Shengping Shen

List of Publications by Year
in descending order

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134 papers	3,289 citations	159585 30 h-index	197818 49 g-index
135 all docs	135 docs citations	135 times ranked	1378 citing authors

#	Article	IF	Citations
1	Giant flexoelectric response via mechanical and material design in elastomers. Mechanics of Materials, 2022, 165, 104186.	3.2	8
2	Mechanical design of uniform strain-gradient schemes for transverse and longitudinal flexoelectricity. International Journal of Solids and Structures, 2022, 238, 111414.	2.7	3
3	Temperature effect on dynamic compression performance of random fibrous composites in the TTT and IP directions. Journal of the European Ceramic Society, 2022, 42, 2400-2407.	5.7	0
4	Transient Continuum Mechanics and Chemomechanics. Journal of Applied Mechanics, Transactions ASME, 2022, 89, .	2.2	2
5	Strain-modulated initial oxidation of Al(1-)Ni alloy surface. Applied Surface Science, 2022, 592, 153294.	6.1	2
6	Flexoelectricity in periodically poled lithium niobate by PFM. Journal Physics D: Applied Physics, 2022, 55, 335303.	2.8	6
7	Measuring the Gradient of Sound Pressure Directly Via Flexoelectricity. Physical Review Applied, 2022, 17, .	3.8	2
8	Forced vibration of piezoelectric and flexoelectric Eulerâ€“Bernoulli beams by dynamic Greenâ€™s functions. Acta Mechanica, 2021, 232, 449-460.	2.1	18
9	Inverse Flexoelectret Effect: Bending Dielectrics by a Uniform Electric Field. Physical Review Applied, 2021, 15, .	3.8	13
10	Facilitating electrocatalytic hydrogen evolution via multifunctional tungsten@tungsten disulfide coreâ€“shell nanospheres. Journal of Materials Chemistry A, 2021, 9, 9272-9280.	10.3	13
11	Effect of crystallization on the macro and micro residual stress of enamel coating. Journal of the European Ceramic Society, 2021, 41, 3643-3654.	5.7	8
12	Mechanical tunability of flexoelectricity in elastomers. Applied Physics Letters, 2021, 119, .	3.3	5
13	Dynamic mechanical behaviour of three-dimensional random fibrous materials at high temperatures. Composite Structures, 2021, 276, 114593.	5.8	5
14	Statistical analysis on nanostructureâ€“mechanical property relations for xSiO2â€“(1-x)Al2O3 aluminosilicate glass with voids and inclusions. Ceramics International, 2021, 47, 29584-29597.	4.8	3
15	An enhanced flexoelectric dielectric elastomer actuator with stretchable electret. Smart Materials and Structures, 2021, 30, 125004.	3.5	2
16	Flexoelectricity in non-oriented liquids. Journal Physics D: Applied Physics, 2021, 54, 06LT01.	2.8	3
17	Porosity Effects on Mechanical Properties of 3D Random Fibrous Materials at Elevated Temperatures. Acta Mechanica Solida Sinica, 2020, 33, 14-30.	1.9	6
18	Flexoelectricity in pyramid compression: decoupling from effective to intrinsic. Journal Physics D: Applied Physics, 2020, 53, 125302.	2.8	13

