

# Zishun Liu

## List of Publications by Year in descending order

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122  
papers

3,892  
citations

126858

33  
h-index

149623

56  
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124  
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124  
docs citations

124  
times ranked

2854  
citing authors

#	ARTICLE	IF	CITATIONS
1	Large deformation adhesion study of polymeric hydrogel under different stimuli. <i>Mechanics of Materials</i> , 2022, 165, 104174.	1.7	8
2	A thermodynamic constitutive model for shape memory polymers based on phase transition. <i>Polymer</i> , 2022, 243, 124623.	1.8	23
3	A Ternary Seismic Metamaterial for Low Frequency Vibration Attenuation. <i>Materials</i> , 2022, 15, 1246.	1.3	16
4	Effect of water content on physical adhesion of polyacrylamide hydrogels. <i>Polymer</i> , 2022, 246, 124730.	1.8	27
5	On the Performance of Vertically Aligned Graphene Array Membranes for Desalination. <i>ACS Applied Materials &amp; Interfaces</i> , 2022, 14, 27405-27412.	4.0	6
6	Fabrication of patterned magnetic hydrogels by ion transfer printing. <i>Soft Matter</i> , 2021, 17, 8059-8067.	1.2	4
7	The Machine Learning Embedded Method of Parameters Determination in the Constitutive Models and Potential Applications for Hydrogels. <i>International Journal of Applied Mechanics</i> , 2021, 13, 2150001.	1.3	27
8	Thionated benzo[ <i>c</i> ]thiophen-1(3 <i>H</i> )-one as an organic cathode with high capacity for sulfur-rich all organic lithium-ion batteries. <i>Journal of Materials Chemistry A</i> , 2021, 9, 14444-14450.	5.2	12
9	Recent advances of hydrogel network models for studies on mechanical behaviors. <i>Acta Mechanica Sinica/Lixue Xuebao</i> , 2021, 37, 367-386.	1.5	56
10	Prediction of mechanical and thermal properties of particle reinforced hydrogel composites using the structural genome approach. <i>International Journal of Computational Materials Science and Engineering</i> , 2021, 10, 2150004.	0.5	1
11	Inhomogeneous Large Deformation Study on Magneto-Thermal Sensitive Hydrogels. <i>International Journal of Applied Mechanics</i> , 2021, 13, .	1.3	9
12	A one-dimensional constitutive model for NiTi shape memory alloys considering inelastic strains caused by the R-phase transformation. <i>Journal of Alloys and Compounds</i> , 2021, 868, 159192.	2.8	12
13	An electromechanical cohesive zone model merging with contact and friction effects for fiber debonding and pushing-out in piezoelectric fiber composites. <i>Applied Mathematical Modelling</i> , 2021, 95, 1-21.	2.2	4
14	Impact analysis of functionally-graded graphene nanoplatelets-reinforced composite plates laying on Winkler-Pasternak elastic foundations applying a meshless approach. <i>Engineering Structures</i> , 2021, 241, 112453.	2.6	28
15	A mesoscopic network mechanics method to reproduce the large deformation and fracture process of cross-linked elastomers. <i>Journal of the Mechanics and Physics of Solids</i> , 2021, 156, 104599.	2.3	46
16	Deep Learning Approach to Mechanical Property Prediction of Single-Network Hydrogel. <i>Mathematics</i> , 2021, 9, 2804.	1.1	12
17	A review on low dimensional carbon desalination and gas separation membrane designs. <i>Journal of Membrane Science</i> , 2020, 598, 117785.	4.1	64
18	Active control of functionally graded carbon nanotube-reinforced composite plates with piezoelectric layers subjected to impact loading. <i>JVC/Journal of Vibration and Control</i> , 2020, 26, 581-598.	1.5	14

