Shengqiang Cai

List of Publications by Year
in descending order

104 papers	5,499 citations	101543 36 h-index	85541 71 g-index
105 all docs	105 docs citations	105 times ranked	4547 citing authors

#	Article	IF	Citations
1	Highly Durable and Tough Liquid Crystal Elastomers. ACS Applied Materials & Interfaces, 2022, 14, 2006-2014.	8.0	13
2	Thermally driven self-oscillation of an elastomer fiber with a hanging weight. Extreme Mechanics Letters, 2022, 50, 101547.	4.1	13
3	Three-Dimensional Printing of Liquid Crystal Elastomers and Their Applications. ACS Applied Polymer Materials, 2022, 4, 3153-3168.	4.4	20
4	Anisotropic mechanical behavior of 3D printed liquid crystal elastomer. Additive Manufacturing, 2022, 52, 102678.	3.0	9
5	Needle-induced-fracking in soft solids with crack blunting. Extreme Mechanics Letters, 2022, 52, 101673.	4.1	5
6	Cellular Responses to Nanomaterials with Biomedical Applications. Journal of Nanomaterials, 2022, 2022, 1-3.	2.7	0
7	Thermally induced self-rupture of a constrained liquid crystal elastomer. Engineering Fracture Mechanics, 2022, 269, 108584.	4.3	5
8	Cavitation induced fracture of intact brain tissue. Biophysical Journal, 2022, 121, 2721-2729.	0.5	1
9	Highly robust and soft biohybrid mechanoluminescence for optical signaling and illumination. Nature Communications, 2022, 13, .	12.8	30
10	Self-sustained rolling of a thermally responsive rod on a hot surface. Extreme Mechanics Letters, 2021, 42, 101116.	4.1	18
11	Printing Multiâ€Material Organic Haptic Actuators. Advanced Materials, 2021, 33, e2002541.	21.0	35
12	Mechanics of vitrimer with hybrid networks. Mechanics of Materials, 2021, 153, 103687.	3.2	25
13	Soft pumps for soft robots. Science Robotics, 2021, 6, .	17.6	8
14	Self-sustained eversion or inversion of a thermally responsive torus. Physical Review E, 2021, 103, 033004.	2.1	21
15	Nonlinear elasticity of biological basement membrane revealed by rapid inflation and deflation. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	19
16	Cavitation dynamics in a vitrimer. Acta Mechanica Sinica/Lixue Xuebao, 2021, 37, 767-772.	3.4	5
17	3D Printing of Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Interfaces, 2021, 13, 24164-24172.	8.0	27
18	Nonsteady fracture of transient networks: The case of vitrimer. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	14