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19	Diversity of transverse flexoelectricity in non-poled polyvinylidene fluoride. Journal of Applied Physics, 2020, 128, .	2.5	6
20	Strain hardening and embrittlement of Al crystal with a surface oxidized void. Mechanics of Materials, 2020, 148, 103531.	3.2	3
21	The impact of flexoelectricity on materials, devices, and physics. Journal of Applied Physics, 2020, 128, .	2.5	50
22	Tunable Flexoelectricity of Elastomers. Journal of Physical Chemistry C, 2020, 124, 24429-24434.	3.1	14
23	Tailoring the nanostructures of electrochemical actuators for fast response and large deformation. Nanoscale, 2020, 12, 15643-15651.	5.6	9
24	Diversifying temporal responses of magnetoactive elastomers. Materials Research Express, 2020, 7, 045702.	1.6	4
25	Athermal Shape Memory Effect in Magnetoactive Elastomers. ACS Applied Materials & Interfaces, 2020, 12, 16930-16936.	8.0	21
26	A novel evaluation of fracture toughness for random fibrous material. Composite Structures, 2020, 243, 112179.	5.8	8
27	Stabilizing mechanism of single-atom catalysts on a defective carbon surface. Npj Computational Materials, 2020, 6, .	8.7	38
28	Rayleigh wave propagation in a homogeneous centrosymmetric flexoelectric half-space. Ultrasonics, 2020, 103, 106105.	3.9	26
29	Decoupling method of flexoelectric coefficient tensor components in non-polarized polyvinylidene fluoride. Journal Physics D: Applied Physics, 2020, 53, 325303.	2.8	5
30	Nonlinear electrochemomechanical modelling of electrochemical strain microscopy imaging. Nanotechnology, 2020, 31, 315704.	2.6	4
31	Electromechanical analysis of direct and converse flexoelectric effects under a scanning probe tip. Journal of the Mechanics and Physics of Solids, 2020, 142, 104020.	4.8	30
32	Flexoelectric Energy Harvesting Using Circular Thin Membranes. Journal of Applied Mechanics, Transactions ASME, 2020, 87, .	2.2	14
33	Electrochemomechanical Modeling and In Situ Measurement of Transition Metal Dichalcogenides-Based Electrochemical Actuators. Journal of the Electrochemical Society, 2020, 167, 167514.	2.9	2
34	Strain-modulated early stage oxidation of Fe films. Journal of Applied Physics, 2019, 125, .	2.5	4
35	Chemo-mechanical coupling effect in the high-temperature oxidation of metal materials: A review. Science China Technological Sciences, 2019, 62, 1246-1254.	4.0	12
36	Response of <110> symmetric tilt grain boundary in titanium nitride under shear. Engineering Analysis With Boundary Elements, 2019, 105, 231-241.	3.7	8

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37	High-temperature nanoindentation for temperature-dependent mechanical behavior of enamel coating. Surface and Coatings Technology, 2019, 374, 541-548.	4.8	14
38	Decoupled shear flexoelectric effects in polymers. Journal of Applied Physics, 2019, 125, .	2.5	11
39	Flexoelectret: An Electret with a Tunable Flexoelectriclike Response. Physical Review Letters, 2019, 122, 148001.	7.8	74
40	Converse flexoelectricity with relative permittivity gradient. Applied Physics Letters, 2019, 114, .	3.3	17
41	An actuation method by a biconcave beam structure with converse flexoelectric effect. Smart Materials and Structures, 2019, 28, 115025.	3.5	17
42	An electro-mechanical behavior enhancement method: geometric design with flexoelectricity. Smart Materials and Structures, 2019, 28, 025024.	3.5	4
43	A Fully Coupled Chemomechanical Formulation With Chemical Reaction Implemented by Finite Element Method. Journal of Applied Mechanics, Transactions ASME, 2019, 86, .	2.2	10
44	Revisiting the structures and energies of silicon ã€ˆ110ã€‰ symmetric tilt grain boundaries. Journal of Materials Research, 2019, 34, 1021-1033.	2.6	20
45	Structure and shear response of <001> tilt grain boundary in titanium nitride. Ceramics International, 2019, 45, 5531-5546.	4.8	10
46	Temperature dependence of flexoelectric coefficient for bulk polymer polyvinylidene fluoride. Journal Physics D: Applied Physics, 2019, 52, 075302.	2.8	9
47	An ABAQUS implementation of electrochemomechanical theory for mixed ionic electronic conductors. Solid State Ionics, 2018, 319, 34-45.	2.7	6
48	Radiation response of nanotwinned Cu under multiple-collision cascades. Journal of Nuclear Materials, 2018, 505, 183-192.	2.7	10
49	Path-independent integrals in electrochemomechanical systems with flexoelectricity. International Journal of Solids and Structures, 2018, 147, 20-28.	2.7	11
50	Shear response of grain boundary bicrystals with a stacking fault tetrahedron. Computational Materials Science, 2018, 147, 137-144.	3.0	8
51	A Three-Dimensional Mixed Finite Element for Flexoelectricity. Journal of Applied Mechanics, Transactions ASME, 2018, 85, .	2.2	32
52	Wave Propagation in Flexoelectric Microstructured Solids. Journal of Elasticity, 2018, 130, 197-210.	1.9	31
53	Fracture toughness of random fibrous materials with ultrahigh porosity at elevated temperatures. Journal of the American Ceramic Society, 2018, 101, 1323-1332.	3.8	9
54	Coupled chemomechanical theory with strain gradient and surface effects. Acta Mechanica, 2018, 229, 133-147.	2.1	11

