Zicai Zhu

List of Publications by Year
in descending order

71 papers	1,287 citations	331259 21 h-index	395343 33 g-index
71 all docs	71 docs citations	71 times ranked	933 citing authors

#	Article	IF	Citations
1	Three-Fingered Soft Pneumatic Gripper Integrating Joint-Tuning Capability. Soft Robotics, 2022, 9, 948-959.	4.6	12
2	Enhancing of broadband sound absorption through soft matter. Materials Horizons, 2022, 9, 653-662.	6.4	31
3	Ionic Flexible Sensors: Mechanisms, Materials, Structures, and Applications. Advanced Functional Materials, 2022, 32, .	7.8	79
4	Multi-physical modeling and fabrication of high-performance IPMC actuators with serrated interface. Smart Materials and Structures, 2022, 31, 095023.	1.8	2
5	4D-printed low-voltage electroactive polymers modeling and fabrication. , 2022, , 107-150.		0
6	Siliconeâ€Ionic Liquid Elastomer Composite with Keratin as Reinforcing Agent Utilized as Pressure Sensor. Macromolecular Rapid Communications, 2021, 42, e2000602.	2.0	10
7	3D-printed construct from hybrid suspension as spatially and temporally controlled protein delivery system. Journal of Biomaterials Applications, 2021, 36, 264-275.	1.2	4
8	Highly efficient structure design of bending stacking actuators based on IPMC with large output force. Smart Materials and Structures, 2021, 30, 075033.	1.8	8
9	Direct Writing Corrugated PVC Gel Artificial Muscle via Multi-Material Printing Processes. Polymers, 2021, 13, 2734.	2.0	2
10	Voltage response of three ionic polymer pressure sensors based on ion migration at different ambient humidities. Smart Materials and Structures, 2021, 30, 025004.	1.8	9
11	Manufacturing a soft actuator/sensor integrated structure via multi-material direct writing processes technology. Polymer Testing, 2021, 104, 107382.	2.3	2
12	Enhanced water flow sensing performance based on multi-ciliated structure of ionic polymerâ€“metal composite. AIP Advances, 2021, 11, 105320.	0.6	4
13	Progress of low-frequency sound absorption research utilizing intelligent materials and acoustic metamaterials. RSC Advances, 2021, 11, 37784-37800.	1.7	20
14	Rapid preparation of a Nafion/Ag NW composite film and its humidity sensing effect. RSC Advances, 2020, 10, 27447-27455.	1.7	9
15	Fast actuation properties of several typical IL-based ionic electro-active polymers under high impulse voltage. Smart Materials and Structures, 2020, 29, 035014.	1.8	11
16	Symbolic finite element discretization and model order reduction of a multiphysics model for IPMC sensors. Smart Materials and Structures, 2020, 29, 115037.	1.8	10
17	Rapid deformation of IPMC under a high electrical pulse stimulus inspired by action potential. Smart Materials and Structures, 2019, 28, 01LT01.	1.8	19
18	Fundamentals and applications of ion migration induced polymer sensor detecting bending, pressure and shear force. IEEE Instrumentation and Measurement Magazine, 2019, 22, 13-23.	1.2	6

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19	A Compact Review of IPMC as Soft Actuator and Sensor: Current Trends, Challenges, and Potential Solutions From Our Recent Work. Frontiers in Robotics and AI, 2019, 6, 129.	2.0	34
20	Controllable and durable ionic electroactive polymer actuator based on nanoporous carbon nanotube film electrode. Smart Materials and Structures, 2019, 28, 085032.	1.8	15
21	The Effects of Dimensions on the Deformation Sensing Performance of Ionic Polymer-Metal Composites. Sensors, 2019, 19, 2104.	2.1	21
22	Ionic polymer pressure sensor with gradient shape based on ion migration. Journal of Applied Physics, 2019, 125, .	1.1	19
23	Sensing Properties and Physical Model of Ionic Polymer. , 2019, , 503-545.		0
24	IPMC Actuation Mechanisms and Multi-physical Modeling. , 2019, , 455-502.		0
25	Finite difference method and finite element method for modeling IPMC sensor voltage. , 2019, , .		0
26	Tunable actuation behavior of ionic polymer metal composite utilizing carboxylated carbon nanotube-doped Nafion matrix. RSC Advances, 2018, 8, 3090-3094.	1.7	20
27	A moisture and electric coupling stimulated ionic polymer-metal composite actuator with controllable deformation behavior. Smart Materials and Structures, 2018, 27, 02LT01.	1.8	8
28	A three-electrode structured ionic polymer carbon-composite actuator with improved electromechanical performance. Smart Materials and Structures, 2018, 27, 085017.	1.8	7
29	Design and Fabrication of an IPMC Actuated Micro-Pump With Inner Petal-Shaped Diaphragm. , 2018, , .		2
30	Ionic polymer with single-layered electrodes: a novel strategy for ionic actuator design. Smart Materials and Structures, 2018, 27, 105046.	1.8	13
31	Ionic Electroactive Polymers Used in Bionic Robots: A Review. Journal of Bionic Engineering, 2018, 15, 765-782.	2.7	41
32	Printing single-walled carbon nanotube/Nafion composites by direct writing techniques. Materials and Design, 2018, 155, 125-133.	3.3	33
33	Moisture and electric coupling stimulated ionic polymer actuator with superior deformation behavior. , 2018, , .		0
34	Fabrication and characterization of IPMC actuated wing for flapping motion of butterfly. , 2018, , .		1
35	Study on simplification of a multi-physical model of IPMC sensor generating voltage as sensing signal. Proceedings of SPIE, 2017, , .	0.8	2
36	Effects of cation on electrical responses of ionic polymer-metal composite sensors at various ambient humidities. Journal of Applied Physics, 2016, 120, .	1.1	25