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19	Investigations on different two-dimensional materials as slit membranes for enhanced desalination. <i>Journal of Membrane Science</i> , 2020, 598, 117653.	4.1	32
20	The effect of water content on the elastic modulus and fracture energy of hydrogel. <i>Extreme Mechanics Letters</i> , 2020, 35, 100617.	2.0	65
21	An investigation on the effects of nanoplastic particles on nanoporous graphene membrane desalination. <i>Desalination</i> , 2020, 496, 114765.	4.0	7
22	Isometric Thionated Naphthalene Diimides As Organic Cathodes for High Capacity Lithium Batteries. <i>Chemistry of Materials</i> , 2020, 32, 10575-10583.	3.2	26
23	3D phase-evolution-based thermomechanical constitutive model of shape memory polymer with finite element implementation. <i>Journal of Mechanics of Materials and Structures</i> , 2020, 15, 291-306.	0.4	3
24	A Temperature-Dependent Model of Shape Memory Alloys Considering Tensile-Compressive Asymmetry and the Ratcheting Effect. <i>Materials</i> , 2020, 13, 3116.	1.3	6
25	Theoretical and Numerical Analysis of Mechanical Behaviors of a Metamaterial-Based Shape Memory Polymer Stent. <i>Polymers</i> , 2020, 12, 1784.	2.0	31
26	Programmable Spiral and Helical Deformation Behaviors of Hydrogel-Based Bi-Material Beam Structures. <i>International Journal of Structural Stability and Dynamics</i> , 2020, 20, 2041010.	1.5	12
27	The elongation-criterion for fracture toughness of hydrogels based on percolation model. <i>Journal of Applied Physics</i> , 2020, 127, .	1.1	9
28	Coupled theory for transient responses of conductive hydrogels with multi-stimuli. <i>Journal of the Mechanics and Physics of Solids</i> , 2020, 143, 104055.	2.3	37
29	Study on Large Deformation Behavior of Polyacrylamide Hydrogel Using Dissipative Particle Dynamics. <i>Frontiers in Chemistry</i> , 2020, 8, 115.	1.8	16
30	Nanopumping of water via rotation of graphene nanoribbons. <i>Nanotechnology</i> , 2020, 31, 175704.	1.3	1
31	Recent Advances of the Constitutive Models of Smart Materials “ Hydrogels and Shape Memory Polymers. <i>International Journal of Applied Mechanics</i> , 2020, 12, 2050014.	1.3	162
32	Silica Aerogels: A Review of Molecular Dynamics Modelling and Characterization of the Structural, Thermal, and Mechanical Properties. , 2020, , 1575-1595.		7
33	Fatigue of Metallic Glasses. <i>Applied Mechanics Reviews</i> , 2020, 72, .	4.5	23
34	The inhomogeneous diffusion of chemically crosslinked Polyacrylamide hydrogel based on poroviscosity theory. <i>Science China Technological Sciences</i> , 2019, 62, 1375-1384.	2.0	10
35	A Periodic Deformation Mechanism of a Soft Actuator for Crawling and Grasping. <i>Advanced Materials Technologies</i> , 2019, 4, 1900653.	3.0	27
36	Active vibration control of functionally graded graphene nanoplatelets reinforced composite plates integrated with piezoelectric layers. <i>Thin-Walled Structures</i> , 2019, 145, 106372.	2.7	80

