

John Clayton

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

110 papers	2,486 citations	30 h-index	46 g-index
119 ext. papers	2,791 ext. citations	2.8 avg, IF	6.18 L-index

#	Paper	IF	Citations
110	Dynamic plasticity and fracture in high density polycrystals: constitutive modeling and numerical simulation. <i>Journal of the Mechanics and Physics of Solids</i> , 2005 , 53, 261-301	5	139
109	A phase field model of deformation twinning: Nonlinear theory and numerical simulations. <i>Physica D: Nonlinear Phenomena</i> , 2011 , 240, 841-858	3.3	131
108	Phase field modeling of directional fracture in anisotropic polycrystals. <i>Computational Materials Science</i> , 2015 , 98, 158-169	3.2	113
107	Modeling dislocations and disclinations with finite micropolar elastoplasticity. <i>International Journal of Plasticity</i> , 2006 , 22, 210-256	7.6	95
106	A multiscale multiplicative decomposition for elastoplasticity of polycrystals. <i>International Journal of Plasticity</i> , 2003 , 19, 1401-1444	7.6	87
105	Heterogeneous deformation and spall of an extruded tungsten alloy: plate impact experiments and crystal plasticity modeling. <i>Journal of the Mechanics and Physics of Solids</i> , 2008 , 56, 297-335	5	82
104	Nonlinear Mechanics of Crystals. <i>Solid Mechanics and Its Applications</i> , 2011 ,	0.4	79
103	A continuum description of nonlinear elasticity, slip and twinning, with application to sapphire. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2009 , 465, 307-334	2.4	79
102	Simulation of shock wave propagation in single crystal and polycrystalline aluminum. <i>International Journal of Plasticity</i> , 2014 , 60, 118-144	7.6	65
101	A geometrically nonlinear phase field theory of brittle fracture. <i>International Journal of Fracture</i> , 2014 , 189, 139-148	2.3	63
100	A geometric framework for the kinematics of crystals with defects. <i>Philosophical Magazine</i> , 2005 , 85, 3983-4010	1.6	60
99	Modeling dynamic plasticity and spall fracture in high density polycrystalline alloys. <i>International Journal of Solids and Structures</i> , 2005 , 42, 4613-4640	3.1	58
98	Phase field modeling and simulation of coupled fracture and twinning in single crystals and polycrystals. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2016 , 312, 447-467	5.7	57
97	Deformation, fracture, and fragmentation in brittle geologic solids. <i>International Journal of Fracture</i> , 2010 , 163, 151-172	2.3	53
96	Plane wave simulation of elastic-viscoplastic single crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2014 , 69, 14-32	5	48
95	A model for deformation and fragmentation in crushable brittle solids. <i>International Journal of Impact Engineering</i> , 2008 , 35, 269-289	4	48
94	An atomistic-to-continuum framework for nonlinear crystal mechanics based on asymptotic homogenization. <i>Journal of the Mechanics and Physics of Solids</i> , 2006 , 54, 1604-1639	5	48

93	Analysis of shock compression of strong single crystals with logarithmic thermoelastic-plastic theory. <i>International Journal of Engineering Science</i> , 2014 , 79, 1-20	5.7	45
92	Phase field modeling of twinning in indentation of transparent crystals. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2011 , 19, 085005	2	44
91	Modeling nonlinear electromechanical behavior of shocked silicon carbide. <i>Journal of Applied Physics</i> , 2010 , 107, 013520	2.5	42
90	Nonlinear Eulerian thermoelasticity for anisotropic crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2013 , 61, 1983-2014	5	41
89	Phase-field analysis of fracture-induced twinning in single crystals. <i>Acta Materialia</i> , 2013 , 61, 5341-5353	8.4	38
88	Anholonomic configuration spaces and metric tensors in finite elastoplasticity. <i>International Journal of Non-Linear Mechanics</i> , 2004 , 39, 1039-1049	2.8	38
87	Continuum multiscale modeling of finite deformation plasticity and anisotropic damage in polycrystals. <i>Theoretical and Applied Fracture Mechanics</i> , 2006 , 45, 163-185	3.7	37
86	Homogenized finite elastoplasticity and damage: theory and computations. <i>Mechanics of Materials</i> , 2004 , 36, 799-824	3.3	36
85	Towards a nonlinear elastic representation of finite compression and instability of boron carbide ceramic. <i>Philosophical Magazine</i> , 2012 , 92, 2860-2893	1.6	35
84	A multiscale gradient theory for single crystalline elastoviscoplasticity. <i>International Journal of Engineering Science</i> , 2004 , 42, 427-457	5.7	34
83	Mesoscale modeling of nonlinear elasticity and fracture in ceramic polycrystals under dynamic shear and compression. <i>International Journal of Solids and Structures</i> , 2012 , 49, 2686-2702	3.1	33
82	Elastic-plastic behavior of cyclotrimethylene trinitramine single crystals under spherical indentation: Modeling and simulation. <i>Journal of Applied Physics</i> , 2012 , 111, 063512	2.5	32
81	A nonlinear anisotropic elastic-plastic constitutive model for polycrystalline ceramics and minerals with application to boron carbide. <i>International Journal of Solids and Structures</i> , 2015 , 64-65, 191-207	3.1	31
80	On anholonomic deformation, geometry, and differentiation. <i>Mathematics and Mechanics of Solids</i> , 2012 , 17, 702-735	2.3	27
79	Finite polycrystalline elastoplasticity and damage: multiscale kinematics. <i>International Journal of Solids and Structures</i> , 2003 , 40, 5669-5688	3.1	25
78	The missing term in the decomposition of finite deformation. <i>International Journal of Plasticity</i> , 2014 , 52, 51-76	7.6	24
77	Nonlinear phase field theory for fracture and twinning with analysis of simple shear. <i>Philosophical Magazine</i> , 2015 , 95, 2661-2696	1.6	23
76	Defects in nonlinear elastic crystals: differential geometry, finite kinematics, and second-order analytical solutions. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 2015 , 95, 476-510	1	23

