

# Hu Gengkai

## List of Publications by Year in descending order

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126  
papers

5,120  
citations

81900  
39  
h-index

98798  
67  
g-index

126  
all docs

126  
docs citations

126  
times ranked

2974  
citing authors

#	ARTICLE	IF	CITATIONS
1	Experimental study on negative effective mass in a 1D mass-spring system. New Journal of Physics, 2008, 10, 043020.	2.9	321
2	Ultrathin low-frequency sound absorbing panels based on coplanar spiral tubes or coplanar Helmholtz resonators. Applied Physics Letters, 2014, 105, .	3.3	305
3	A hybrid elastic metamaterial with negative mass density and tunable bending stiffness. Journal of the Mechanics and Physics of Solids, 2017, 105, 179-198.	4.8	185
4	Tunable Digital Metamaterial for Broadband Vibration Isolation at Low Frequency. Advanced Materials, 2016, 28, 9857-9861.	21.0	178
5	Smart three-dimensional lightweight structure triggered from a thin composite sheet via 3D printing technique. Scientific Reports, 2016, 6, 22431.	3.3	172
6	Chiral effect in plane isotropic micropolar elasticity and its application to chiral lattices. Journal of the Mechanics and Physics of Solids, 2012, 60, 1907-1921.	4.8	158
7	Analytic model of elastic metamaterials with local resonances. Physical Review B, 2009, 79, .	3.2	152
8	A low-frequency sound absorbing material with subwavelength thickness. Applied Physics Letters, 2017, 110, .	3.3	143
9	A method of plasticity for general aligned spheroidal void or fiber-reinforced composites. International Journal of Plasticity, 1996, 12, 439-449.	8.8	125
10	Topological phase transition in mechanical honeycomb lattice. Journal of the Mechanics and Physics of Solids, 2019, 122, 54-68.	4.8	119
11	Analytical coupled vibroacoustic modeling of membrane-type acoustic metamaterials: Membrane model. Journal of the Acoustical Society of America, 2014, 136, 969-979.	1.1	118
12	Design method for electromagnetic cloak with arbitrary shapes based on Laplace's equation. Optics Express, 2009, 17, 1308.	3.4	116
13	Pattern Transformation of Heat-Shrinkable Polymer by Three-Dimensional (3D) Printing Technique. Scientific Reports, 2015, 5, 8936.	3.3	115
14	Broadband solid cloak for underwater acoustics. Physical Review B, 2017, 95, .	3.2	109
15	Latticed pentamode acoustic cloak. Scientific Reports, 2015, 5, 15745.	3.3	106
16	Design method for quasi-isotropic transformation materials based on inverse Laplace's equation with sliding boundaries. Optics Express, 2010, 18, 6089.	3.4	105
17	Thermally induced vibrations of flexible beams using Absolute Nodal Coordinate Formulation. Aerospace Science and Technology, 2013, 29, 386-393.	4.8	100
18	Investigation of the negative-mass behaviors occurring below a cut-off frequency. New Journal of Physics, 2010, 12, 103025.	2.9	99

