Zhen Luo

List of Publications by Year
in descending order

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110 papers	5,280 citations	81839 39 h-index	91828 69 g-index
111 all docs	111 docs citations	111 times ranked	2267 citing authors

#	Article	IF	Citations
1	A level setâ€based parameterization method for structural shape and topology optimization. International Journal for Numerical Methods in Engineering, 2008, 76, 1-26.	1.5	222
2	A Chebyshev interval method for nonlinear dynamic systems under uncertainty. Applied Mathematical Modelling, 2013, 37, 4578-4591.	2.2	214
3	A multi-material level set-based topology and shape optimization method. Computer Methods in Applied Mechanics and Engineering, 2015, 283, 1570-1586.	3.4	208
4	Continuum topology optimization with non-probabilistic reliability constraints based on multi-ellipsoid convex model. Structural and Multidisciplinary Optimization, 2009, 39, 297-310.	1.7	197
5	Shape and topology optimization of compliant mechanisms using a parameterization level set method. Journal of Computational Physics, 2007, 227, 680-705.	1.9	178
6	Interval uncertain method for multibody mechanical systems using Chebyshev inclusion functions. International Journal for Numerical Methods in Engineering, 2013, 95, 608-630.	1.5	169
7	Optimization of foam-filled bitubal structures for crashworthiness criteria. Materials & Design, 2012, 38, 99-109.	5.1	162
8	Topological shape optimization of microstructural metamaterials using a level set method. Computational Materials Science, 2014, 87, 178-186.	1.4	151
9	Topology optimization for functionally graded cellular composites with metamaterials by level sets. Computer Methods in Applied Mechanics and Engineering, 2018, 328, 340-364.	3.4	141
10	Topology optimization for concurrent design of structures with multi-patch microstructures by level sets. Computer Methods in Applied Mechanics and Engineering, 2018, 331, 536-561.	3.4	139
11	Design of piezoelectric actuators using a multiphase level set method of piecewise constants. Journal of Computational Physics, 2009, 228, 2643-2659.	1.9	133
12	A new level set method for systematic design of hinge-free compliant mechanisms. Computer Methods in Applied Mechanics and Engineering, 2008, 198, 318-331.	3.4	120
13	A new uncertain analysis method and its application in vehicle dynamics. Mechanical Systems and Signal Processing, 2015, 50-51, 659-675.	4.4	114
14	A semi-implicit level set method for structural shape and topology optimization. Journal of Computational Physics, 2008, 227, 5561-5581.	1.9	111
15	Topology optimization for auxetic metamaterials based on isogeometric analysis. Computer Methods in Applied Mechanics and Engineering, 2019, 352, 211-236.	3.4	107
16	Topology optimization for multiscale design of porous composites with multi-domain microstructures. Computer Methods in Applied Mechanics and Engineering, 2019, 344, 451-476.	3.4	106
17	A level set method for structural shape and topology optimization using radial basis functions. Computers and Structures, 2009, 87, 425-434.	2.4	100
18	Level-set topology optimization for mechanical metamaterials under hybrid uncertainties. Computer Methods in Applied Mechanics and Engineering, 2017, 319, 414-441.	3.4	91

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19	Concurrent topology optimization of multiscale composite structures in Matlab. Structural and Multidisciplinary Optimization, 2019, 60, 2621-2651.	1.7	90
20	Topology optimization of structures using meshless density variable approximants. International Journal for Numerical Methods in Engineering, 2013, 93, 443-464.	1.5	83
21	A new interval uncertain optimization method for structures using Chebyshev surrogate models. Computers and Structures, 2015, 146, 185-196.	2.4	80
22	A level set method for shape and topology optimization of largeâ€displacement compliant mechanisms. International Journal for Numerical Methods in Engineering, 2008, 76, 862-892.	1.5	74
23	An interval uncertain optimization method for vehicle suspensions using Chebyshev metamodels. Applied Mathematical Modelling, 2014, 38, 3706-3723.	2.2	72
24	Integrated design of cellular composites using a level-set topology optimization method. Computer Methods in Applied Mechanics and Engineering, 2016, 309, 453-475.	3.4	72
25	Interval multi-objective optimisation of structures using adaptive Kriging approximations. Computers and Structures, 2013, 119, 68-84.	2.4	69
26	Robust topology optimization for structures under interval uncertainty. Advances in Engineering Software, 2016, 99, 36-48.	1.8	68
27	Stressâ€based multiâ€material topology optimization of compliant mechanisms. International Journal for Numerical Methods in Engineering, 2018, 113, 1021-1044.	1.5	68
28	Isogeometric topology optimization for continuum structures using density distribution function. International Journal for Numerical Methods in Engineering, 2019, 119, 991-1017.	1.5	64
29	Level-set topology optimization for multimaterial and multifunctional mechanical metamaterials. Engineering Optimization, 2017, 49, 22-42.	1.5	60
30	Topological design of compliant smart structures with embedded movable actuators. Smart Materials and Structures, 2014, 23, 045024.	1.8	59
31	Incremental modeling of a new high-order polynomial surrogate model. Applied Mathematical Modelling, 2016, 40, 4681-4699.	2.2	54
32	Topological design optimization of lattice structures to maximize shear stiffness. Advances in Engineering Software, 2017, 112, 211-221.	1.8	54
33	Robust topology optimization for concurrent design of dynamic structures under hybrid uncertainties. Mechanical Systems and Signal Processing, 2019, 120, 540-559.	4.4	50
34	A NURBS-based Multi-Material Interpolation (N-MMI) for isogeometric topology optimization of structures. Applied Mathematical Modelling, 2020, 81, 818-843.	2.2	49
35	Design of Multi-phase Piezoelectric Actuators. Journal of Intelligent Material Systems and Structures, 2010, 21, 1851-1865.	1.4	48
36	Space-coiling fractal metamaterial with multi-bandgaps on subwavelength scale. Journal of Sound and Vibration, 2018, 423, 322-339.	2.1	47

