Arash Yavari

List of Publications by Year
in descending order

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91 papers	2,214 citations	236833 25 h-index	254106 43 g-index
92 all docs	92 docs citations	92 times ranked	1040 citing authors

#	Article	IF	Citations
1	Riemannâ€“Cartan Geometry of Nonlinear Dislocation Mechanics. Archive for Rational Mechanics and Analysis, 2012, 205, 59-118.	1.1	127
2	Is the cause of size effect on structural strength fractal or energeticâ€“statistical?. Engineering Fracture Mechanics, 2005, 72, 1-31.	2.0	123
3	A Geometric Theory of Growth Mechanics. Journal of Nonlinear Science, 2010, 20, 781-830.	1.0	112
4	A combined analytical, numerical, and experimental study of shape-memory-alloy helical springs. International Journal of Solids and Structures, 2011, 48, 611-624.	1.3	97
5	On spatial and material covariant balance laws in elasticity. Journal of Mathematical Physics, 2006, 47, 042903.	0.5	72
6	A geometric theory of thermal stresses. Journal of Mathematical Physics, 2010, 51, .	0.5	63
7	On superelastic bending of shape memory alloy beams. International Journal of Solids and Structures, 2013, 50, 1664-1680.	1.3	60
8	Riemannâ€“Cartan geometry of nonlinear disclination mechanics. Mathematics and Mechanics of Solids, 2013, 18, 91-102.	1.5	58
9	Exact solutions for pure torsion of shape memory alloy circular bars. Mechanics of Materials, 2010, 42, 797-806.	1.7	56
10	Weyl geometry and the nonlinear mechanics of distributed point defects. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 3902-3922.	1.0	54
11	Structural transformations in NiTi shape memory alloy nanowires. Journal of Applied Physics, 2014, 115, .	1.1	54
12	On the geometric character of stress in continuum mechanics. Zeitschrift Fur Angewandte Mathematik Und Physik, 2007, 58, 843-856.	0.7	52
13	On geometric discretization of elasticity. Journal of Mathematical Physics, 2008, 49, .	0.5	52
14	The mechanics of self-similar and self-affine fractal cracks. International Journal of Fracture, 2002, 114, 1-27.	1.1	50
15	Compatibility Equations of Nonlinear Elasticity for Non-Simply-Connected Bodies. Archive for Rational Mechanics and Analysis, 2013, 209, 237-253.	1.1	46
16	Analysis of the rate-dependent coupled thermo-mechanical response of shape memory alloy bars and wires in tension. Continuum Mechanics and Thermodynamics, 2011, 23, 363-385.	1.4	44
17	On estimating stress intensity factors and modulus of cohesion for fractal cracks. Engineering Fracture Mechanics, 2003, 70, 1659-1674.	2.0	41
18	Nonlinear elastic inclusions in isotropic solids. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2013, 469, 20130415.	1.0	40

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19	Nonlinear mechanics of surface growth for cylindrical and spherical elastic bodies. Journal of the Mechanics and Physics of Solids, 2017, 98, 12-48.	2.3	40
20	Discrete fractal fracture mechanics. Engineering Fracture Mechanics, 2008, 75, 1127-1142.	2.0	39
21	A correspondence principle for fractal and classical cracks. Engineering Fracture Mechanics, 2005, 72, 2744-2757.	2.0	34
22	A micromechanical analysis of the coupled thermomechanical superelastic response of textured and untextured polycrystalline NiTi shape memory alloys. Acta Materialia, 2013, 61, 4542-4558.	3.8	33
23	Nonlinear mechanics of accretion. Journal of Nonlinear Science, 2019, 29, 1813-1863.	1.0	27
24	A semi-analytic analysis of shape memory alloy thick-walled cylinders under internal pressure. Archive of Applied Mechanics, 2011, 81, 1093-1116.	1.2	26
25	GENERALIZATION OF BARENBLATT'S COHESIVE FRACTURE THEORY FOR FRACTAL CRACKS. Fractals, 2002, 10, 189-198.	1.8	25
26	Covariance in linearized elasticity. Zeitschrift Fur Angewandte Mathematik Und Physik, 2008, 59, 1081-1110.	0.7	25
27	The geometry of discombinations and its applications to semi-inverse problems in anelasticity. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140403.	1.0	25
28	A Geometric Theory of Nonlinear Morphoelastic Shells. Journal of Nonlinear Science, 2016, 26, 929-978.	1.0	24
29	Compatible-strain mixed finite element methods for 2D compressible nonlinear elasticity. Computer Methods in Applied Mechanics and Engineering, 2017, 313, 596-631.	3.4	24
30	A Theory of Anharmonic Lattice Statics for Analysis of Defective Crystals. Journal of Elasticity, 2006, 86, 41-83.	0.9	23
31	A discrete cohesive model for fractal cracks. Engineering Fracture Mechanics, 2009, 76, 548-559.	2.0	23
32	Coupled thermo-mechanical analysis of shape memory alloy circular bars in pure torsion. International Journal of Non-Linear Mechanics, 2012, 47, 118-128.	1.4	23
33	Circumferentially-symmetric finite eigenstrains in incompressible isotropic nonlinear elastic wedges. International Journal of Non-Linear Mechanics, 2016, 84, 116-129.	1.4	23
34	Nonlinear Elastic Inclusions in Anisotropic Solids. Journal of Elasticity, 2018, 130, 239-269.	0.9	23
35	The fourth mode of fracture in fractal fracture mechanics. International Journal of Fracture, 2000, 101, 365-384.	1.1	22
36	Estimating terminal velocity of rough cracks in the framework of discrete fractal fracture mechanics. Engineering Fracture Mechanics, 2010, 77, 1516-1526.	2.0	22

