Hanqing Jiang

List of Publications by Year
in descending order

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142	11,960	38742 50	25787 108
papers	citations	h-index	g-index

143	143	143	11764
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A Stretchable Form of Single-Crystal Silicon for High-Performance Electronics on Rubber Substrates. Science, 2006, 311, 208-212.	12.6	1,531
2	Controlled buckling of semiconductor nanoribbons for stretchable electronics. Nature Nanotechnology, 2006, 1, 201-207.	31.5	817
3	Stretchable Supercapacitors Based on Buckled Singleâ€Walled Carbonâ€Nanotube Macrofilms. Advanced Materials, 2009, 21, 4793-4797.	21.0	627
4	Finite deformation mechanics in buckled thin films on compliant supports. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 15607-15612.	7.1	626
5	Origami lithium-ion batteries. Nature Communications, 2014, 5, 3140.	12.8	466
6	Biaxially Stretchable â€œWavyâ€•Silicon Nanomembranes. Nano Letters, 2007, 7, 1655-1663.	9.1	356
7	Stress-driven lithium dendrite growth mechanism and dendrite mitigation by electroplating on soft substrates. Nature Energy, 2018, 3, 227-235.	39.5	353
8	A cohesive law for carbon nanotube/polymer interfaces based on the van der Waals force. Journal of the Mechanics and Physics of Solids, 2006, 54, 2436-2452.	4.8	308
9	Thermal Expansion of Single Wall Carbon Nanotubes. Journal of Engineering Materials and Technology, Transactions of the ASME, 2004, 126, 265-270.	1.4	281
10	Origami-inspired, on-demand deployable and collapsible mechanical metamaterials with tunable stiffness. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 2032-2037.	7.1	274
11	Origami based Mechanical Metamaterials. Scientific Reports, 2014, 4, 5979.	3.3	257
12	The atomic-scale finite element method. Computer Methods in Applied Mechanics and Engineering, 2004, 193, 1849-1864.	6.6	243
13	Kirigami-based stretchable lithium-ion batteries. Scientific Reports, 2015, 5, 10988.	3.3	240
14	Buckling of a stiff thin film on a compliant substrate in large deformation. International Journal of Solids and Structures, 2008, 45, 3107-3121.	2.7	234
15	Folding Paper-Based Lithium-Ion Batteries for Higher Areal Energy Densities. Nano Letters, 2013, 13, 4969-4974.	9.1	218
16	Artificial phototropism for omnidirectional tracking and harvesting of light. Nature Nanotechnology, 2019, 14, 1048-1055.	31.5	191
17	Molecular Scale Buckling Mechanics in Individual Aligned Single-Wall Carbon Nanotubes on Elastomeric Substrates. Nano Letters, 2008, 8, 124-130.	9.1	180
18	Electronically Programmable, Reversible Shape Change in Twoâ€•and Threeâ€Dimensional Hydrogel Structures. Advanced Materials, 2013, 25, 1541-1546.	21.0	169

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19	Silicon Thin Films as Anodes for Highâ€Performance Lithiumâ€Ion Batteries with Effective Stress Relaxation. Advanced Energy Materials, 2012, 2, 68-73.	19.5	168
20	The effect of nanotube radius on the constitutive model for carbon nanotubes. Computational Materials Science, 2003, 28, 429-442.	3.0	160
21	Intrinsic Energy Loss Mechanisms in a Cantilevered Carbon Nanotube Beam Oscillator. Physical Review Letters, 2004, 93, 185501.	7.8	149
22	An analytical study of two-dimensional buckling of thin films on compliant substrates. Journal of Applied Physics, 2008, 103, .	2.5	133
23	An atomistic-based continuum theory for carbon nanotubes: analysis of fracture nucleation. Journal of the Mechanics and Physics of Solids, 2004, 52, 977-998.	4.8	126