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37	A new methodology for multi-objective multidisciplinary design optimization problems based on game theory. Expert Systems With Applications, 2015, 42, 1602-1612.	4.4	46
38	Topological design of pentamode lattice metamaterials using a ground structure method. Materials and Design, 2021, 202, 109523.	3.3	46
39	Modelling and characteristic analysis of tri-axle trucks with hydraulically interconnected suspensions. Vehicle System Dynamics, 2012, 50, 1877-1904.	2.2	43
40	Non-probabilistic reliability-based topology optimization with multidimensional parallelepiped convex model. Structural and Multidisciplinary Optimization, 2018, 57, 2205-2221.	1.7	42
41	A new multiscale topology optimization method for multiphase composite structures of frequency response with level sets. Computer Methods in Applied Mechanics and Engineering, 2019, 356, 116-144.	3.4	41
42	Hilbert fractal acoustic metamaterials with negative mass density and bulk modulus on subwavelength scale. Materials and Design, 2019, 180, 107911.	3.3	41
43	A new procedure for aerodynamic missile designs using topological optimization approach of continuum structures. Aerospace Science and Technology, 2006, 10, 364-373.	2.5	40
44	Topology optimization for thermo-mechanical compliant actuators using mesh-free methods. Engineering Optimization, 2009, 41, 753-772.	1.5	39
45	A new multi-objective programming scheme for topology optimization of compliant mechanisms. Structural and Multidisciplinary Optimization, 2010, 40, 241-255.	1.7	39
46	Dynamic multiscale topology optimization for multi-regional micro-structured cellular composites. Composite Structures, 2019, 211, 401-417.	3.1	39
47	Shape and topology optimization for electrothermomechanical microactuators using level set methods. Journal of Computational Physics, 2009, 228, 3173-3181.	1.9	37
48	An efficient method for reliability analysis under epistemic uncertainty based on evidence theory and support vector regression. Journal of Engineering Design, 2015, 26, 340-364.	1.1	36
49	Fuzzy tolerance multilevel approach for structural topology optimization. Computers and Structures, 2006, 84, 127-140.	2.4	35
50	Uncertain dynamic analysis for rigid-flexible mechanisms with random geometry and material properties. Mechanical Systems and Signal Processing, 2017, 85, 487-511.	4.4	35
51	Design optimization of multifunctional metamaterials with tunable thermal expansion and phononic bandgap. Materials and Design, 2021, 209, 109990.	3.3	35
52	Local existence of classical solutions to the two-dimensional viscous compressible flows with vacuum. Communications in Mathematical Sciences, 2012, 10, 527-554.	0.5	35
53	An uncertain multidisciplinary design optimization method using interval convex models. Engineering Optimization, 2013, 45, 697-718.	1.5	33
54	Three-dimensional full Euler flows in axisymmetric nozzles. Journal of Differential Equations, 2013, 254, 2705-2731.	1.1	32