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55	On band structures of layered phononic crystals with flexoelectricity. Archive of Applied Mechanics, 2018, 88, 629-644.	2.2	19
56	Investigations on fracture toughness and fracture surface energy of 3D random fibrous materials at elevated temperatures. Engineering Fracture Mechanics, 2018, 190, 288-298.	4.3	9
57	The flexodynamic effect on nanoscale flexoelectric energy harvesting: a computational approach. Smart Materials and Structures, 2018, 27, 105001.	3.5	30
58	Size-dependent stability of stacking fault tetrahedron in coherent twin boundary bicrystal: Comparisons among Al, Ni, Cu and Ag. Computational Materials Science, 2018, 155, 256-265.	3.0	11
59	Experimental decoupling of cylindrical flexoelectric coefficients. Applied Physics Letters, 2018, 113, .	3.3	9
60	Ferroelectric-like hysteresis loops induced by chemical reaction and flexoelectricity in electrochemical strain microscopy measurements. Journal of Applied Physics, 2018, 124, 085116.	2.5	4
61	Chemomechanical analysis for interfacial reactions between Î³â€TiAl alloy and glassâ€ceramic coating in micro/nano scale. Journal of the American Ceramic Society, 2018, 101, 5675-5683.	3.8	5
62	Probing flexoelectricity via a split Hopkinson pressure bar experiment. Applied Physics Letters, 2018, 112, .	3.3	12
63	Highâ€temperature shortâ€range compressive responses and contact effect of ultrahigh porosity 3D random fibrous materials. Journal of the American Ceramic Society, 2018, 101, 4509-4518.	3.8	5
64	Lamb wave propagation with flexoelectricity and strain gradient elasticity considered. Smart Materials and Structures, 2018, 27, 085003.	3.5	32
65	A chemomechanical coupling model for oxidation and stress evolution in ZrB2â€“SiC. Journal of Materials Research, 2017, 32, 1267-1278.	2.6	3
66	Investigations on the compressive behavior of 3D random fibrous materials at elevated temperatures. Ceramics International, 2017, 43, 5195-5203.	4.8	16
67	Nanoscale mechanical energy harvesting using piezoelectricity and flexoelectricity. Smart Materials and Structures, 2017, 26, 035050.	3.5	53
68	Flexoelectric energy harvesters based on Timoshenko laminated beam theory. Journal of Intelligent Material Systems and Structures, 2017, 28, 2064-2073.	2.5	46
69	Adhesion properties of Cu(111)/Î±-quartz (0001) interfaces: A molecular dynamics study. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 695, 239-248.	5.6	10
70	Conservation laws and path-independent integrals in mechanical-diffusion-electrochemical reaction coupling system. Journal of the Mechanics and Physics of Solids, 2017, 104, 57-70.	4.8	15
71	The research of effective flexoelectric coefficient along 1123 direction in polyvinylidene fluoride. Journal of Applied Physics, 2017, 121, .	2.5	22
72	A Finite Element Implementation of a Fully Coupled Mechanicalâ€“Chemical Theory. International Journal of Applied Mechanics, 2017, 09, 1750040.	2.2	7