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19	A programmable metasurface for real time control of broadband elastic rays. Smart Materials and Structures, 2018, 27, 115011.	3.5	93
20	Analytical coupled vibroacoustic modeling of membrane-type acoustic metamaterials: Plate model. Journal of the Acoustical Society of America, 2014, 136, 2926-2934.	1.1	92
21	Superlensing effect of an anisotropic metamaterial slab with near-zero dynamic mass. Applied Physics Letters, 2011, 98, 263510.	3.3	80
22	Programmable elastic valley Hall insulator with tunable interface propagation routes. Extreme Mechanics Letters, 2019, 28, 76-80.	4.1	76
23	Tailored Mechanical Metamaterials with Programmable Quasi-“Zero” Stiffness Features for Full-Band Vibration Isolation. Advanced Functional Materials, 2021, 31, 2101428.	14.9	74
24	A finite element beam model including cross-section distortion in the absolute nodal coordinate formulation. Nonlinear Dynamics, 2014, 77, 1019-1033.	5.2	73
25	A continuum micromechanical theory of overall plasticity for particulate composites including particle size effect. International Journal of Plasticity, 2005, 21, 777-799.	8.8	64
26	Droplet Splashing on an Inclined Surface. Physical Review Letters, 2019, 122, 054501.	7.8	57
27	An active mechanical Willis meta-layer with asymmetric polarizabilities. Nature Communications, 2020, 11, 3681.	12.8	56
28	Approximate method for controlling solid elastic waves by transformation media. Physical Review B, 2011, 84, .	3.2	52
29	Effective medium theory of thin-plate acoustic metamaterials. Journal of the Acoustical Society of America, 2014, 135, 1844-1852.	1.1	51
30	Nonsingular two dimensional cloak of arbitrary shape. Applied Physics Letters, 2009, 95, 011107.	3.3	50
31	Super-resolution imaging by resonant tunneling in anisotropic acoustic metamaterials. Journal of the Acoustical Society of America, 2012, 132, 2800-2806.	1.1	50
32	Tunable fluid-solid metamaterials for manipulation of elastic wave propagation in broad frequency range. Applied Physics Letters, 2018, 112, .	3.3	50
33	Dirac degeneracy and elastic topological valley modes induced by local resonant states. Physical Review B, 2020, 101, .	3.2	49
34	Controlling elastic waves with isotropic materials. Applied Physics Letters, 2011, 98, .	3.3	47
35	Experimental study for metamaterials based on dielectric resonators and wire frame. Metamaterials, 2008, 2, 220-226.	2.2	46
36	Broadband and High-Transmission Metasurface for Converting Underwater Cylindrical Waves to Plane Waves. Physical Review Applied, 2019, 12, .	3.8	45

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37	A variational method for non-linear micropolar composites. <i>Mechanics of Materials</i> , 2005, 37, 407-425.	3.2	44
38	Elastic wave transparency of a solid sphere coated with metamaterials. <i>Physical Review B</i> , 2008, 77, .	3.2	44
39	Non-resonant metasurface for broadband elastic wave mode splitting. <i>Applied Physics Letters</i> , 2020, 116, .	3.3	42
40	Effective moduli for micropolar composite with interface effect. <i>International Journal of Solids and Structures</i> , 2007, 44, 8106-8118.	2.7	38
41	Experimental study on acoustic subwavelength imaging based on zero-mass metamaterials. <i>Europhysics Letters</i> , 2015, 109, 28001.	2.0	37
42	Creation of acoustic vortex knots. <i>Nature Communications</i> , 2020, 11, 3956.	12.8	35
43	Effective in plane moduli of composites with a micropolar matrix and coated fibers. <i>International Journal of Solids and Structures</i> , 2004, 41, 247-265.	2.7	34
44	Experimental study on acoustic subwavelength imaging of holey-structured metamaterials by resonant tunneling. <i>Journal of the Acoustical Society of America</i> , 2014, 135, 1686-1691.	1.1	34
45	A numerical method for designing acoustic cloak with arbitrary shapes. <i>Computational Materials Science</i> , 2009, 46, 708-712.	3.0	32
46	A micromechanical method for particulate composites with finite particle concentration. <i>Mechanics of Materials</i> , 2004, 36, 359-368.	3.2	31
47	Inclusion problem of microstretch continuum. <i>International Journal of Engineering Science</i> , 2004, 42, 849-860.	5.0	31
48	Overall plasticity of micropolar composites with interface effect. <i>Mechanics of Materials</i> , 2008, 40, 721-728.	3.2	31
49	Influences of imperfectness and inner constraints on an acoustic cloak with unideal pentamode materials. <i>Journal of Sound and Vibration</i> , 2019, 458, 62-73.	3.9	29
50	Mechanical behaviour of $\pm 55^\circ$ filament-wound glass-fibre/epoxy-resin tubes”III. Macromechanical model of the macroscopic behaviour of tubular structures with damage and failure envelope prediction. <i>Composites Science and Technology</i> , 1998, 58, 19-29.	7.8	27
51	Designing 3D Digital Metamaterial for Elastic Waves: From Elastic Wave Polarizer to Vibration Control. <i>Advanced Science</i> , 2019, 6, 1900401.	11.2	27
52	Thermal shock induced dynamics of a spacecraft with a flexible deploying boom. <i>Acta Astronautica</i> , 2017, 141, 123-131.	3.2	25
53	Stress transfer for a SMA fiber pulled out from an elastic matrix and related bridging effect. <i>Composites Part A: Applied Science and Manufacturing</i> , 2005, 36, 1142-1151.	7.6	24
54	Design of arbitrary shaped pentamode acoustic cloak based on quasi-symmetric mapping gradient algorithm. <i>Journal of the Acoustical Society of America</i> , 2016, 140, EL405-EL409.	1.1	23