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37	Effects of tensile strain rate and grain size on the mechanical properties of nanocrystalline T-carbon. <i>Computational Materials Science</i> , 2019, 170, 109188.	1.4	14
38	The Marriage of Carborane with Chalcogen Atoms: Nonconjugation, $\pi$ - $\pi$ Conjugation, and Intramolecular Charge Transfer. <i>Organic Letters</i> , 2019, 21, 8285-8289.	2.4	14
39	Molecular dynamics study on the anisotropic Poisson's ratio of the graphene. <i>Diamond and Related Materials</i> , 2019, 93, 66-74.	1.8	15
40	Constitutive model of salt concentration-sensitive hydrogel. <i>Mechanics of Materials</i> , 2019, 136, 103092.	1.7	35
41	Theoretical analysis on the adaptive vibration attenuation of a fixed-fixed beam realized by a piezo-shape memory alloy ferrule. <i>Journal of Intelligent Material Systems and Structures</i> , 2019, 30, 2079-2090.	1.4	6
42	Modelling and simulation of the expansion of a shape memory polymer stent. <i>Engineering Computations</i> , 2019, 36, 2726-2746.	0.7	12
43	A new approach for electro-elastic analysis of piezoelectric fiber composites with arbitrary shaped inclusions under anti-plane shear and in-plane electric loadings. <i>Smart Materials and Structures</i> , 2019, 28, 075030.	1.8	4
44	A nonequilibrium thermodynamics approach to the transient properties of hydrogels. <i>Journal of the Mechanics and Physics of Solids</i> , 2019, 127, 94-110.	2.3	38
45	Stress fields and effective modulus of piezoelectric fiber composite with arbitrary shaped inclusion under in-plane mechanical and anti-plane electric loadings. <i>Mathematics and Mechanics of Solids</i> , 2019, 24, 3180-3199.	1.5	5
46	Carbon nanotube arrays as multilayer transverse flow carbon nanotube membrane for efficient desalination. <i>Journal of Membrane Science</i> , 2019, 581, 383-392.	4.1	20
47	Determination of the equivalent properties of periodic heterogeneous composite plates using the structural genome approach. <i>International Journal of Computational Materials Science and Engineering</i> , 2019, 08, 1950017.	0.5	2
48	Side Chains and the Insufficient Lubrication of Water in Polyacrylamide Hydrogel—A New Insight. <i>Polymers</i> , 2019, 11, 1845.	2.0	14
49	A tensile-compressive asymmetry model for shape memory alloys with a redefined martensite internal variable. <i>Smart Materials and Structures</i> , 2019, 28, 105050.	1.8	11
50	Energy transfer speed of polymer network and its scaling-law of elastic modulus—New insights. <i>Journal of Applied Physics</i> , 2019, 126, 215101.	1.1	8
51	Deformation Behavior of Fiber-Reinforced Hydrogel Structures. <i>International Journal of Structural Stability and Dynamics</i> , 2019, 19, 1950032.	1.5	20
52	Prediction of the thermomechanical behavior of particle reinforced shape memory polymers. <i>Polymer Composites</i> , 2019, 40, 353-363.	2.3	22
53	Experimental study of thermo-mechanical behavior of a thermosetting shape-memory polymer. <i>Mechanics of Time-Dependent Materials</i> , 2019, 23, 249-266.	2.3	14
54	Effects of oscillating pressure on desalination performance of transverse flow CNT membrane. <i>Desalination</i> , 2019, 451, 35-44.	4.0	10

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55	The Friction Effect on Buckling Behavior of Cellular Structures Under Axial Load. <i>International Journal of Applied Mechanics</i> , 2018, 10, 1850013.	1.3	17
56	Spontaneous rolling-up and assembly of graphene designed by using defects. <i>Nanoscale</i> , 2018, 10, 6487-6495.	2.8	7
57	Effects of CNT size on the desalination performance of an outer-wall CNT slit membrane. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 13896-13902.	1.3	16
58	A novel constitutive model of shape memory polymers combining phase transition and viscoelasticity. <i>Polymer</i> , 2018, 143, 298-308.	1.8	55
59	The fast homogeneous diffusion of hydrogel under different stimuli. <i>International Journal of Mechanical Sciences</i> , 2018, 137, 263-270.	3.6	78
60	The structural and mechanical properties of graphene aerogels based on Schwarz-surface-like graphene models. <i>Carbon</i> , 2018, 130, 741-748.	5.4	32
61	Preface: Advances in computational aerospace materials science and engineering. <i>International Journal of Computational Materials Science and Engineering</i> , 2018, 07, 1802001.	0.5	1
62	Silica Aerogels: A Review of Molecular Dynamics Modelling and Characterization of the Structural, Thermal, and Mechanical Properties. , 2018, , 1-21.		1
63	Thermal Conductivity of Polyacrylamide Hydrogels at the Nanoscale. <i>ACS Applied Materials &amp; Interfaces</i> , 2018, 10, 36352-36360.	4.0	46
64	Vibration control for slotted plate using structural intensity method. <i>International Journal of Computational Materials Science and Engineering</i> , 2018, 07, 1850006.	0.5	1
65	Phase Transition Effects on Mechanical Properties of NIPA Hydrogel. <i>Polymers</i> , 2018, 10, 358.	2.0	16
66	Effects of temperature on the fracture and fatigue damage of temperature sensitive hydrogels. <i>RSC Advances</i> , 2018, 8, 31048-31054.	1.7	10
67	A modified phase-based constitutive model for shape memory polymers. <i>Polymer International</i> , 2018, 67, 1677-1683.	1.6	22
68	Modeling and active vibration control of lattice grid beam with piezoelectric fiber composite using fractional order PD <sup>1/4</sup> algorithm. <i>Composite Structures</i> , 2018, 198, 126-134.	3.1	26
69	The Dynamic Behaviors of a Shape Memory Polymer Membrane. <i>Acta Mechanica Solida Sinica</i> , 2018, 31, 635-651.	1.0	5
70	Mechanical behaviors of T-carbon: A molecular dynamics study. <i>Carbon</i> , 2018, 138, 357-362.	5.4	27
71	A novel constitutive model for the mechanical properties of silica aerogels. <i>Journal of Applied Physics</i> , 2018, 124, .	1.1	12
72	A novel fractional viscoelastic constitutive model for shape memory polymers. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , 2018, 56, 1125-1134.	2.4	25