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73	A chemomechanical coupling model for stress analysis of oxide scale growing between ceramic coating and substrate. Acta Mechanica, 2017, 228, 3173-3183.	2.1	4
74	Shear response of Î² -SiC bulk dependent on temperature and strain rate. Acta Mechanica Solida Sinica, 2017, 30, 137-144.	1.9	3
75	Experimental approach for measuring cylindrical flexoelectric coefficients. Journal of Applied Physics, 2017, 122, .	2.5	8
76	A curved resonant flexoelectric actuator. Applied Physics Letters, 2017, 111, .	3.3	37
77	Love waves in layered flexoelectric structures. Philosophical Magazine, 2017, 97, 3186-3209.	1.6	36
78	Investigation of the 2312 flexoelectric coefficient component of polyvinylidene fluoride: Deduction, simulation, and mensuration. Scientific Reports, 2017, 7, 3134.	3.3	33
79	Measuring the flexoelectric coefficient of bulk barium titanate from a shock wave experiment. Journal of Applied Physics, 2017, 122, .	2.5	33
80	Stability of stacking fault tetrahedron in twin boundary bicrystal copper under shear. International Journal of Plasticity, 2017, 97, 246-258.	8.8	22
81	Mixed Finite Elements for Flexoelectric Solids. Journal of Applied Mechanics, Transactions ASME, 2017, 84, .	2.2	69
82	Fracture of Î²-SiC bulk with a void of different shapes under different loading modes. Engineering Fracture Mechanics, 2017, 181, 29-37.	4.3	6
83	Experimental and numerical investigations on the tensile behavior of 3D random fibrous materials at elevated temperature. Composite Structures, 2017, 160, 292-299.	5.8	21
84	Nonhysteretic superelasticity and strain hardening in a copper bicrystal with a â˜3{112} twin boundary. Acta Materialia, 2017, 124, 30-36.	7.9	14
85	Edge dislocations interacting with a Î£11 symmetrical grain boundary in copper upon mixed loading: A quasicontinuum method study. Computational Materials Science, 2017, 137, 162-170.	3.0	11
86	Fully Coupling Chemomechanical Yield Theory Based on Evolution Equations. International Journal of Applied Mechanics, 2016, 08, 1650058.	2.2	3
87	Experimental method research on transverse flexoelectric response of poly(vinylidene fluoride). Japanese Journal of Applied Physics, 2016, 55, 071601.	1.5	25
88	Electrochemomechanics with flexoelectricity and modelling of electrochemical strain microscopy in mixed ionic-electronic conductors. Journal of Applied Physics, 2016, 120, 065102.	2.5	13
89	A Chemomechanical Model for Stress Evolution and Distribution in the Viscoplastic Oxide Scale During Oxidation. Journal of Applied Mechanics, Transactions ASME, 2016, 83, .	2.2	7
90	Improved approach to measure the direct flexoelectric coefficient of bulk polyvinylidene fluoride. Journal of Applied Physics, 2016, 119, .	2.5	61

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91	Energetics of point defect interacting with bi-crystal Î£3 copper grain boundaries. Computational Materials Science, 2016, 118, 47-55.	3.0	9
92	Energetics of point defect interacting with grain boundaries undergone plastic deformations. International Journal of Plasticity, 2016, 85, 93-109.	8.8	21
93	Buckling and vibration of flexoelectric nanofilms subjected to mechanical loads. Journal Physics D: Applied Physics, 2016, 49, 115307.	2.8	46
94	A Timoshenko dielectric beam model with flexoelectric effect. Meccanica, 2016, 51, 1181-1188.	2.0	50
95	Shear flexoelectric response along 3121 direction in polyvinylidene fluoride. Applied Physics Letters, 2015, 107, .	3.3	29
96	Shear flexoelectric coefficient Î¼1211 in polyvinylidene fluoride. Journal of Applied Physics, 2015, 117, .	2.5	43
97	Effect of surface roughness on elastic limit of silicon nanowires. Computational Materials Science, 2015, 101, 267-274.	3.0	13
98	A flexoelectricity effect-based sensor for direct torque measurement. Journal Physics D: Applied Physics, 2015, 48, 485502.	2.8	33
99	Size-dependent buckling and vibration behaviors of piezoelectric nanostructures due to flexoelectricity. Smart Materials and Structures, 2015, 24, 105012.	3.5	89
100	Surface effects on the post-buckling of piezoelectric nanowires. Physica E: Low-Dimensional Systems and Nanostructures, 2015, 69, 61-64.	2.7	32
101	Reactionâ€“Diffusionâ€“Stress Coupling Effect in Inelastic Oxide Scale During Oxidation. Oxidation of Metals, 2015, 83, 507-519.	2.1	33
102	Effects of voidâ€“crack interaction and void distribution on crack propagation in single crystal silicon. Engineering Fracture Mechanics, 2015, 146, 56-66.	4.3	20
103	Residual Stress Analysis Due to Chemomechanical Coupled Effect, Intrinsic Strain and Creep Deformation During Oxidation. Oxidation of Metals, 2015, 84, 413-427.	2.1	14
104	Electromechanical responses of piezoelectric nanoplates with flexoelectricity. Acta Mechanica, 2015, 226, 3097-3110.	2.1	91
105	Coupling diffusionâ€“reactionâ€“mechanics model for oxidation. Acta Mechanica, 2015, 226, 3375-3386.	2.1	19
106	A Fully Coupled Theory and Variational Principle for Thermalâ€“Electricalâ€–Chemicalâ€–Mechanical Processes. Journal of Applied Mechanics, Transactions ASME, 2014, 81, .	2.2	25
107	Effect of Flexoelectricity on Band Structures of One-Dimensional Phononic Crystals. Journal of Applied Mechanics, Transactions ASME, 2014, 81, .	2.2	24
108	A new Bernoulliâ€“Euler beam model based on a simplified strain gradient elasticity theory and its applications. Composite Structures, 2014, 111, 317-323.	5.8	47