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37	An easily fabricated high performance ionic polymer based sensor network. Applied Physics Letters, 2016, 109, .	1.5	20
38	Application-oriented simplification of actuation mechanism and physical model for ionic polymer-metal composites. Journal of Applied Physics, 2016, 120, .	1.1	15
39	Multi-physical model of cation and water transport in ionic polymer-metal composite sensors. Journal of Applied Physics, 2016, 119, .	1.1	31
40	The effect of ambient humidity on the electrical response of ion-migration-based polymer sensor with various cations. Smart Materials and Structures, 2016, 25, 055024.	1.8	17
41	Mass and charge transport in IPMC actuators with fractal interfaces. Proceedings of SPIE, 2016, , .	0.8	0
42	A multi-physical model for charge and mass transport in a flexible ionic polymer sensor. Proceedings of SPIE, 2016, , .	0.8	1
43	Effects of surface roughening of Nafion 117 on the mechanical and physicochemical properties of ionic polymerâ€“metal composite (IPMC) actuators. Smart Materials and Structures, 2016, 25, 085012.	1.8	25
44	Influence of Ambient Humidity on the Voltage Response of Ionic Polymerâ€“Metal Composite Sensor. Journal of Physical Chemistry B, 2016, 120, 3215-3225.	1.2	34
45	Aided manufacturing techniques and applications in optics and manipulation for ionic polymer-metal composites as soft sensors and actuators. Journal of Polymer Engineering, 2015, 35, 611-626.	0.6	12
46	Electromechanical performance of ionic polymer-metal composite under electrode constraint. Journal of Reinforced Plastics and Composites, 2015, 34, 1136-1143.	1.6	2
47	Evaluating curvature and making picture-overlaid trajectory of motion of largely bent carbon nanotube composite bucky gel actuator using camera measurement system. Sensors and Actuators A: Physical, 2015, 235, 28-36.	2.0	2
48	Flexible Actuators. , 2015, , 381-410.		4
49	Flexible Actuators. , 2015, , 1-24.		0
50	Comparative experimental investigation on the actuation mechanisms of ionic polymerâ€“metal composites with different backbones and water contents. Journal of Applied Physics, 2014, 115, 124903.	1.1	33
51	Effects of surface roughening on the mass transport and mechanical properties of ionic polymer-metal composite. Journal of Applied Physics, 2014, 115, .	1.1	17
52	Effects of preparation steps on the physical parameters and electromechanical properties of IPMC actuators. Smart Materials and Structures, 2014, 23, 125015.	1.8	29
53	Effect of Dehydration on the Mechanical and Physicochemical Properties of Gold- and Palladium -Ionomeric Polymer-Metal Composite (IPMC) Actuators. Electrochimica Acta, 2014, 129, 450-458.	2.6	68
54	Influence of additives on the properties of casting nafion membranes and SOâ€based ionic polymerâ€“Metal composite actuators. Polymer Engineering and Science, 2014, 54, 818-830.	1.5	21

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55	Novel electromechanical actuation based on a spongy graphene paper. Chemical Communications, 2014, 50, 4951.	2.2	21
56	A spongy graphene based bimorph actuator with ultra-large displacement towards biomimetic application. Nanoscale, 2014, 6, 12703-12709.	2.8	87
57	Water content criterion for relaxation deformation of Nafion based ionic polymer metal composites doped with alkali cations. Applied Physics Letters, 2014, 105, .	1.5	36
58	Multiphysics of ionic polymerâ€“metal composite actuator. Journal of Applied Physics, 2013, 114, .	1.1	54
59	Physical interpretation of deformation evolvement with water content of ionic polymer-metal composite actuator. Journal of Applied Physics, 2013, 114, .	1.1	31
60	A structure model for Ionic Polymer-Metal Composite (IPMC). , 2012, , .		2
61	SYNTHESIS, EXPERIMENTAL CHARACTERIZATION AND PARAMETRIC IDENTIFICATION OF IONIC-POLYMER METAL COMPOSITE BENDING ACTUATORS. International Journal of Computational Materials Science and Engineering, 2012, 01, 1250012.	0.5	0
62	Multi-physical modeling for electro-transport and deformation of ionic polymer metal composites. , 2012, , .		2
63	Design and optimization of small-sized actuators for driving optical lens with different shapes based on IPMCs. Proceedings of SPIE, 2012, , .	0.8	2
64	Manufacturing process and electrode properties of palladium-electroded ionic polymerâ€“metal composite. Smart Materials and Structures, 2012, 21, 065018.	1.8	49
65	NMR study on mechanisms of ionic polymer-metal composites deformation with water content. Europhysics Letters, 2011, 96, 27005.	0.7	17
66	Polarization-modified instability and actuation transition of deformable dielectric. Europhysics Letters, 2011, 95, 37006.	0.7	23
67	Effect of mechanical pre-stretch on the stabilization of dielectric elastomer actuation. Journal Physics D: Applied Physics, 2011, 44, 155301.	1.3	112
68	Influence of fabrication process steps on Pd-IPMC electrode morphologies and mechano-electrical properties. Proceedings of SPIE, 2011, , .	0.8	5
69	Dynamic model of ion and water transport in ionic polymer-metal composites. AIP Advances, 2011, 1, 040702.	0.6	31
70	Electrostriction in dielectric elastomer: effect on electromechanical actuation. Proceedings of SPIE, 2010, , .	0.8	2
71	Design and fabrication of a microfluidic chip driven by dielectric elastomers. Proceedings of SPIE, 2009, , .	0.8	3