24	Atomic-scale finite element method in multiscale computation with applications to carbon nanotubes. Physical Review B, 2005, 72, .	3.2	118
25	Mechanics of precisely controlled thin film buckling on elastomeric substrate. Applied Physics Letters, 2007, 90, 133119.	3.3	113
26	A stretchable temperature sensor based on elastically buckled thin film devices on elastomeric substrates. Applied Physics Letters, 2009, 95, .	3.3	111
27	Finite width effect of thin-films buckling on compliant substrate: Experimental and theoretical studies. Journal of the Mechanics and Physics of Solids, 2008, 56, 2585-2598.	4.8	110
28	A finite element method for transient analysis of concurrent large deformation and mass transport in gels. Journal of Applied Physics, 2009, 105, .	2.5	110
29	Origami-enabled deformable silicon solar cells. Applied Physics Letters, 2014, 104, .	3.3	108
30	Tunable optical gratings based on buckled nanoscale thin films on transparent elastomeric substrates. Applied Physics Letters, 2010, 96, .	3.3	107
31	Indenter tip radius effect on the Nixâ€“Gao relation in micro- and nanoindentation hardness experiments. Journal of Materials Research, 2004, 19, 3423-3434.	2.6	102
32	In situ stiffness manipulation using elegant curved origami. Science Advances, 2020, 6, .	10.3	90
33	The influence of mechanical deformation on the electrical properties of single wall carbon nanotubes. Journal of the Mechanics and Physics of Solids, 2004, 52, 1-26.	4.8	86
34	Evaluation of Micro-Pillar Compression Tests for Accurate Determination of Elastic-Plastic Constitutive Relations. Journal of Applied Mechanics, Transactions ASME, 2012, 79, .	2.2	82
35	Stiffness and Thickness of Boron-Nitride Nanotubes. Journal of Nanoscience and Nanotechnology, 2008, 8, 3774-3780.	0.9	81
36	Foodâ€Materialsâ€Based Edible Supercapacitors. Advanced Materials Technologies, 2016, 1, 1600059.	5.8	81

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37	A brief review of dynamic mechanical metamaterials for mechanical energy manipulation. Materials Today, 2021, 44, 168-193.	14.2	80
38	Mechanical metamaterials based on origami and kirigami. Applied Physics Reviews, 2021, 8, .	11.3	80
39	Forming wrinkled stiff films on polymeric substrates at room temperature for stretchable interconnects applications. Thin Solid Films, 2010, 519, 818-822.	1.8	79
40	A Finite-Temperature Continuum Theory Based on Interatomic Potentials. Journal of Engineering Materials and Technology, Transactions of the ASME, 2005, 127, 408-416.	1.4	77
41	Printable, Flexible, and Stretchable Forms of Ultrananocrystalline Diamond with Applications in Thermal Management. Advanced Materials, 2008, 20, 2171-2176.	21.0	76
42	Conductive and Elastic 3D Helical Fibers for Use in Washable and Wearable Electronics. Advanced Materials, 2020, 32, e1907495.	21.0	72
43	Defect nucleation in carbon nanotubes under tension and torsion: Stoneâ€“Wales transformation. Computer Methods in Applied Mechanics and Engineering, 2004, 193, 3419-3429.	6.6	68
44	Post-buckling analysis for the precisely controlled buckling of thin film encapsulated by elastomeric substrates. International Journal of Solids and Structures, 2008, 45, 2014-2023.	2.7	65
45	A machine learning-based method to design modular metamaterials. Extreme Mechanics Letters, 2020, 36, 100657.	4.1	65
46	Unique Aspects of a Shape Memory Polymer As the Substrate for Surface Wrinkling. ACS Applied Materials & Interfaces, 2012, 4, 598-603.	8.0	62
47	Foodâ€Based Edible and Nutritive Electronics. Advanced Materials Technologies, 2017, 2, 1700181.	5.8	61