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109	Effects of surface and flexoelectricity on a piezoelectric nanobeam. Smart Materials and Structures, 2014, 23, 035020.	3.5	130
110	Analytical Solution for 2D Non-Fickian Transient Mass Transfer With Arbitrary Initial and Periodic Boundary Conditions. Journal of Heat Transfer, 2013, 135, .	2.1	1
111	Non-equilibrium thermodynamics and variational principles for fully coupled thermalâ€“mechanicalâ€“chemical processes. Acta Mechanica, 2013, 224, 2895-2910.	2.1	47
112	Dynamic analysis of Bernoulli-Euler piezoelectric nanobeam with electrostatic force. Science China: Physics, Mechanics and Astronomy, 2013, 56, 1930-1937.	5.1	3
113	Analytical solution for one-dimensional coupled non-Fick diffusion and mechanics. Archive of Applied Mechanics, 2013, 83, 397-411.	2.2	16
114	Interaction of voids and nano-ductility in single crystal silicon. Computational Materials Science, 2013, 67, 123-132.	3.0	16
115	Bernoulliâ€“Euler Dielectric Beam Model Based on Strain-Gradient Effect. Journal of Applied Mechanics, Transactions ASME, 2013, 80, .	2.2	39
116	SIZE-DEPENDENT PIEZOELECTRICITY AND ELASTICITY DUE TO THE ELECTRIC FIELD-STRAIN GRADIENT COUPLING AND STRAIN GRADIENT ELASTICITY. International Journal of Applied Mechanics, 2013, 05, 1350015.	2.2	75
117	General approach on chemistry and stress coupling effects during oxidation. Journal of Applied Physics, 2013, 114, .	2.5	44
118	On the large-strain plasticity of silicon nanowires: Effects of axial orientation and surface. International Journal of Plasticity, 2012, 38, 146-158.	8.8	35
119	Effect of flexoelectricity on electrostatic potential in a bent piezoelectric nanowire. Smart Materials and Structures, 2012, 21, 115024.	3.5	62
120	Effect of electrostatic force on a piezoelectric nanobeam. Smart Materials and Structures, 2012, 21, 015001.	3.5	10
121	Dynamical theoretical model and variational principles for coupled temperatureâ€“diffusionâ€“mechanics. Acta Mechanica, 2012, 223, 29-41.	2.1	31
122	Variational principles and governing equations in nano-dielectrics with the flexoelectric effect. Science China: Physics, Mechanics and Astronomy, 2010, 53, 1497-1504.	5.1	124
123	A theory of flexoelectricity with surface effect for elastic dielectrics. Journal of the Mechanics and Physics of Solids, 2010, 58, 665-677.	4.8	369
124	Initial dislocation topologies of nanoindentation into copper (001) film with a nanocavity. Engineering Fracture Mechanics, 2010, 77, 3329-3340.	4.3	9
125	Effects of small indenter size and its position on incipient yield loading during nanoindentation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 526, 211-218.	5.6	12
126	Multiscale analysis of the effects of nanocavity on nanoindentation. Computational Materials Science, 2009, 46, 425-430.	3.0	21

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127	Numerical analysis for a crack in piezoelectric material under impact. International Journal of Solids and Structures, 2007, 44, 8457-8492.	2.7	6
128	The basis of meshless domain discretization: the meshless local Petrov?Galerkin (MLPG) method. Advances in Computational Mathematics, 2005, 23, 73-93.	1.6	60
129	DynamicJintegral, separated dynamicJintegral and component separation method for dynamic interfacial cracks in piezoelectric bimaterials. International Journal of Fracture, 2003, 122, 101-130.	2.2	25
130	Impact interfacial fracture for piezoelectric ceramic. Mechanics Research Communications, 1999, 26, 347-352.	1.8	7
131	Interface crack problems of a laminated piezoelectric plate. European Journal of Mechanics, A/Solids, 1999, 18, 219-238.	3.7	19
132	An active control model of laminated piezothermoelastic plate. International Journal of Solids and Structures, 1999, 36, 1925-1947.	2.7	48
133	Interface crack in bi-piezothermoelastic media and the interaction with a point heat source. International Journal of Solids and Structures, 1998, 35, 3899-3915.	2.7	53
134	Analysis of flexochemical effect and its application in scanning probe microscopy. Journal Physics D: Applied Physics, 0, , .	2.8	1