

Shiwei Zhou

List of Publications by Year in descending order

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122
papers

6,476
citations

87843

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66879

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123
all docs

123
docs citations

123
times ranked

5614
citing authors

#	ARTICLE	IF	CITATIONS
1	A nodal-based evolutionary optimization algorithm for frame structures. <i>Computer-Aided Civil and Infrastructure Engineering</i> , 2023, 38, 288-306.	6.3	6
2	Body-fitted bi-directional evolutionary structural optimization using nonlinear diffusion regularization. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2022, 396, 115114.	3.4	5
3	A reaction diffusion-based B-spline level set (RDBLS) method for structural topology optimization. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2022, 398, 115252.	3.4	9
4	Numerical simulation of three-dimensional multicomponent Cahn-Hilliard systems. <i>International Journal of Mechanical Sciences</i> , 2021, 198, 106349.	3.6	15
5	A path-dependent level set topology optimization with fracture criterion. <i>Computers and Structures</i> , 2021, 249, 106515.	2.4	12
6	A reaction diffusion-based level set method using body-fitted mesh for structural topology optimization. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2021, 381, 113829.	3.4	17
7	Human-made corals for marine habitats: Design optimization and additive manufacturing. <i>Advances in Engineering Software</i> , 2021, 162-163, 103065.	1.8	7
8	A direct approach to controlling the topology in structural optimization. <i>Computers and Structures</i> , 2020, 227, 106141.	2.4	39
9	Morphological optimization of scorpion telson. <i>Journal of the Mechanics and Physics of Solids</i> , 2020, 135, 103773.	2.3	29
10	Static and dynamic properties of pre-twisted leaves and stalks with varying chiral morphologies. <i>Extreme Mechanics Letters</i> , 2020, 34, 100612.	2.0	7
11	A computational investigation into the impact resistance of a precise finite element model derived from micro-CT data of a woodpecker's head. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2020, 112, 104107.	1.5	1
12	Piezoelectric properties of triply periodic minimum surface structures. <i>Composites Science and Technology</i> , 2020, 200, 108417.	3.8	21
13	A reaction-diffusion based level set method for image segmentation in three dimensions. <i>Engineering Applications of Artificial Intelligence</i> , 2020, 96, 103998.	4.3	10
14	On the interaction of biological and mechanical factors in leaf vein formation. <i>Advances in Engineering Software</i> , 2020, 149, 102905.	1.8	13
15	Level-set topology optimization for maximizing fracture resistance of brittle materials using phase-field fracture model. <i>International Journal for Numerical Methods in Engineering</i> , 2020, 121, 2929-2945.	1.5	28
16	Re-entrant auxetic lattices with enhanced stiffness: A numerical study. <i>International Journal of Mechanical Sciences</i> , 2020, 178, 105619.	3.6	92
17	A comparison of fast Fourier transform-based homogenization method to asymptotic homogenization method. <i>Composite Structures</i> , 2020, 238, 111979.	3.1	12
18	Nondestructive characterization of bone tissue scaffolds for clinical scenarios. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2019, 89, 150-161.	1.5	27

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19	On hybrid cellular materials based on triply periodic minimal surfaces with extreme mechanical properties. <i>Materials and Design</i> , 2019, 183, 108109.	3.3	130
20	A maze-like path generation scheme for fused deposition modeling. <i>International Journal of Advanced Manufacturing Technology</i> , 2019, 104, 1509-1519.	1.5	23
21	Simple and effective strategies for achieving diverse and competitive structural designs. <i>Extreme Mechanics Letters</i> , 2019, 30, 100481.	2.0	31
22	An investigation of water-flow pressure distribution on bridge piers under flood loading. <i>Structure and Infrastructure Engineering</i> , 2019, 15, 219-229.	2.0	10
23	Buckling-Induced Assembly of Three-Dimensional Tunable Metamaterials (Phys. Status Solidi RRL 4/2018). <i>Physica Status Solidi - Rapid Research Letters</i> , 2018, 12, 1870314.	1.2	1
24	Buckling-Induced Assembly of Three-Dimensional Tunable Metamaterials. <i>Physica Status Solidi - Rapid Research Letters</i> , 2018, 12, 1700420.	1.2	1
25	Designing broad phononic band gaps for in-plane modes. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2018, 382, 679-684.	0.9	37
26	Multi-objective optimization of multi-cell tubes with origami patterns for energy absorption. <i>Thin-Walled Structures</i> , 2018, 123, 100-113.	2.7	53
27	Designing novel structures with hierarchically synchronized deformations. <i>Extreme Mechanics Letters</i> , 2018, 19, 1-6.	2.0	8
28	On the internal architecture of emergent plants. <i>Journal of the Mechanics and Physics of Solids</i> , 2018, 119, 224-239.	2.3	55
29	Novel Negative Poisson's Ratio Lattice Structures with Enhanced Stiffness and Energy Absorption Capacity. <i>Materials</i> , 2018, 11, 1095.	1.3	54
30	Shell buckling: from morphogenesis of soft matter to prospective applications. <i>Bioinspiration and Biomimetics</i> , 2018, 13, 051001.	1.5	14
31	Design of dimpled tubular structures for energy absorption. <i>Thin-Walled Structures</i> , 2017, 112, 31-40.	2.7	34
32	Computational Design for Scaffold Tissue Engineering. <i>Springer Series in Biomaterials Science and Engineering</i> , 2017, , 349-369.	0.7	6
33	High-speed spinning disks on flexible threads. <i>Scientific Reports</i> , 2017, 7, 13111.	1.6	7
34	Pump drill: A superb device for converting translational motion into high-speed rotation. <i>Extreme Mechanics Letters</i> , 2017, 16, 56-63.	2.0	6
35	Broadband All-angle Negative Refraction by Optimized Phononic Crystals. <i>Scientific Reports</i> , 2017, 7, 7445.	1.6	18
36	Topological Design of Cellular Phononic Band Gap Crystals. <i>Materials</i> , 2016, 9, 186.	1.3	51