48	Mechanics of buckled carbon nanotubes on elastomeric substrates. Journal of Applied Physics, 2008, 104, 033543.	2.5	60
49	The Effect of Crystallographic Orientation on the Mechanical Behavior of Cu6Sn5 by Micropillar Compression Testing. Journal of Electronic Materials, 2012, 41, 2083-2088.	2.2	53
50	Micro-strain sensing using wrinkled stiff thin films on soft substrates as tunable optical grating. Optics Express, 2013, 21, 11994.	3.4	53
51	Mechanics of Microtubule Buckling Supported by Cytoplasm. Journal of Applied Mechanics, Transactions ASME, 2008, 75, .	2.2	52
52	Prescribed Pattern Transformation in Swelling Gel Tubes by Elastic Instability. Physical Review Letters, 2012, 108, 214304.	7.8	51
53	Rate-dependent behavior of Sn alloyâ€“Cu couples: Effects of microstructure and composition on mechanical shock resistance. Acta Materialia, 2012, 60, 4336-4348.	7.9	51
54	Archimedean spiral design for extremely stretchable interconnects. Extreme Mechanics Letters, 2014, 1, 29-34.	4.1	51

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55	Multiphysics coupled computational model for commercialized Si/graphite composite anode. Journal of Power Sources, 2020, 450, 227667.	7.8	49
56	Failure mechanisms of 2D silicon film anodes: in situ observations and simulations on crack evolution. Chemical Communications, 2018, 54, 3997-4000.	4.1	47
57	The effect of thin film/substrate radii on the Stoney formula for thin film/substrate subjected to nonuniform axisymmetric misfit strain and temperature. Journal of Mechanics of Materials and Structures, 2006, 1, 1041-1053.	0.6	46
58	Multiscale Analysis of Fracture of Carbon Nanotubes Embedded in Composites. International Journal of Fracture, 2005, 134, 369-386.	2.2	42
59	Deformation and bifurcation analysis of boron-nitride nanotubes. International Journal of Mechanical Sciences, 2006, 48, 1197-1207.	6.7	40
60	Postbuckling of carbon nanotubes by atomic-scale finite element. Journal of Applied Physics, 2006, 99, 124308.	2.5	40
61	Bending buckling of single-walled carbon nanotubes by atomic-scale finite element. Composites Part B: Engineering, 2008, 39, 202-208.	12.0	40
62	A thermodynamic model of physical gels. Journal of the Mechanics and Physics of Solids, 2010, 58, 2083-2099.	4.8	37
63	Edible and Nutritive Electronics: Materials, Fabrications, Components, and Applications. Advanced Materials Technologies, 2020, 5, 2000100.	5.8	37
64	Pre-patterned ZnO nanoribbons on soft substrates for stretchable energy harvesting applications. Journal of Applied Physics, 2013, 113, .	2.5	34
65	Microscale Silicon Origami. Small, 2016, 12, 5401-5406.	10.0	34
66	The finite deformation theory of Taylor-based nonlocal plasticity. International Journal of Plasticity, 2004, 20, 831-839.	8.8	33
67	A finite element simulation on transient large deformation and mass diffusion in electrodes for lithium ion batteries. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 074007.	2.0	33
68	A Simultaneous Multiscale and Multiphysics Model and Numerical Implementation of a Core-Shell Model for Lithium-Ion Full-Cell Batteries. Journal of Applied Mechanics, Transactions ASME, 2019, 86, .	2.2	33
69	Mechanical metamaterials for full-band mechanical wave shielding. Applied Materials Today, 2020, 20, 100671.	4.3	32
70	Printing Stretchable Spiral Interconnects Using Reactive Ink Chemistries. ACS Applied Materials & Interfaces, 2016, 8, 12594-12598.	8.0	30
71	Data-driven automated discovery of variational laws hidden in physical systems. Journal of the Mechanics and Physics of Solids, 2020, 137, 103871.	4.8	30