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55	Dynamics of 1D mass-spring system with a negative stiffness spring realized by magnets: Theoretical and experimental study. Theoretical and Applied Mechanics Letters, 2017, 7, 17-21.	2.8	23
56	Theory and Realization of Nonresonant Anisotropic Singly Polarized Solids Carrying Only Shear Waves. Physical Review Applied, 2019, 12, .	3.8	23
57	Prestress-controlled asymmetric wave propagation and reciprocity-breaking in tensegrity metastructure. Extreme Mechanics Letters, 2020, 37, 100724.	4.1	23
58	Composite plasticity based on matrix average second order stress moment. International Journal of Solids and Structures, 1997, 34, 1007-1015.	2.7	22
59	Thermally Induced Dynamics of a Spinning Spacecraft with an Axial Flexible Boom. Journal of Spacecraft and Rockets, 2015, 52, 1503-1508.	1.9	22
60	Eshelby tensors for an ellipsoidal inclusion in a micropolar material. International Journal of Engineering Science, 2006, 44, 595-605.	5.0	21
61	Mechanism of dust removal by a standing wave electric curtain. Science China: Physics, Mechanics and Astronomy, 2012, 55, 1018-1025.	5.1	21
62	Sound absorption by acoustic microlattice with optimized pore configuration. Journal of the Acoustical Society of America, 2018, 144, EL138-EL143.	1.1	21
63	Inclusion problem in second gradient elasticity. International Journal of Engineering Science, 2018, 132, 60-78.	5.0	21
64	Highly anisotropic hexagonal lattice material for low frequency water sound insulation. Extreme Mechanics Letters, 2020, 40, 100916.	4.1	21
65	Transformation method and wave control. Acta Mechanica Sinica/Lixue Xuebao, 2010, 26, 889-898.	3.4	19
66	Shape-adaptable hyperlens for acoustic magnifying imaging. Applied Physics Letters, 2016, 109, .	3.3	19
67	Thermal-structural dynamic analysis of a satellite antenna with the cable-network and hoop-truss supports. Journal of Thermal Stresses, 2019, 42, 1339-1356.	2.0	19
68	Small droplet bouncing on a deep pool. Physics of Fluids, 2020, 32, .	4.0	18
69	Size-dependence of overall in-plane plasticity for fiber composites. International Journal of Solids and Structures, 2004, 41, 4713-4730.	2.7	16
70	Mechanical behaviour of $\pm 55^\circ$ filament-wound glass-fibre/epoxy-resin tubes: II. Micromechanical model of damage initiation and the competition between different mechanisms. Composites Science and Technology, 1997, 57, 155-164.	7.8	14
71	Influence of fiber's shape and size on overall elastoplastic property for micropolar composites. International Journal of Solids and Structures, 2006, 43, 3025-3043.	2.7	14
72	Experimental study on interaction between a positive mass and a negative effective mass through a mass-spring system. Theoretical and Applied Mechanics Letters, 2015, 5, 196-199.	2.8	14