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37	A finite-element approach to evaluating the size effects of complex nanostructures. Royal Society Open Science, 2016, 3, 160625.	1.1	6
38	Numerical Analysis and Parametric Study of Phononic Band Gap Structures. Applied Mechanics and Materials, 2016, 846, 120-126.	0.2	0
39	Concurrent topological design of composite thermoelastic macrostructure and microstructure with multi-phase material for maximum stiffness. Composite Structures, 2016, 150, 84-102.	3.1	42
40	Energy absorption of thin-walled tubes with pre-folded origami patterns: Numerical simulation and experimental verification. Thin-Walled Structures, 2016, 103, 33-44.	2.7	125
41	A Kirigami Approach to Forming a Synthetic Buckliball. Scientific Reports, 2016, 6, 33016.	1.6	9
42	On the shape transformation of cone scales. Soft Matter, 2016, 12, 9797-9802.	1.2	21
43	Design of lattice structures with controlled anisotropy. Materials and Design, 2016, 93, 443-447.	3.3	212
44	A New Homogenization Formulation for Multifunctional Composites. International Journal of Computational Methods, 2016, 13, 1640002.	0.8	10
45	Evolutionary topological design for phononic band gap crystals. Structural and Multidisciplinary Optimization, 2016, 54, 595-617.	1.7	93
46	Topological design and additive manufacturing of porous metals for bone scaffolds and orthopaedic implants: A review. Biomaterials, 2016, 83, 127-141.	5.7	1,492
47	A Comprehensive Study on Hydrogen Embrittlement and Corrosion Propagation in Mild Steel Bridges. , 2016, , .		0
48	Investigating size effects of complex nanostructures through Young-Laplace equation and finite element analysis. Journal of Applied Physics, 2015, 118, 204301.	1.1	3
49	Design for minimizing fracture risk of all-ceramic cantilever dental bridge. Bio-Medical Materials and Engineering, 2015, 26, S19-S25.	0.4	4
50	Numerical investigation of compressive behaviour of luffa-filled tubes. Composites Part B: Engineering, 2015, 73, 149-157.	5.9	21
51	Buckling-induced retraction of spherical shells: A study on the shape of aperture. Scientific Reports, 2015, 5, 11309.	1.6	10
52	Design of fiber metamaterials with negative refractive index in the infrared. Optics Express, 2015, 23, 18236.	1.7	5
53	Topology optimization for microstructures of viscoelastic composite materials. Computer Methods in Applied Mechanics and Engineering, 2015, 283, 503-516.	3.4	79
54	Inertia Effect on Buckling-Induced Auxetic Metamaterials. International Journal of Protective Structures, 2015, 6, 311-322.	1.4	7