72	Stoneâ€“Wales transformation: Precursor of fracture in carbon nanotubes. International Journal of Mechanical Sciences, 2006, 48, 1464-1470.	6.7	29

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73	Nanofiber-based Matrimid organogel membranes for battery separator. Journal of Membrane Science, 2018, 546, 158-164.	8.2	29
74	Development of visible-light responsive and mechanically enhanced â€œsmartâ€•UCST interpenetrating network hydrogels. Soft Matter, 2018, 14, 151-160.	2.7	29
75	Atomistic-based continuum constitutive relation for microtubules: elastic modulus prediction. Computational Mechanics, 2008, 42, 607-618.	4.0	28
76	Ron Resch Origami Pattern Inspired Energy Absorption Structures. Journal of Applied Mechanics, Transactions ASME, 2019, 86, .	2.2	28
77	Stoneâ€“Wales transformation in boron nitride nanotubes. Scripta Materialia, 2007, 57, 571-574.	5.2	27
78	Laser dynamic forming of functional materials laminated composites on patterned three-dimensional surfaces with applications on flexible microelectromechanical systems. Applied Physics Letters, 2009, 95, 091108.	3.3	27
79	Quantifying Electrochemical Reactions and Properties of Amorphous Silicon in a Conventional Lithium-Ion Battery Configuration. Chemistry of Materials, 2017, 29, 5831-5840.	6.7	26
80	Rate dependent stress-stretch relation of dielectric elastomers subjected to pure shear like loading and electric field. Acta Mechanica Solida Sinica, 2012, 25, 542-549.	1.9	25
81	Simulation of the Transient Behavior of Gels Based on an Analogy Between Diffusion and Heat Transfer. Journal of Applied Mechanics, Transactions ASME, 2013, 80, .	2.2	25
82	Mitigating mechanical failure of crystalline silicon electrodes for lithium batteries by morphological design. Physical Chemistry Chemical Physics, 2015, 17, 17718-17728.	2.8	25
83	Controlled Carbonâ€Nanotube Junctions Selfâ€Assembled from Graphene Nanoribbons. Small, 2009, 5, 2802-2806.	10.0	24
84	Lithium redistribution around the crack tip of lithium-ion battery electrodes. Scripta Materialia, 2019, 167, 11-15.	5.2	21
85	Critical Strain of Carbon Nanotubes: An Atomic-Scale Finite Element Study. Journal of Applied Mechanics, Transactions ASME, 2007, 74, 347-351.	2.2	20
86	A robust polymer microcable structure for flexible devices. Applied Physics Letters, 2013, 102, .	3.3	20
87	Visualizing Morphogenesis through Instability Formation in 4-D Printing. ACS Applied Materials & Interfaces, 2019, 11, 47468-47475.	8.0	20
88	Light-modulated liquid crystal elastomer actuator with multimodal shape morphing and multifunction. Journal of Materials Chemistry C, 2022, 10, 3796-3803.	5.5	20
89	Solvent-directed sol-gel assembly of 3-dimensional graphene-tented metal oxides and strong synergistic disparities in lithium storage. Journal of Materials Chemistry A, 2016, 4, 4032-4043.	10.3	19
90	3D Programmable Metamaterials Based on Reconfigurable Mechanism Modules. Advanced Functional Materials, 2022, 32, 2109865.	14.9	19

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91	Thickness evolution of graphite-based cathodes in the dual ion batteries via in operando optical observation. Journal of Energy Chemistry, 2019, 29, 122-128.	12.9	18
92	Modeling Fracture of Sn-Rich (Pb-Free) Solder Joints Under Mechanical Shock Conditions. Journal of Electronic Materials, 2012, 41, 2089-2099.	2.2	17
93	Modular Design for Acoustic Metamaterials: Lowâ€Frequency Noise Attenuation. Advanced Functional Materials, 2022, 32, .	14.9	17
94	Nonsinusoidal buckling of thin gold films on elastomeric substrates. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2009, 27, L9-L12.	2.1	15