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19	Electrospun liquid crystal elastomer microfiber actuator. Science Robotics, 2021, 6, .	17.6	157
20	Force-dependent bond dissociation explains the rate-dependent fracture of vitrimers. Soft Matter, 2021, 17, 6669-6674.	2.7	10
21	Artificial Muscles for Underwater Soft Robotic System. , 2021, , 71-97.		3
22	Effects of network structures on the fracture of hydrogel. Extreme Mechanics Letters, 2021, 49, 101495.	4.1	15
23	Recyclable and Self-Repairable Fluid-Driven Liquid Crystal Elastomer Actuator. ACS Applied Materials & Interfaces, 2020, 12, 35464-35474.	8.0	80
24	Uniaxial tension of a nematic elastomer with inclined mesogens. Extreme Mechanics Letters, 2020, 40, 100936.	4.1	15
25	Toughening of poly(lactide acid) with low crystallinity through biaxial poststretching. Journal of Polymer Science, 2020, 58, 3488-3495.	3.8	5
26	Analytical solutions of cavitation instability in a compressible hyperelastic solid. International Journal of Non-Linear Mechanics, 2020, 126, 103562.	2.6	6
27	Seeded laser-induced cavitation for studying high-strain-rate irreversible deformation of soft materials. Soft Matter, 2020, 16, 9006-9013.	2.7	13
28	Three-dimensional printing of functionally graded liquid crystal elastomer. Science Advances, 2020, 6, .	10.3	129
29	Discontinuous fibrous Bouligand architecture enabling formidable fracture resistance with crack orientation insensitivity. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 15465-15472.	7.1	96
30	Recent progress in dynamic covalent chemistries for liquid crystal elastomers. Journal of Materials Chemistry B, 2020, 8, 6610-6623.	5.8	59
31	Anomalous inflation of a nematic balloon. Journal of the Mechanics and Physics of Solids, 2020, 142, 104013.	4.8	22
32	Reversible actuation for self-folding modular machines using liquid crystal elastomer. Smart Materials and Structures, 2020, 29, 105003.	3.5	22
33	Electrically Controlled Soft Actuators with Multiple and Reprogrammable Actuation Modes. Advanced Intelligent Systems, 2020, 2, 1900177.	6.1	26
34	3D Printing of a Biocompatible Double Network Elastomer with Digital Control of Mechanical Properties. Advanced Functional Materials, 2020, 30, 1910391.	14.9	30
35	Cavitation in soft matter. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 9157-9165.	7.1	86
36	Determining Prestrains in an Elastomer Through Elliptical Indentation. Journal of Applied Mechanics, Transactions ASME, 2019, 86, .	2.2	3

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37	Residual strain effects in needle-induced cavitation. Soft Matter, 2019, 15, 7390-7397.	2.7	22
38	A Biomimetic Soft Lens Controlled by Electrooculographic Signal. Advanced Functional Materials, 2019, 29, 1903762.	14.9	50
39	Rayleighâ€"Taylor instability in a confined elastic soft cylinder. Journal of the Mechanics and Physics of Solids, 2019, 131, 221-229.	4.8	15
40	Electrically controlled liquid crystal elastomerâ€"based soft tubular actuator with multimodal actuation. Science Advances, 2019, 5, eaax5746.	10.3	312
41	Delayed electromechanical instability of a viscoelastic dielectric elastomer balloon. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2019, 475, 20190316.	2.1	6
42	High stretchability, strength, and toughness of living cells enabled by hyperelastic vimentin intermediate filaments. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 17175-17180.	7.1	103
43	Bioinspired Design of Lightâ€Powered Crawling, Squeezing, and Jumping Untethered Soft Robot. Advanced Materials Technologies, 2019, 4, 1900185.	5.8	144
44	Fracture modes and hybrid toughening mechanisms in oscillated/twisted plywood structure. Acta Biomaterialia, 2019, 91, 284-293.	8.3	40
45	Stretchable and transparent ionic diode and logic gates. Extreme Mechanics Letters, 2019, 28, 81-86.	4.1	41
46	Programmable actuation of liquid crystal elastomers <i>via</i> â€œlivingâ€• exchange reaction. Soft Matter, 2019, 15, 2811-2816.	2.7	63
47	Wrinkles Riding Waves in Soft Layered Materials. Advanced Materials Interfaces, 2019, 6, 1801609.	3.7	6
48	A Lightâ€Powered Ultralight Tensegrity Robot with High Deformability and Load Capacity. Advanced Materials, 2019, 31, e1806849.	21.0	133
49	Contact mechanics of a gel under constrained swelling. Journal of the Mechanics and Physics of Solids, 2019, 124, 427-445.	4.8	9
50	Wrinkles: Wrinkles Riding Waves in Soft Layered Materials (Adv. Mater. Interfaces 1/2019). Advanced Materials Interfaces, 2019, 6, 1970004.	3.7	1
51	Bioinspired Design of Vascular Artificial Muscle. Advanced Materials Technologies, 2019, 4, 1800244.	5.8	86
52	Impact insertion of osteochondral grafts: Interference fit and central graft reduction affect biomechanics and cartilage damage. Journal of Orthopaedic Research, 2018, 36, 377-386.	2.3	8
53	Translucent soft robots driven by frameless fluid electrode dielectric elastomer actuators. Science Robotics, 2018, 3, .	17.6	229
54	Polydopamine-Coated Main-Chain Liquid Crystal Elastomer as Optically Driven Artificial Muscle. ACS Applied Materials & Interfaces, 2018, 10, 8307-8316.	8.0	147