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55	Double-negative metamaterial from conducting spheres with a high-permittivity shell. Optics Letters, 2014, 39, 4587.	1.7	5
56	Buckling-Induced Retraction of Structured Spherical Shell under Pressure. Applied Mechanics and Materials, 2014, 553, 842-846.	0.2	0
57	Design of fishnet metamaterials with broadband negative refractive index in the visible spectrum. Optics Letters, 2014, 39, 2415.	1.7	21
58	Multiscale metamaterials: a new route to isotropic double-negative behaviour at visible frequencies. Optics Express, 2014, 22, 21929.	1.7	2
59	Towards ultra-stiff materials: Surface effects on nanoporous materials. Applied Physics Letters, 2014, 105, .	1.5	10
60	Topology Optimization of Photonic Band Gap Crystals. Applied Mechanics and Materials, 2014, 553, 824-829.	0.2	1
61	Evolutionary topology optimization of hinge-free compliant mechanisms. International Journal of Mechanical Sciences, 2014, 86, 69-75.	3.6	17
62	Simple cubic three-dimensional auxetic metamaterials. Physica Status Solidi (B): Basic Research, 2014, 251, 1515-1522.	0.7	109
63	Topology optimization of compliant mechanisms with desired structural stiffness. Engineering Structures, 2014, 79, 13-21.	2.6	48
64	Designing orthotropic materials for negative or zero compressibility. International Journal of Solids and Structures, 2014, 51, 4038-4051.	1.3	71
65	Water-responsive rapid recovery of natural cellular material. Journal of the Mechanical Behavior of Biomedical Materials, 2014, 34, 283-293.	1.5	28
66	Bioinspired lightweight cellular materials - Understanding effects of natural variation on mechanical properties. Materials Science and Engineering C, 2013, 33, 3146-3152.	3.8	12
67	Behaviour of luffa sponge material under dynamic loading. International Journal of Impact Engineering, 2013, 57, 17-26.	2.4	63
68	Fishnet metamaterial with double negative refractive index in blue region of visible spectrum. Proceedings of SPIE, 2013, , .	0.8	1
69	On design of multi-functional microstructural materials. Journal of Materials Science, 2013, 48, 51-66.	1.7	164
70	Topology optimization of microstructures of cellular materials and composites for macrostructures. Computational Materials Science, 2013, 67, 397-407.	1.4	146
71	Optimizing two-level hierarchical particles for thin-film solar cells. Optics Express, 2013, 21, A285.	1.7	14
72	A study of shape optimization on the metallic nanoparticles for thin-film solar cells. Nanoscale Research Letters, 2013, 8, 447.	3.1	7

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73	Evolutionary topology optimization of periodic composites for extremal magnetic permeability and electrical permittivity. <i>Structural and Multidisciplinary Optimization</i> , 2012, 46, 385-398.	1.7	79
74	Cuttlebone: Characterisation, application and development of biomimetic materials. <i>Journal of Bionic Engineering</i> , 2012, 9, 367-376.	2.7	65
75	Mechanical properties of luffa sponge. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2012, 15, 141-152.	1.5	121
76	Design and fabrication of biphasic cellular materials with transport properties – A modified bidirectional evolutionary structural optimization procedure and MATLAB program. <i>International Journal of Heat and Mass Transfer</i> , 2012, 55, 8149-8162.	2.5	25
77	Sensitivity analysis of bi-layered ceramic dental restorations. <i>Dental Materials</i> , 2012, 28, e6-e14.	1.6	28
78	Multi-fidelity optimization for sheet metal forming process. <i>Structural and Multidisciplinary Optimization</i> , 2011, 44, 111-124.	1.7	56
79	Crashworthiness design of vehicle by using multiobjective robust optimization. <i>Structural and Multidisciplinary Optimization</i> , 2011, 44, 99-110.	1.7	187
80	Finite element based bone remodeling and resonance frequency analysis for osseointegration assessment of dental implants. <i>Finite Elements in Analysis and Design</i> , 2011, 47, 898-905.	1.7	24
81	Topology optimization for negative permeability metamaterials using level-set algorithm. <i>Acta Materialia</i> , 2011, 59, 2624-2636.	3.8	73
82	Mathematical modeling of degradation for bulk-erosive polymers: Applications in tissue engineering scaffolds and drug delivery systems. <i>Acta Biomaterialia</i> , 2011, 7, 1140-1149.	4.1	133
83	Microstructure design of biodegradable scaffold and its effect on tissue regeneration. <i>Biomaterials</i> , 2011, 32, 5003-5014.	5.7	134
84	Computer-Aided Design and Fabrication of Bio-Mimetic Materials and Scaffold Micro-Structures. <i>Advanced Materials Research</i> , 2011, 213, 628-632.	0.3	11
85	Design Optimization of Scaffold Microstructures Using Wall Shear Stress Criterion Towards Regulated Flow-Induced Erosion. <i>Journal of Biomechanical Engineering</i> , 2011, 133, 081008.	0.6	20
86	Crashworthiness design for functionally graded foam-filled thin-walled structures. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2010, 527, 1911-1919.	2.6	262
87	Characterization of cuttlebone for a biomimetic design of cellular structures. <i>Acta Mechanica Sinica/Lixue Xuebao</i> , 2010, 26, 27-35.	1.5	31
88	Design of 3-D Periodic Metamaterials for Electromagnetic Properties. <i>IEEE Transactions on Microwave Theory and Techniques</i> , 2010, 58, 910-916.	2.9	14
89	Design of cellular porous biomaterials for wall shear stress criterion. <i>Biotechnology and Bioengineering</i> , 2010, 107, 737-746.	1.7	16
90	On stiffness of scaffolds for bone tissue engineering – a numerical study. <i>Journal of Biomechanics</i> , 2010, 43, 1738-1744.	0.9	89