95	Finite element simulation of swelling-induced crack healing in gels. Soft Matter, 2012, 8, 8107.	2.7	14
96	Thermoresponsiveness of Integrated Ultraâ€Thin Silicon with Poly(Nâ€isopropylacrylamide) Hydrogels. Macromolecular Rapid Communications, 2011, 32, 820-824.	3.9	12
97	The effect of large deformation and material nonlinearity on gel indentation. Acta Mechanica Sinica/Lixue Xuebao, 2012, 28, 1058-1067.	3.4	12
98	The Effect of Random Voids in the Modified Gurson Model. Journal of Electronic Materials, 2012, 41, 177-183.	2.2	12
99	Thermal and mechanical properties of poly(Nâ€isopropylacrylamide)â€based hydrogels as a function of porosity and medium change. Journal of Applied Polymer Science, 2015, 132, .	2.6	12
100	Scalable nano-patterning of graphenes using laser shock. Nanotechnology, 2011, 22, 475303.	2.6	11
101	Design of origami fin for heat dissipation enhancement. Applied Thermal Engineering, 2018, 145, 674-684.	6.0	11
102	Stationary response probability density of nonlinear random vibrating systems: a data-driven method. Nonlinear Dynamics, 2020, 100, 2337-2352.	5.2	11
103	Determining the elastic modulus of thin films using a buckling-based method: computational study. Journal Physics D: Applied Physics, 2009, 42, 175506.	2.8	10
104	Reprint of â€œPost-buckling analysis for the precisely controlled buckling of thin film encapsulated by elastomeric substratesâ€•[In. J. Solids Struct. 45 (2008) 2014â€“2023]. International Journal of Solids and Structures, 2008, 45, 3858-3867.	2.7	9
105	Facile large-area photolithography of periodic sub-micron structures using a self-formed polymer mask. Applied Physics Letters, 2012, 100, 233503.	3.3	9
106	A facile, robust and versatile finite element implementation to study the time-dependent behaviors of responsive gels. Extreme Mechanics Letters, 2018, 22, 89-97.	4.1	9
107	Customizable and highly sensitive 3D micro-springs produced by two-photon polymerizations with improved post-treatment processes. Applied Physics Letters, 2022, 120, .	3.3	9
108	Hybrid silicon-polymer platform for self-locking and self-deploying origami. Applied Physics Letters, 2013, 103, .	3.3	8

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109	Random analysis on controlled buckling structure for energy harvesting. Applied Physics Letters, 2013, 102, .	3.3	8
110	Pyrrole-based poly(ionic liquids) as efficient stabilizers for formation of hollow multi-walled carbon nanotubes particles. Journal of Colloid and Interface Science, 2017, 504, 140-148.	9.4	8
111	Multiscale Modeling of the Interfacial Fracture Behavior in the Snâ€“Cu₆ Sn₅â€“Cu System. Journal of Computational and Theoretical Nanoscience, 2011, 8, 873-880.	0.4	7
112	Rapid identification of switched systems: A data-driven method in variational framework. Science China Technological Sciences, 2021, 64, 148-156.	4.0	7
113	Laser Shock-Induced Conformal Transferring of Functional Devices on 3-D Stretchable Substrates. Journal of Microelectromechanical Systems, 2015, 24, 414-421.	2.5	6
114	Controlled Morphology of Thin Film Silicon Integrated with Environmentally Responsive Hydrogels. Langmuir, 2013, 29, 6495-6501.	3.5	5
115	3D Helical Fibers: Conductive and Elastic 3D Helical Fibers for Use in Washable and Wearable Electronics (Adv. Mater. 10/2020). Advanced Materials, 2020, 32, 2070076.	21.0	5
116	EML webinar overview: Origami-based metamaterials. Extreme Mechanics Letters, 2022, 50, 101543.	4.1	4
117	Direct Integration of Functional Structures on 3-D Microscale Surfaces by Laser Dynamic Forming. Journal of Microelectromechanical Systems, 2013, 22, 1428-1437.	2.5	3