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73	Acoustic cloak constructed with thin-plate metamaterials. International Journal of Smart and Nano Materials, 2015, 6, 73-83.	4.2	14
74	Broadband dual-anisotropic solid metamaterials. Scientific Reports, 2017, 7, 13197.	3.3	14
75	Eshelby tensors for an ellipsoidal inclusion in a microstretch material. International Journal of Solids and Structures, 2007, 44, 3049-3061.	2.7	13
76	Identification of material parameters of micropolar theory for composites by homogenization method. Computational Materials Science, 2009, 46, 733-737.	3.0	13
77	Dynamic effective models of two-dimensional acoustic metamaterials with cylindrical inclusions. Acta Mechanica, 2013, 224, 1233-1241.	2.1	13
78	Optimization on microlattice materials for sound absorption by an integrated transfer matrix method. Journal of the Acoustical Society of America, 2015, 137, EL334-EL339.	1.1	13
79	Wrinkling of structured thin films via contrasted materials. Soft Matter, 2016, 12, 3937-3942.	2.7	13
80	Mixed mode fracture analysis of adhesive lap joints. Composites Part B: Engineering, 1995, 5, 1043-1050.	0.6	12
81	Topological valley states in sonic crystals with Willis coupling. Applied Physics Letters, 2021, 119, 051903.	3.3	12
82	Constraint condition on transformation relation for generalized acoustics. Wave Motion, 2013, 50, 170-179.	2.0	11
83	Compact acoustic double negative metamaterial based on coexisting local resonances. Applied Physics Letters, 2018, 113, 244101.	3.3	11
84	Analytical and Experimental Investigation on Sound Transmission of Double Thin Plates with Magnetic Negative Stiffness. International Journal of Applied Mechanics, 2018, 10, 1850054.	2.2	11
85	Transformation ray method: Controlling high frequency elastic waves (L). Journal of the Acoustical Society of America, 2012, 132, 2942-2945.	1.1	10
86	Wrinkling of the membrane with square rigid elements. Europhysics Letters, 2016, 116, 24005.	2.0	10
87	Thermoelasticity Structural Analysis of Space Thin-Walled Beam Under Solar Flux. AIAA Journal, 2019, 57, 1781-1785.	2.6	10
88	Effective viscoelastic behavior of particulate polymer composites at finite concentration. Applied Mathematics and Mechanics (English Edition), 2007, 28, 297-307.	3.6	9
89	Experimental study on electromagnetic wave transparency for coated metallic cylinders. Journal of Applied Physics, 2009, 105, 103112.	2.5	9
90	Quadramode materials: Their design method and wave property. Materials and Design, 2021, 210, 110031.	7.0	9

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91	Explicit cross-link relations between effective elastic modulus and thermal conductivity for fiber composites. Computational Materials Science, 2012, 51, 353-359.	3.0	8
92	Sound reduction by metamaterial-based acoustic enclosure. AIP Advances, 2014, 4, .	1.3	8
93	A facile method to realize perfectly matched layers for elastic waves. Wave Motion, 2014, 51, 1170-1178.	2.0	8
94	Mass-spring model of elastic media with customizable Willis coupling. International Journal of Mechanical Sciences, 2022, 224, 107325.	6.7	8
95	Design method for electromagnetic cloak with arbitrary shapes based on Laplace's equation: erratum. Optics Express, 2009, 17, 13070.	3.4	7
96	Wave-based transfer matrix method for dynamic response of large net structures. Journal of Sound and Vibration, 2018, 433, 265-286.	3.9	7
97	Tunable network sound absorber based on additive manufacturing. Journal of the Acoustical Society of America, 2021, 150, 94-101.	1.1	7
98	Design of Load-Bearing Materials for Isolation of Low-Frequency Waterborne Sound. Physical Review Applied, 2022, 17, .	3.8	7
99	Wave characteristics of extremal elastic materials. Extreme Mechanics Letters, 2022, 55, 101789.	4.1	7
100	Influence of Gradual Interphase on Overall Elastic and Viscoelastic Properties of Particulate Composites. Journal of Thermoplastic Composite Materials, 2004, 17, 411-425.	4.2	6
101	Two-dimensional water acoustic waveguide based on pressure compensation method. Review of Scientific Instruments, 2018, 89, 024902.	1.3	6
102	Homogenization in a simpler way: analysis and optimization of periodic unit cells with Cauchy's Born hypothesis. Structural and Multidisciplinary Optimization, 2021, 64, 3911-3935.	3.5	6
103	Odd elasticity realized by piezoelectric material with linear feedback. Science China: Physics, Mechanics and Astronomy, 2021, 64, 1.	5.1	6
104	Linear and nonlinear dielectric properties of particulate composites at finite concentration. Applied Mathematics and Mechanics (English Edition), 2006, 27, 1021-1030.	3.6	5
105	Wave boundary control method for vibration suppression of large net structures. Acta Mechanica, 2019, 230, 3439-3456.	2.1	5
106	Asymmetric droplet splashing. Physical Review Fluids, 2020, 5, .	2.5	5
107	Droplet impact on a prewetted mesh. Physical Review Fluids, 2021, 6, .	2.5	5
108	Longitudinal elastic wave control by pre-deforming semi-linear materials. Journal of the Acoustical Society of America, 2017, 142, 1229-1235.	1.1	4