75	Modeling effects of crystalline microstructure, energy storage mechanisms, and residual volume changes on penetration resistance of precipitate-hardened aluminum alloys. <i>Composites Part B: Engineering</i> , 2009 , 40, 443-450	10	22
74	A Nonlinear Thermomechanical Model of Spinel Ceramics Applied to Aluminum Oxynitride (ALON). <i>Journal of Applied Mechanics, Transactions ASME</i> , 2011 , 78,	2.7	22
73	Finite Deformations and Internal Forces in Elastic-Plastic Crystals: Interpretations From Nonlinear Elasticity and Anharmonic Lattice Statics. <i>Journal of Engineering Materials and Technology, Transactions of the ASME</i> , 2009 , 131,	1.8	21
72	Crystal thermoelasticity at extreme loading rates and pressures: Analysis of higher-order energy potentials. <i>Extreme Mechanics Letters</i> , 2015 , 3, 113-122	3.9	20
71	Modeling finite deformations in trigonal ceramic crystals with lattice defects. <i>International Journal of Plasticity</i> , 2010 , 26, 1357-1386	7.6	20
70	SHOCK COMPRESSION OF METAL CRYSTALS: A COMPARISON OF EULERIAN AND LAGRANGIAN ELASTIC-PLASTIC THEORIES. <i>International Journal of Applied Mechanics</i> , 2014 , 06, 1450048	2.4	19
69	Finite strain analysis of shock compression of brittle solids applied to titanium diboride. <i>International Journal of Impact Engineering</i> , 2014 , 73, 56-65	4	19
68	An alternative three-term decomposition for single crystal deformation motivated by non-linear elastic dislocation solutions. <i>Quarterly Journal of Mechanics and Applied Mathematics</i> , 2014 , 67, 127-158 ¹		18
67	Differential Geometry and Kinematics of Continua 2014 ,		18
66	Generalized Finsler geometric continuum physics with applications in fracture and phase transformations. <i>Zeitschrift Fur Angewandte Mathematik Und Physik</i> , 2017 , 68, 1	1.6	17
65	Penetration resistance of armor ceramics: Dimensional analysis and property correlations. <i>International Journal of Impact Engineering</i> , 2015 , 85, 124-131	4	17
64	Mesoscale modeling of dynamic compression of boron carbide polycrystals. <i>Mechanics Research Communications</i> , 2013 , 49, 57-64	2.2	17
63	Continuum modeling of twinning, amorphization, and fracture: theory and numerical simulations. <i>Continuum Mechanics and Thermodynamics</i> , 2018 , 30, 421-455	3.5	16
62	Edge on Impact Simulations and Experiments. <i>Procedia Engineering</i> , 2013 , 58, 445-452		16
61	Finsler geometry of nonlinear elastic solids with internal structure. <i>Journal of Geometry and Physics</i> , 2017 , 112, 118-146	1.2	16
60	A non-linear model for elastic dielectric crystals with mobile vacancies. <i>International Journal of Non-Linear Mechanics</i> , 2009 , 44, 675-688	2.8	15
59	Phase Field Theory and Analysis of Pressure-Shear Induced Amorphization and Failure in Boron Carbide Ceramic. <i>AIMS Materials Science</i> , 2014 , 1, 143-158	1.9	15
58	Distributions of Stretch and Rotation in Polycrystalline OFHC Cu. <i>Journal of Engineering Materials and Technology, Transactions of the ASME</i> , 2002 , 124, 302-313	1.8	14