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55	Biomechanics of osteochondral impact with cushioning and graft Insertion: Cartilage damage is correlated with delivered energy. Journal of Biomechanics, 2018, 73, 127-136.	2.1	10
56	New electromechanical instability modes in dielectric elastomer balloons. International Journal of Solids and Structures, 2018, 132-133, 96-104.	2.7	19
57	Thermal Conductivity of Polyacrylamide Hydrogels at the Nanoscale. ACS Applied Materials & Interfaces, 2018, 10, 36352-36360.	8.0	46
58	Fracture mechanics modeling of popping event during daughter cell separation. Biomechanics and Modeling in Mechanobiology, 2018, 17, 1131-1137.	2.8	2
59	Light or Thermally Powered Autonomous Rolling of an Elastomer Rod. ACS Applied Materials & Interfaces, 2018, 10, 25689-25696.	8.0	115
60	Strong size-dependent stress relaxation in electrospun polymer nanofibers. Journal of Applied Physics, 2017, 121, 015103.	2.5	15
61	Rupture of swollen styrene butadiene rubber. Polymer Testing, 2017, 61, 100-105.	4.8	10
62	Fatigue fracture of a highly stretchable acrylic elastomer. Polymer Testing, 2017, 61, 373-377.	4.8	15
63	A simple and robust way towards reversible mechanochromism: Using liquid crystal elastomer as a mask. Extreme Mechanics Letters, 2017, 11, 42-48.	4.1	35
64	Size- and speed-dependent mechanical behavior in living mammalian cytoplasm. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 9529-9534.	7.1	81
65	Cavitation to fracture transition in a soft solid. Soft Matter, 2017, 13, 6372-6376.	2.7	33
66	Reprogrammable, Reprocessible, and Self-Healable Liquid Crystal Elastomer with Exchangeable Disulfide Bonds. ACS Applied Materials & Interfaces, 2017, 9, 33119-33128.	8.0	208
67	Porous double network gels with high toughness, high stretchability and fast solvent-absorption. Soft Matter, 2017, 13, 6852-6857.	2.7	25
68	Stability of Couette flow past a gel film. Theoretical and Applied Mechanics Letters, 2017, 7, 286-291.	2.8	0
69	Indentation of a stretched elastomer. Journal of the Mechanics and Physics of Solids, 2017, 107, 145-159.	4.8	17
70	Mechanics modelling of fern cavitation catapult. Journal of Applied Physics, 2017, 122, .	2.5	12
71	Rupture of Polydomain and Monodomain Liquid Crystal Elastomer. International Journal of Applied Mechanics, 2016, 08, 1640001.	2.2	11
72	Bio-inspired effective and regenerable building cooling using tough hydrogels. Applied Energy, 2016, 168, 332-339.	10.1	44