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37	Nonlinear Elasticity in a Deforming Ambient Space. Journal of Nonlinear Science, 2016, 26, 1651-1692.	1.0	22
38	Geometric nonlinear thermoelasticity and the time evolution of thermal stresses. Mathematics and Mechanics of Solids, 2017, 22, 1546-1587.	1.5	22
39	Differential Complexes in Continuum Mechanics. Archive for Rational Mechanics and Analysis, 2015, 216, 193-220.	1.1	20
40	The twist-fit problem: finite torsional and shear eigenstrains in nonlinear elastic solids. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150596.	1.0	19
41	Covariant balance laws in continua with microstructure. Reports on Mathematical Physics, 2009, 63, 1-42.	0.4	18
42	Compatible-strain mixed finite element methods for incompressible nonlinear elasticity. Journal of Computational Physics, 2018, 361, 247-279.	1.9	18
43	Influence of material ductility and crack surface roughness on fracture instability. Journal Physics D: Applied Physics, 2011, 44, 395302.	1.3	17
44	On the Stress Field of a Nonlinear Elastic Solid Torus with a Toroidal Inclusion. Journal of Elasticity, 2017, 128, 115-145.	0.9	16
45	The mathematical foundations of anelasticity: existence of smooth global intermediate configurations. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, 20200462.	1.0	16
46	Response to A. Carpinteri, B. Chiaia, P. Cornetti and S. Puzziâ€™s Comments on â€œIs the cause of size effect on structural strength fractal or energetic-statistical?â€• Engineering Fracture Mechanics, 2007, 74, 2897-2910.	2.0	15
47	Nonlinear and Linear Elastodynamic Transformation Cloaking. Archive for Rational Mechanics and Analysis, 2019, 234, 211-316.	1.1	15
48	The Anelastic Ericksen Problem: Universal Deformations and Universal Eigenstrains in Incompressible Nonlinear Anelasticity. Journal of Elasticity, 2020, 142, 291-381.	0.9	15
49	On the stress singularities generated by anisotropic eigenstrains and the hydrostatic stress due to annular inhomogeneities. Journal of the Mechanics and Physics of Solids, 2015, 76, 325-337.	2.3	14
50	Universal deformations in anisotropic nonlinear elastic solids. Journal of the Mechanics and Physics of Solids, 2021, 156, 104598.	2.3	14
51	The anelastic Ericksen problem: universal eigenstrains and deformations in compressible isotropic elastic solids. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20160690.	1.0	13
52	Line and point defects in nonlinear anisotropic solids. Zeitschrift Fur Angewandte Mathematik Und Physik, 2018, 69, 1.	0.7	13
53	Universal displacements in linear elasticity. Journal of the Mechanics and Physics of Solids, 2020, 135, 103782.	2.3	12
54	Effect of strain and oxygen vacancies on the structure of 180Â° ferroelectric domain walls in PbTiO3. Computational Materials Science, 2010, 48, 258-266.	1.4	11

