, .	1.1	4

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91	Viscoelastic relaxation time and structural evolution during length contraction of spider silk protein nanostructures. MRS Communications, 2013, 3, 185-190.	0.8	3
92	Molecular mechanics of dihydroxyphenylalanine at a silica interface. Applied Physics Letters, 2012, 101, 083702.	1.5	27
93	Mechanical properties of crosslinks controls failure mechanism of hierarchical intermediate filament networks. Theoretical and Applied Mechanics Letters, 2012, 2, 014005.	1.3	6
94	Bioinspired design of functionalised graphene. Molecular Simulation, 2012, 38, 695-703.	0.9	17
95	Carbon dioxide enhances fragility of ice crystals. Journal Physics D: Applied Physics, 2012, 45, 445302.	1.3	7
96	Computational and theoretical modeling of intermediate filament networks: Structure, mechanics and disease. Acta Mechanica Sinica/Lixue Xuebao, 2012, 28, 941-950.	1.5	7
97	Cooperativity governs the size and structure of biological interfaces. Journal of Biomechanics, 2012, 45, 2778-2783.	0.9	9
98	Cooperative deformation of carboxyl groups in functionalized carbon nanotubes. International Journal of Solids and Structures, 2012, 49, 2418-2423.	1.3	14
99	Thickness of Hydroxyapatite Nanocrystal Controls Mechanical Properties of the Collagenâ€"Hydroxyapatite Interface. Langmuir, 2012, 28, 1982-1992.	1.6	103
100	Flaw Tolerance of Nuclear Intermediate Filament Lamina under Extreme Mechanical Deformation. ACS Nano, 2011, 5, 3034-3042.	7.3	42
101	Structural, Mechanical and Functional Properties of Intermediate Filaments from the Atomistic to the Cellular Scales. , 2011, , 117-166.		2
102	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
103	Structure and stability of the lamin A tail domain and HGPS mutant. Journal of Structural Biology, 2011, 175, 425-433.	1.3	43
104	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
105	Dynamic Failure of a Lamina Meshwork in Cell Nuclei under Extreme Mechanical Deformation. BioNanoScience, 2011, 1, 14-23.	1.5	4
106	Coiled-coil intermediate filament stutter instability and molecular unfolding. Computer Methods in Biomechanics and Biomedical Engineering, 2011, 14, 483-489.	0.9	21
107	A multi-scale approach to understand the mechanobiology of intermediate filaments. Journal of Biomechanics, 2010, 43, 15-22.	0.9	53
108	Intermediate filament-deficient cells are mechanically softer at large deformation: A multi-scale simulation study. Acta Biomaterialia, 2010, 6, 2457-2466.	4.1	43

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109	Plasticity of Intermediate Filament Subunits. PLoS ONE, 2010, 5, e12115.	1.1	12
110	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
111	Cooperative deformation of hydrogen bonds in beta-strands and beta-sheet nanocrystals. Physical Review E, 2010, 82, 061906.	0.8	44
112	Hierarchical Structure Controls Nanomechanical Properties of Vimentin Intermediate Filaments. PLoS ONE, 2009, 4, e7294.	1.1	163
113	ROBUSTNESS-STRENGTH PERFORMANCE OF HIERARCHICAL ALPHA-HELICAL PROTEIN FILAMENTS. International Journal of Applied Mechanics, 2009, 01, 85-112.	1.3	36
114	Structure Prediction and Nanomechanical Properties of Human Vimentin Intermediate Filament Dimers. , 2009, , .		0
115	Nanomechanical properties of vimentin intermediate filament dimers. Nanotechnology, 2009, 20, 425101.	1.3	51
116	Atomistically Informed Mesoscale Model of Alpha-Helical Protein Domains. International Journal for Multiscale Computational Engineering, 2009, 7, 237-250.	0.8	12
117	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
118	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
119	Effect of Mechanical Milling on Photoluminescence of Î³-Alumina Nanoparticles. Journal of Nanoscience and Nanotechnology, 2008, 8, 1414-1416.	0.9	8
120	Influence of Water on the Frequency of Carbon Nanotube Oscillators. Journal of Computational and Theoretical Nanoscience, 2008, 5, 1403-1407.	0.4	8
121	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
122	Superior flexibility of super carbon nanotubes: Molecular dynamics simulations. Applied Physics Letters, 2007, 91, .	1.5	36