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91	Level-set based topology optimization for electromagnetic dipole antenna design. Journal of Computational Physics, 2010, 229, 6915-6930.	1.9	91
92	Multiobjective topology optimization for finite periodic structures. Computers and Structures, 2010, 88, 806-811.	2.4	93
93	Sensitivity analysis for electromagnetic topology optimization problems. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012199.	0.3	2
94	Residual Stresses in Fabrication of Core-Veneered Ceramic Prostheses. Advanced Materials Research, 2010, 97-101, 2241-2244.	0.3	17
95	Assessing the Effects of Natural Variations in Microstructure for the Biomimetic Modeling of Cuttlebone. Advanced Materials Research, 2010, 123-125, 295-298.	0.3	3
96	Creating Biomaterials Inspired by the Microstructure of Cuttlebone. Materials Science Forum, 2010, 654-656, 2229-2232.	0.3	6
97	A level-set procedure for the design of electromagnetic metamaterials. Optics Express, 2010, 18, 6693.	1.7	67
98	COMPUTATIONAL DESIGN FOR MULTIFUNCTIONAL MICROSTRUCTURAL COMPOSITES. International Journal of Modern Physics B, 2009, 23, 1345-1351.	1.0	37
99	Design optimization of functionally graded dental implant for bone remodeling. Composites Part B: Engineering, 2009, 40, 668-675.	5.9	116
100	Characterization and design of 3D scaffolds for biofluidic criteria. , 2009, , .		0
101	Design of graded two-phase microstructures for tailored elasticity gradients. Journal of Materials Science, 2008, 43, 5157-5167.	1.7	127
102	A fixedâ€grid bidirectional evolutionary structural optimization method and its applications in tunnelling engineering. International Journal for Numerical Methods in Engineering, 2008, 73, 1788-1810.	1.5	19
103	A variational level set method for the topology optimization of steady-state Navierâ€Stokes flow. Journal of Computational Physics, 2008, 227, 10178-10195.	1.9	167
104	Microstructural design of connective base cells for functionally graded materials. Materials Letters, 2008, 62, 4022-4024.	1.3	31
105	Computational design of multi-phase microstructural materials for extremal conductivity. Computational Materials Science, 2008, 43, 549-564.	1.4	54
106	Computational Design of Microstructural Composites with Tailored Thermal Conductivity. Numerical Heat Transfer; Part A: Applications, 2008, 54, 686-708.	1.2	25
107	A microstructure diagram for known bounds in conductivity. Journal of Materials Research, 2008, 23, 798-811.	1.2	18
108	The relation of constant mean curvature surfaces to multiphase composites with extremal thermal conductivity. Journal Physics D: Applied Physics, 2007, 40, 6083-6093.	1.3	32

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109	Topological design of structures and composite materials with multiobjectives. International Journal of Solids and Structures, 2007, 44, 7092-7109.	1.3	141
110	Multimaterial structural topology optimization with a generalized Cahn-Hilliard model of multiphase transition. Structural and Multidisciplinary Optimization, 2006, 33, 89-111.	1.7	194
111	The Cahn-Hilliard Phase-Field Model for Topology Optimization of Solids. , 2006, , 133-141.		0
112	The Generalized Cahn-Hilliard Equations of Multiphase Transition for Structural Topology Optimization. , 2005, , .		0
113	Synthesis of shape and topology of multi-material structures with a phase-field method. Journal of Computer-Aided Materials Design, 2004, 11, 117-138.	0.7	48
114	Nonlinear diffusions in topology optimization. Structural and Multidisciplinary Optimization, 2004, 28, 262-276.	1.7	45
115	A Phase Field Method for Structural Topology Optimization. , 2004, , .		5
116	The Design of Functional Gradient Materials with Inverse Homogenization Method. Advanced Materials Research, 0, 32, 245-250.	0.3	1
117	Computational Fracture Modelling in Bioceramic Structures. Advanced Materials Research, 0, 268-270, 853-856.	0.3	5
118	Luffa Sponge as a Sustainable Engineering Material. Applied Mechanics and Materials, 0, 238, 3-8.	0.2	2
119	A Design Procedure for Electric Inductive Capacitive Resonators with Negative Permittivity. Applied Mechanics and Materials, 0, 448-453, 2199-2202.	0.2	0
120	Bi-Directional Evolutionary Structural Optimization for Design of Compliant Mechanisms. Key Engineering Materials, 0, 535-536, 373-376.	0.4	9
121	Compressive Behavior of Luffa Sponge Material at High Strain Rate. Key Engineering Materials, 0, 535-536, 465-468.	0.4	6
122	Unlocking Metamaterial Properties through Multiscale Design. , 0, , .		0