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55	Compatible-strain mixed finite element methods for 3D compressible and incompressible nonlinear elasticity. Computer Methods in Applied Mechanics and Engineering, 2019, 357, 112610.	3.4	11
56	Riemannian and Euclidean material structures in anelasticity. Mathematics and Mechanics of Solids, 2020, 25, 1267-1293.	1.5	10
57	Energy balance invariance for interacting particle systems. Zeitschrift Fur Angewandte Mathematik Und Physik, 2009, 60, 723-738.	0.7	9
58	Convergence analysis of the Wolf method for Coulombic interactions. Physics Letters, Section A: General, Atomic and Solid State Physics, 2011, 375, 1281-1285.	0.9	9
59	A geometric structure-preserving discretization scheme for incompressible linearized elasticity. Computer Methods in Applied Mechanics and Engineering, 2013, 259, 130-153.	3.4	9
60	Affine development of closed curves in WeitzenbÃ¶ck manifolds and the Burgers vector of dislocation mechanics. Mathematics and Mechanics of Solids, 2014, 19, 299-307.	1.5	9
61	Atomic structure of steps on 180Â° ferroelectric domain walls in PbTiO3. Journal of Applied Physics, 2010, 108, .	1.1	8
62	Covariantization of nonlinear elasticity. Zeitschrift Fur Angewandte Mathematik Und Physik, 2012, 63, 921-927.	0.7	8
63	Hilbert complexes of nonlinear elasticity. Zeitschrift Fur Angewandte Mathematik Und Physik, 2016, 67, 1.	0.7	8
64	Universal deformations in inhomogeneous isotropic nonlinear elastic solids. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, .	1.0	8
65	Nonlinear mechanics of thermoelastic accretion. Zeitschrift Fur Angewandte Mathematik Und Physik, 2020, 71, 1.	0.7	7
66	Transformation Cloaking in Elastic Plates. Journal of Nonlinear Science, 2021, 31, 1.	1.0	7
67	On Eshelbyâ€™s inclusion problem in nonlinear anisotropic elasticity. Journal of Micromechanics and Molecular Physics, 2021, 06, 2150002.	0.7	7
68	Topological aspects of meshless methods and nodal ordering for meshless discretizations. International Journal for Numerical Methods in Engineering, 2001, 52, 921-938.	1.5	6
69	Anharmonic analysis of defective crystals with many-body interactions using symmetry reduction. Computational Materials Science, 2009, 44, 1296-1306.	1.4	6
70	Small-on-large geometric anelasticity. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20160659.	1.0	6
71	On the wedge dispiration in an inhomogeneous isotropic nonlinear elastic solid. Mechanics Research Communications, 2016, 78, 55-59.	1.0	6
72	On quadratic isoparametric transition elements for a crack normal to a bimaterial interface. International Journal for Numerical Methods in Engineering, 1999, 46, 457-469.	1.5	5

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73	Structure of defective crystals at finite temperatures: A quasi-harmonic lattice dynamics approach. International Journal of Solids and Structures, 2010, 47, 1807-1821.	1.3	5
74	On the compatibility equations of nonlinear and linear elasticity in the presence of boundary conditions. Zeitschrift Fur Angewandte Mathematik Und Physik, 2015, 66, 3627-3644.	0.7	5
75	Elastodynamic transformation cloaking for non-centrosymmetric gradient solids. Zeitschrift Fur Angewandte Mathematik Und Physik, 2021, 72, 1.	0.7	5
76	On Hashinâ€™s Hollow Cylinder and Sphere Assemblages in Anisotropic Nonlinear Elasticity. Journal of Elasticity, 2021, 146, 65-82.	0.9	5
77	The weak compatibility equations of nonlinear elasticity and the insufficiency of the Hadamard jump condition for non-simply connected bodies. Continuum Mechanics and Thermodynamics, 2016, 28, 1347-1359.	1.4	4
78	On Nyeâ€™s lattice curvature tensor. Mechanics Research Communications, 2021, 113, 103696.	1.0	4
79	Effect of external normal and parallel electric fields on 180Â° ferroelectric domain walls in PbTiO3. Journal of Physics Condensed Matter, 2011, 23, 035901.	0.7	3
80	Applications of Algebraic Topology in Elasticity. Advances in Mechanics and Mathematics, 2020, , 143-183.	0.2	3
81	The universal program of linear elasticity. Mathematics and Mechanics of Solids, 2023, 28, 251-268.	1.5	3
82	Universality in Anisotropic Linear Anelasticity. Journal of Elasticity, 2022, 150, 241-259.	0.9	3
83	Non-metricity and the Nonlinear Mechanics of Distributed Point Defects. Springer Proceedings in Mathematics and Statistics, 2015, , 235-251.	0.1	2
84	A reappraisal of transition elements in linear elastic fracture mechanics. International Journal of Fracture, 1999, 100, 227-248.	1.1	1
85	A closed-form solution for superelastic shape memory alloy beams subjected to bending. Proceedings of SPIE, 2012, , .	0.8	1
86	Finite Fracture Mechanics for Fractal Cracks. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2009, , 223-231.	0.1	1
87	A Simplified Constitutive Model for Simulating the Rate-Dependent Superelastic Shape Memory Alloys in Fast Loadings. , 2011, , .		0
88	Is the Stress Distribution Uniform in the Cross Section of SMA Bars Subjected to Uniaxial Loading? Is it Related to Rate Dependency?. , 2011, , .		0
89	Exact Solution for Pure Torsion of SMA Curved Bars With Application to Analyzing SMA Helical Springs. , 2011, , .		0
90	Recent advances in the applications of geometry in solid mechanics. Mechanics Research Communications, 2021, 111, 103656.	1.0	0

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91	Atomic Structure of 180? Ferroelectric Domain Walls in PbTiO3. , 2013, , .		0