118	Experimental investigation on the mechanical buckling of one-dimensional Si nanoribbons with a thickness contrast. Thin Solid Films, 2017, 640, 33-37.	1.8	3
119	Phase-field modeling of chemo-mechanical relaxation effect on the fracture tolerance of a tin-based electrode. Mechanics of Materials, 2020, 148, 103502.	3.2	3
120	AI-Timoshenko: Automatedly Discovering Simplified Governing Equations for Applied Mechanics Problems From Simulated Data. Journal of Applied Mechanics, Transactions ASME, 2021, 88, .	2.2	3
121	Fracture analysis of facesheets in sandwich composites. Composites Part B: Engineering, 2004, 35, 551-556.	12.0	2
122	Modeling fracture in carbon nanotubes using a meshless atomic-scale finite-element method. Jom, 2008, 60, 50-55.	1.9	2
123	A Self-Consistent Approach for Necking Correction in Tensile Specimens With Rectangular Cross-Section Using a Novel Mirror Fixture. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 5058-5066.	2.2	2
124	High sensitivity in-plane strain measurement using a laser scanning technique. , 2014, , .		2
125	Two-dimensional (2D) in-plane strain mapping using a laser scanning technique on the cross-section of a microelectronics package. , 2015, , .		2
126	Inkjet Printed Spiral Stretchable Electronics Using Reactive Ink Chemistries. MRS Advances, 2016, 1, 3465-3470.	0.9	2

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127	An Alternative Decomposition of the Strain Gradient Tensor. Journal of Applied Mechanics, Transactions ASME, 2002, 69, 139-141.	2.2	1
128	A Void Growth and a Cyclic Model in Ductile Material Using Mechanism-Based Strain Gradient Crystal Plasticity Theory. , 2007, , 29.		1
129	A mechanically stretchable temperature sensor based on buckled thin film devices on an elastomeric substrate. , 2010, , .		1
130	In situ monitoring the internal of lithium ion batteries. Acta Mechanica Sinica/Lixue Xuebao, 2021, 37, 902.	3.4	1
131	Origami-enabled deformable silicon solar cells. , 0, .		1
132	Theoretical Modeling on Mechanical-Electrical Coupling of Carbon Nanotubes. Journal of Computational and Theoretical Nanoscience, 2008, 5, 449-463.	0.4	1
133	Carbon-nanotube junctions: Small 24/2009. Small, 2009, 5, n/a-n/a.	10.0	0
134	Extremely Stretchable Supercapacitors Based on Buckled Single-Walled Carbon Nanotube Macro-Films. , 2009, , .		0
135	Mechanics of Stiff Thin Films of Controlled Wavy Geometry on Compliant Substrates for Stretchable Electronics. , 2010, , 275-291.		0
136	<I>A Special Issue on</I> Multiscale and Multiphysics Simulations for Energy Applications. Journal of Computational and Theoretical Nanoscience, 2011, 8, 801-802.	0.4	0
137	Molecular Dynamic Simulations of Forming Graphene Nanoribbons from Single-Wall Carbon Nanotubes. Journal of Computational and Theoretical Nanoscience, 2011, 8, 717-721.	0.4	0
138	Macromol. Rapid Commun. 11/2011. Macromolecular Rapid Communications, 2011, 32, .	3.9	0
139	Laser Shock Induced Nano-Patterning of Graphene. , 2012, , .		0
140	Electronically Programmable, Reversible Shape Change in Two- and Three-Dimensional Hydrogel Structures (Adv. Mater. 11/2013). Advanced Materials, 2013, 25, 1540-1540.	21.0	0
141	Foreword: Special section on soft electronics. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2015, 5, 1199-1200.	2.5	0
142	2D Grating Pitch Mapping of a through Silicon Via (TSV) and Solder Ball Interconnect Region Using Laser Diffraction: IEEE Electronic Components and Technology Conference, 2016. , 2016, , .		0