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55	An arbitrary polynomial chaos expansion approach for response analysis of acoustic systems with epistemic uncertainty. Computer Methods in Applied Mechanics and Engineering, 2018, 332, 280-302.	3.4	32
56	Shape morphing of laminated composite structures with photostrictive actuators via topology optimization. Composite Structures, 2011, 93, 406-418.	3.1	30
57	A new hybrid uncertainty optimization method for structures using orthogonal series expansion. Applied Mathematical Modelling, 2017, 45, 474-490.	2.2	30
58	Robust topology optimization for cellular composites with hybrid uncertainties. International Journal for Numerical Methods in Engineering, 2018, 115, 695-713.	1.5	29
59	Machine learning aided phase field method for fracture mechanics. International Journal of Engineering Science, 2021, 169, 103587.	2.7	28
60	Unified polynomial expansion for interval and random response analysis of uncertain structureâ€“acoustic system with arbitrary probability distribution. Computer Methods in Applied Mechanics and Engineering, 2018, 336, 260-285.	3.4	25
61	Design of Self-Expanding Auxetic Stents Using Topology Optimization. Frontiers in Bioengineering and Biotechnology, 2020, 8, 736.	2.0	24
62	Topological design of pentamode metamaterials with additive manufacturing. Computer Methods in Applied Mechanics and Engineering, 2021, 377, 113708.	3.4	24
63	A new method based on adaptive volume constraint and stress penalty for stress-constrained topology optimization. Structural and Multidisciplinary Optimization, 2018, 57, 1163-1185.	1.7	23
64	Topology Optimization for Static Shape Control of Piezoelectric Plates With Penalization on Intermediate Actuation Voltage. Journal of Mechanical Design, Transactions of the ASME, 2012, 134, .	1.7	22
65	Topology Optimization of Micro-Structured Materials Featured with the Specific Mechanical Properties. International Journal of Computational Methods, 2020, 17, 1850144.	0.8	22
66	Topology optimization of compliant mechanisms using element-free Galerkin method. Advances in Engineering Software, 2015, 85, 61-72.	1.8	21
67	Topological design for mechanical metamaterials using a multiphase level set method. Structural and Multidisciplinary Optimization, 2016, 54, 937-952.	1.7	21
68	IgaTop: an implementation of topology optimization for structures using IGA in MATLAB. Structural and Multidisciplinary Optimization, 2021, 64, 1669-1700.	1.7	21
69	A new sampling scheme for developing metamodels with the zeros of Chebyshev polynomials. Engineering Optimization, 2015, 47, 1264-1288.	1.5	18
70	Topological shape optimization of multifunctional tissue engineering scaffolds with level set method. Structural and Multidisciplinary Optimization, 2016, 54, 333-347.	1.7	18
71	An improved parametric level set method for structural frequency response optimization problems. Advances in Engineering Software, 2018, 126, 75-89.	1.8	18
72	Levelâ€set topology optimization for robust design of structures under hybrid uncertainties. International Journal for Numerical Methods in Engineering, 2019, 117, 523-542.	1.5	18

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73	A meshfree level-set method for topological shape optimization of compliant multiphysics actuators. Computer Methods in Applied Mechanics and Engineering, 2012, 223-224, 133-152.	3.4	17
74	Characteristic analysis of pitch-resistant hydraulically interconnected suspensions for two-axle vehicles. JVC/Journal of Vibration and Control, 2015, 21, 3167-3188.	1.5	17
75	Dynamic computation of flexible multibody system with uncertain material properties. Nonlinear Dynamics, 2016, 85, 1231-1254.	2.7	17
76	A numerical study on nonlinear vibration of an inclined cable coupled with the deck in cable-stayed bridges. JVC/Journal of Vibration and Control, 2012, 18, 404-416.	1.5	16
77	Multiple stiffness topology optimizations of continuum structures. International Journal of Advanced Manufacturing Technology, 2006, 30, 203-214.	1.5	15
78	3D Hilbert fractal acoustic metamaterials: low-frequency and multi-band sound insulation. Journal Physics D: Applied Physics, 2019, 52, 195302.	1.3	15
79	Subsonic non-isentropic Euler flows with large vorticity in axisymmetric nozzles. Journal of Mathematical Analysis and Applications, 2015, 430, 1037-1057.	0.5	14
80	Zeroâ€viscosityâ€capillarity limit to rarefaction waves for the 1D compressible Navierâ€“Stokesâ€“Korteweg equations. Mathematical Methods in the Applied Sciences, 2016, 39, 5513-5528.	1.2	14
81	A new sequential sampling method for constructing the high-order polynomial surrogate models. Engineering Computations, 2018, 35, 529-564.	0.7	14
82	An adaptive method for high-resolution topology design. Acta Mechanica Sinica/Lixue Xuebao, 2013, 29, 840-850.	1.5	13
83	Design of distributed compliant micromechanisms with an implicit free boundary representation. Structural and Multidisciplinary Optimization, 2008, 36, 607-621.	1.7	12
84	Local Existence of Classical Solutions to Shallow Water Equations with Cauchy Data Containing Vacuum. SIAM Journal on Mathematical Analysis, 2012, 44, 541-567.	0.9	12
85	On the existence of local strong solutions to chemotaxisâ€“shallow water system with large data and vacuum. Journal of Differential Equations, 2016, 261, 6758-6789.	1.1	12
86	Engineering three-dimensional labyrinthine fractal acoustic metamaterials with low-frequency multi-band sound suppression. Journal of the Acoustical Society of America, 2021, 149, 308-319.	0.5	12
87	Topological Optimization of Auxetic Coronary Stents Considering Hemodynamics. Frontiers in Bioengineering and Biotechnology, 2021, 9, 728914.	2.0	12
88	Robust topology optimisation of bi-modulus structures. CAD Computer Aided Design, 2013, 45, 1159-1169.	1.4	11
89	Global existence of classical solutions to twoâ€dimensional Navierâ€“Stokes equations with Cauchy data containing vacuum. Mathematical Methods in the Applied Sciences, 2014, 37, 1333-1352.	1.2	11
90	Design of Adaptive Cores of Sandwich Structures Using a Compliant Unit Cell Approach and Topology Optimization. Journal of Mechanical Design, Transactions of the ASME, 2010, 132, .	1.7	10