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73	Buckling and pattern transformation of modified periodic lattice structures. <i>Extreme Mechanics Letters</i> , 2018, 22, 112-121.	2.0	36
74	Atomistic origin of size effects in fatigue behavior of metallic glasses. <i>Journal of the Mechanics and Physics of Solids</i> , 2017, 104, 84-95.	2.3	68
75	A viscoelastic constitutive model for shape memory polymers based on multiplicative decompositions of the deformation gradient. <i>International Journal of Plasticity</i> , 2017, 91, 300-317.	4.1	76
76	Defects Mediated Corrosion in Graphene Coating Layer. <i>ACS Applied Materials &amp; Interfaces</i> , 2017, 9, 11902-11908.	4.0	48
77	Buckling analysis and buckling control of thin films on shape memory polymer substrate. <i>European Journal of Mechanics, A/Solids</i> , 2017, 66, 356-369.	2.1	18
78	Pattern transformation of single-material and composite periodic cellular structures. <i>Materials and Design</i> , 2017, 132, 375-384.	3.3	29
79	A constitutive model of shape memory polymers based on glass transition and the concept of frozen strain release rate. <i>International Journal of Solids and Structures</i> , 2017, 124, 252-263.	1.3	47
80	An algorithm for obtaining real stress field of hyperelastic materials based on digital image correlation system. <i>International Journal of Computational Materials Science and Engineering</i> , 2017, 06, 1850003.	0.5	8
81	Numerical Simulation and Experimental Study of Crack Propagation of Polydimethylsiloxane. <i>Procedia Engineering</i> , 2017, 214, 59-68.	1.2	9
82	Pattern Switching in Soft Cellular Structures and Hydrogel-Elastomer Composite Materials under Compression. <i>Polymers</i> , 2017, 9, 229.	2.0	12
83	Atomic Understanding of the Swelling and Phase Transition of Polyacrylamide Hydrogel. <i>International Journal of Applied Mechanics</i> , 2016, 08, 1640002.	1.3	20
84	Energy wave propagation in pristine and bi-crystal graphene. <i>International Journal of Computational Materials Science and Engineering</i> , 2016, 05, 1650021.	0.5	6
85	Free-standing graphene slit membrane for enhanced desalination. <i>Carbon</i> , 2016, 110, 350-355.	5.4	44
86	Tension-compression asymmetry in the binding affinity of membrane-anchored receptors and ligands. <i>Physical Review E</i> , 2016, 93, 032411.	0.8	4
87	The fracture toughness of graphene during the tearing process. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2016, 24, 085002.	0.8	22
88	Effects of Nanoporosity on the Mechanical Properties and Applications of Aerogels in Composite Structures. , 2016, , 97-126.		0
89	A simplified coupled thermo-mechanical model for the transient analysis of temperature-sensitive hydrogels. <i>Mechanics of Materials</i> , 2016, 97, 212-227.	1.7	49
90	Light intensity controlled wrinkling patterns in photo-thermal sensitive hydrogels. <i>Coupled Systems Mechanics</i> , 2016, 5, 315-327.	0.4	11