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109	In-Plane Semi-Linear Cloaks with Arbitrary Shape. <i>Acta Mechanica Solida Sinica</i> , 2019, 32, 277-286.	1.9	4
110	Rational design of hyperelastic semi-linear material and its application to elastic wave control. <i>Mechanics of Materials</i> , 2022, 166, 104237.	3.2	4
111	Design of elliptical underwater acoustic cloak with truss-latticed pentamode materials. <i>Theoretical and Applied Mechanics Letters</i> , 2022, 12, 100346.	2.8	4
112	Overall elastoplastic property for micropolar composites with randomly oriented ellipsoidal inclusions. <i>Computational Materials Science</i> , 2006, 37, 582-592.	3.0	3
113	Micromechanical analysis of fatigue properties of metal-matrix composites. <i>Mechanics Research Communications</i> , 1997, 24, 65-68.	1.8	2
114	Invisible cloak design with controlled constitutive parameters and arbitrary shaped boundaries through Helmholtz's equation: comment. <i>Optics Express</i> , 2010, 18, 3917.	3.4	2
115	Particle focusing in a microchannel with acoustic metafluid. <i>Applied Physics Letters</i> , 2013, 103, 031901.	3.3	2
116	A decoupling-design strategy for high sound absorption in subwavelength structures with air ventilation. <i>JASA Express Letters</i> , 2022, 2, 033602.	1.1	2
117	Grating effect in negative permeability meta-material. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2008, 372, 2692-2695.	2.1	1
118	Heat flow control by transformation method with grid generation method. <i>Acta Mechanica Solida Sinica</i> , 2014, 27, 454-460.	1.9	1
119	Quasiconformal maps in transformation optics and their electrostatic analogs. , 2015, , .		1
120	Experimental Study on Tunable Electromagnetic Shielding by Microlattice Materials with Organized Microstructures. <i>Advanced Engineering Materials</i> , 2018, 20, 1700823.	3.5	1
121	Interfacial wave between acoustic media with Willis coupling. <i>Wave Motion</i> , 2022, , 102922.	2.0	1
122	An analytical dislocation multiple-pile-up model for the yield stress of fully lamellar TiAl alloys. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2003, 11, 627-634.	2.0	0
123	Micromechanical modeling of local field distribution for a planar composite under plastic deformation. <i>Acta Mechanica</i> , 2006, 187, 139-149.	2.1	0
124	Digital Metamaterials: Designing 3D Digital Metamaterial for Elastic Waves: From Elastic Wave Polarizer to Vibration Control (Adv. Sci. 16/2019). <i>Advanced Science</i> , 2019, 6, 1970097.	11.2	0
125	Transparency Effect Induced by Elastic Metamaterials. <i>Progress in Electromagnetics Research Symposium: [proceedings] Progress in Electromagnetics Research Symposium</i> , 2008, 4, 197-200.	0.4	0
126	WAVE CHARACTERISTICS IN CHIRAL LATTICE WITH LOCAL RESONATOR. , 2015, , 39-40.		0