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73	Polymer nanofiber reinforced double network gel composite: Strong, tough and transparent. Extreme Mechanics Letters, 2016, 9, 165-170.	4.1	23
74	Creasing of an everted elastomer tube. Soft Matter, 2016, 12, 7726-7730.	2.7	11
75	Fluid-like Surface Layer and Its Flow Characteristics in Glassy Nanotubes. Nano Letters, 2016, 16, 7545-7550.	9.1	7
76	Modeling of Light-Driven Bending Vibration of a Liquid Crystal Elastomer Beam. Journal of Applied Mechanics, Transactions ASME, 2016, 83, .	2.2	27
77	Shape Bifurcation of a Spherical Dielectric Elastomer Balloon Under the Actions of Internal Pressure and Electric Voltage. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	2.2	26
78	Bending a beam by a generalized ideal elastomeric gel. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20140919.	2.1	6
79	Drying-Induced Deformation in Fiber-Embedded Gels to Mimic Plant Nastic Movements. International Journal of Applied Mechanics, 2015, 07, 1550016.	2.2	6
80	Inhomogeneous stretch induced patterning of molecular orientation in liquid crystal elastomers. Extreme Mechanics Letters, 2015, 5, 30-36.	4.1	33
81	Gravity induced crease-to-wrinkle transition in soft materials. Applied Physics Letters, 2015, 106, .	3.3	14
82	Cavitation in a swollen elastomer constrained by a non-swellable shell. Journal of Applied Physics, 2015, 117, 154901.	2.5	11
83	Chemomechanical oscillations in a responsive gel induced by an autocatalytic reaction. Journal of Applied Physics, 2014, 116, .	2.5	23
84	Crease in a ring of a pH-sensitive hydrogel swelling under constraint. International Journal of Solids and Structures, 2013, 50, 920-927.	2.7	19
85	Viscoelastic deformation of a dielectric elastomer membrane subject to electromechanical loads. Journal of Applied Physics, 2013, 113, .	2.5	56
86	Creases and wrinkles on the surface of a swollen gel. Journal of Applied Physics, 2013, 114, .	2.5	46
87	Computational model of deformable lenses actuated by dielectric elastomers. Journal of Applied Physics, 2013, 114, 104104.	2.5	23
88	Diffusion-induced wrinkling instability in a circular poroelastic plate. Applied Physics Letters, 2013, 102, 241908.	3.3	5
89	Computational Model of Hydrostatically Coupled Dielectric Elastomer Actuators. Journal of Applied Mechanics, Transactions ASME, 2012, 79, .	2.2	50
90	Mechanical behavior of a pH-sensitive hydrogel ring used in a micro-optical device. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 411-412.	0.2	1

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91	Swellable elastomers under constraint. Journal of Applied Physics, 2012, 112, .	2.5	24
92	Creasing instability of elastomer films. Soft Matter, 2012, 8, 1301-1304.	2.7	114
93	Model of dissipative dielectric elastomers. Journal of Applied Physics, 2012, 111, .	2.5	200
94	Snap-through Expansion of a Gas Bubble in an Elastomer. Journal of Adhesion, 2011, 87, 466-481.	3.0	54
95	Large Plastic Deformation in Highâ€Capacity Lithiumâ€Ion Batteries Caused by Charge and Discharge. Journal of the American Ceramic Society, 2011, 94, s226.	3.8	276
96	Mechanics and chemical thermodynamics of phase transition in temperature-sensitive hydrogels. Journal of the Mechanics and Physics of Solids, 2011, 59, 2259-2278.	4.8	253
97	Creases in soft tissues generated by growth. Europhysics Letters, 2011, 95, 64002.	2.0	74
98	Resonant behavior of a membrane of a dielectric elastomer. International Journal of Solids and Structures, 2010, 47, 3254-3262.	2.7	202
99	Nonlinear oscillation of a dielectric elastomer balloon. Polymer International, 2010, 59, 378-383.	3.1	157
100	Force generated by a swelling elastomer subject to constraint. Journal of Applied Physics, 2010, 107, 103535.	2.5	59
101	A theory of constrained swelling of a pH-sensitive hydrogel. Soft Matter, 2010, 6, 784.	2.7	288
102	Poroelastic swelling kinetics of thin hydrogel layers: comparison of theory and experiment. Soft Matter, 2010, 6, 6004.	2.7	186
103	Osmotic collapse of a void in an elastomer: breathing, buckling and creasing. Soft Matter, 2010, 6, 5770.	2.7	63
104	Evolution equations of deformation twins in metalsâ€"Evolution of deformation twins in pure titanium. Physica B: Condensed Matter, 2008, 403, 1660-1665.	2.7	4