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91	Light intensity controlled wrinkling patterns in photo-thermal sensitive hydrogels. Multiscale and Multiphysics Mechanics, 2016, 1, 87-99.	0.3	4
92	MECHANICS OF SOFT MACHINES/SOFT MATERIALS. , 2015, , 63-64.		0
93	A simplified constitutive model for predicting shape memory polymers deformation behavior. International Journal of Computational Materials Science and Engineering, 2015, 04, 1550001.	0.5	16
94	Torsional Detwinning Domino in Nanotwinned One-Dimensional Nanostructures. Nano Letters, 2015, 15, 6082-6087.	4.5	18
95	Pattern transformation of thermo-responsive shape memory polymer periodic cellular structures. International Journal of Solids and Structures, 2015, 71, 194-205.	1.3	38
96	Probabilistic Analysis of Random Structural Intensity for Structural Members under Stochastic Loadings. International Journal of Computational Methods, 2015, 12, 1550013.	0.8	6
97	Wrinkling of a Polymeric Gel During Transient Swelling. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	1.1	30
98	Advances in Mechanics of Soft Materials: A Review of Large Deformation Behavior of Hydrogels. International Journal of Applied Mechanics, 2015, 07, 1530001.	1.3	195
99	Molecular dynamics simulations of nano-indentation and wear of the $\hat{3}$ Ti-Al alloy. Computational Materials Science, 2015, 110, 247-253.	1.4	38
100	BUCKLING DEFORMATION OF ANNULAR PLATES DESCRIBING NATURAL FORMS. International Journal of Structural Stability and Dynamics, 2014, 14, 1350054.	1.5	11
101	Deformation kinetics of $\langle \text{scp} \rangle \text{pH} \langle / \text{scp} \rangle$ -sensitive hydrogels. Polymer International, 2014, 63, 1578-1583.	1.6	34
102	Mechanics of inhomogeneous large deformation of photo-thermal sensitive hydrogels. International Journal of Solids and Structures, 2014, 51, 4440-4451.	1.3	79
103	Superlubricity-activated thinning of graphite flakes compressed by passivated crystalline silicon substrates for graphene exfoliation. Carbon, 2014, 80, 68-74.	5.4	6
104	The effect of Stone-Thrower-Wales defects on mechanical properties of graphene sheets - A molecular dynamics study. Carbon, 2014, 75, 124-132.	5.4	162
105	Mimicking the pattern formation of fruits and leaves using gel materials. Structural Engineering and Mechanics, 2014, 50, 575-588.	1.0	2
106	Mechanical behavior of composite gel periodic structures with the pattern transformation. Structural Engineering and Mechanics, 2014, 50, 605-616.	1.0	10
107	Nano-optomechanical Actuator and Pull-Back Instability. ACS Nano, 2013, 7, 1676-1681.	7.3	69
108	Determination of the Young's modulus of silica aerogels - an analytical-numerical approach. Soft Matter, 2013, 9, 11367.	1.2	38

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109	Inhomogeneous large deformation study of temperature-sensitive hydrogel. International Journal of Solids and Structures, 2013, 50, 2610-2619.	1.3	78
110	Pattern formation in plants via instability theory of hydrogels. Soft Matter, 2013, 9, 577-587.	1.2	58
111	Molecular dynamics simulation of the thermal conductivity of shorts strips of graphene and silicene: a comparative study. International Journal of Mechanics and Materials in Design, 2013, 9, 105-114.	1.7	70
112	Novel mechanical behavior of periodic structure with the pattern transformation. Theoretical and Applied Mechanics Letters, 2013, 3, 054007.	1.3	18
113	INHOMOGENEOUS LARGE DEFORMATION KINETICS OF POLYMERIC GELS. International Journal of Applied Mechanics, 2013, 05, 1350001.	1.3	57
114	COMPARATIVE STUDY ON STRENGTH OF KNEE JOINT USING VARIOUS MATERIAL MODELS. International Journal of Computational Materials Science and Engineering, 2012, 01, 1250013.	0.5	2
115	Thermal conductivity of fluorinated graphene: A non-equilibrium molecular dynamics study. Chemical Physics Letters, 2012, 552, 97-101.	1.2	77
116	Comparing the effects of dispersed Stoneâ€“Throwerâ€“Wales defects and double vacancies on the thermal conductivity of graphene nanoribbons. Nanotechnology, 2012, 23, 385702.	1.3	56
117	pH-Sensitive Hydrogel for Micro-Fluidic Valve. Journal of Functional Biomaterials, 2012, 3, 464-479.	1.8	44
118	Modeling and simulation of buckling of polymeric membrane thin film gel. Computational Materials Science, 2010, 49, S60-S64.	1.4	84
119	Inhomogeneous swelling of a gel in equilibrium with a solvent and mechanical load. International Journal of Solids and Structures, 2009, 46, 3282-3289.	1.3	441
120	MATERIAL CHARACTERIZATION BASED ON INSTRUMENTED AND SIMULATED INDENTATION TESTS. International Journal of Applied Mechanics, 2009, 01, 61-84.	1.3	34
121	Simulations of micro and nanoindentations. Journal of Mechanics of Materials and Structures, 2008, 3, 1847-1856.	0.4	4
122	Response of Plate and Shell Structures due to Low Velocity Impact. Journal of Engineering Mechanics - ASCE, 1997, 123, 1230-1237.	1.6	21