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91	A variational principle and finite element formulation for multi-physics PLZT ceramics. Mechanics Research Communications, 2011, 38, 198-202.	1.0	10
92	Self-supporting topology optimization method for selective laser melting. Additive Manufacturing, 2020, 36, 101506.	1.7	9
93	Interval uncertain analysis of active hydraulically interconnected suspension system. Advances in Mechanical Engineering, 2016, 8, 168781401664633.	0.8	8
94	A multi-objective optimization of stent geometries. Journal of Biomechanics, 2021, 125, 110575.	0.9	8
95	Topology synthesis of geometrically nonlinear compliant mechanisms using meshless methods. Acta Mechanica Solida Sinica, 2008, 21, 51-61.	1.0	7
96	Topology optimization of bi-modulus structures using the concept of bone remodeling. Engineering Computations, 2014, 31, 1361-1378.	0.7	7
97	Robust topology optimization considering load uncertainty based on a semi-analytical method. International Journal of Advanced Manufacturing Technology, 2018, 94, 3537-3551.	1.5	5
98	Finite-time blow-up of classical solutions to the rotating shallow water system with degenerate viscosity. Zeitschrift Fur Angewandte Mathematik Und Physik, 2019, 70, 1.	0.7	5
99	Stability of the planar rarefaction wave to twoâ€dimensional Navierâ€Stokesâ€Korteweg equations of compressible fluids. Mathematical Methods in the Applied Sciences, 2020, 43, 3307-3330.	1.2	5
100	Shape mattersâ€”the interaction of gold nanoparticles with model lung surfactant monolayers. Journal of the Royal Society Interface, 2021, 18, 20210402.	1.5	5
101	Topological Design of Multi-Material Compliant Mechanisms with Global Stress Constraints. Micromachines, 2021, 12, 1379.	1.4	5
102	Stability of the planar rarefaction wave to three-dimensional Navierâ€“Stokesâ€“Korteweg equations of compressible fluids. Nonlinearity, 2021, 34, 2689-2714.	0.6	4
103	Concurrent design for structures and material microstructures under hybrid uncertainties. Materials and Design, 2021, 205, 109728.	3.3	4
104	THEORETICAL AND ALGORITHMIC ON TOPOLOGY OPTIMIZATION DESIGN OF DISTRIBUTED COMPLIANT MECHANISMS. Jixie Gongcheng Xuebao/Chinese Journal of Mechanical Engineering, 2006, 42, 27.	0.7	4
105	The Interval Uncertain Optimization Strategy Based on Chebyshev Meta-model. Springer Proceedings in Mathematics and Statistics, 2015, , 203-216.	0.1	3
106	Design of Compliant Mechanisms of Distributed Compliance Using a Level-Set Based Topology Optimization Method. Applied Mechanics and Materials, 0, 110-116, 2319-2323.	0.2	1
107	Existence of strong solutions to the rotating shallow water equations with degenerate viscosities. Analysis and Applications, 2020, 18, 333-358.	1.2	1
108	Stability of the planar rarefaction wave to three-dimensional full compressible Navier-Stokes-Korteweg equations. Journal of Differential Equations, 2022, 327, 382-417.	1.1	1

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109	An Element-Free Galerkin Method for Topology Optimization of Micro Compliant Mechanisms. Springer Proceedings in Mathematics and Statistics, 2015, , 217-226.	0.1	0
110	Design of Auxetic Coronary Stents by Topology Optimization. , 2020, , 17-31.		0