57	Nonlinear Elastic and Inelastic Models for Shock Compression of Crystalline Solids. <i>Shock Wave and High Pressure Phenomena</i> , 2019 ,	0.3	13
56	Dimensional analysis and extended hydrodynamic theory applied to long-rod penetration of ceramics. <i>Defence Technology</i> , 2016 , 12, 334-342	3	13
55	Analysis of intrinsic stability criteria for isotropic third-order Green elastic and compressible neo-Hookean solids. <i>Mechanics of Materials</i> , 2014 , 68, 104-119	3.3	13
54	Kinematics, electromechanics, and kinetics of dielectric and piezoelectric crystals with lattice defects. <i>International Journal of Engineering Science</i> , 2008 , 46, 10-30	5.7	13
53	Numerical integration in the axisymmetric finite element formulation. <i>Advances in Engineering Software</i> , 2000 , 31, 137-141	3.6	13
52	Finsler-geometric continuum mechanics and the micromechanics of fracture in crystals. <i>Journal of Micromechanics and Molecular Physics</i> , 2016 , 01, 1640003	1.4	13
51	Modeling and Simulation of Ballistic Penetration of Ceramic-Polymer-Metal Layered Systems. <i>Mathematical Problems in Engineering</i> , 2015 , 2015, 1-10	1.1	12
50	Finsler-geometric continuum dynamics and shock compression. <i>International Journal of Fracture</i> , 2017 , 208, 53-78	2.3	11
49	Analysis of nonlinear elastic aspects of precursor attenuation in shock-compressed metallic crystals. <i>Journal of Physics Communications</i> , 2018 , 2, 045032	1.2	11
48	Shock compression modeling of metallic single crystals: comparison of finite difference, steady wave, and analytical solutions. <i>Advanced Modeling and Simulation in Engineering Sciences</i> , 2015 , 2,	2.7	11
47	Mesoscale models of interface mechanics in crystalline solids: a review. <i>Journal of Materials Science</i> , 2018 , 53, 5515-5545	4.3	10
46	Nonlinear thermomechanics for analysis of weak shock profile data in ductile polycrystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2019 , 124, 714-757	5	10
45	Phase field modeling of heterogeneous microcrystalline ceramics. <i>International Journal of Solids and Structures</i> , 2019 , 166, 183-196	3.1	7
44	A constitutive framework for finite viscoelasticity and damage based on the Gram-Schmidt decomposition. <i>Acta Mechanica</i> , 2020 , 231, 3319-3362	2.1	7
43	A constitutive model for lung mechanics and injury applicable to static, dynamic, and shock loading. <i>Mechanics of Soft Materials</i> , 2020 , 2, 1	2.1	7
42	On Finsler Geometry and Applications in Mechanics: Review and New Perspectives. <i>Advances in Mathematical Physics</i> , 2015 , 2015, 1-11	1.1	7
41	Continuum modeling of charged vacancy migration in elastic dielectric solids, with application to perovskite thin films. <i>Mechanics Research Communications</i> , 2008 , 35, 57-64	2.2	6
40	Geometric micromechanical modeling of structure changes, fracture and grain boundary layers in polycrystals. <i>Journal of Micromechanics and Molecular Physics</i> , 2018 , 03, 1840001	1.4	6

39	Deformation and Failure Mechanics of Boron Carbide/Titanium Diboride Composites at Multiple Scales. <i>Jom</i> , 2019 , 71, 2567-2575	2.1	5
38	Generalized pseudo-Finsler geometry applied to the nonlinear mechanics of torsion of crystalline solids. <i>International Journal of Geometric Methods in Modern Physics</i> , 2018 , 15, 1850113	1.5	5
37	Modeling single-crystal microstructure evolution due to shock loading. <i>Journal of Physics: Conference Series</i> , 2014 , 500, 112040	0.3	5
36	Computational Modeling of Dual-Phase Ceramics with Finsler-Geometric Phase Field Mechanics. <i>CMES - Computer Modeling in Engineering and Sciences</i> , 2019 , 120, 333-350	1.7	5
35	Shock compression of metal single crystals modeled via Finsler-geometric continuum theory 2018 ,		5
34	Dynamic compressibility, shear strength, and fracture behavior of ceramic microstructures predicted from mesoscale models 2012 ,		4
33	Multiscale Modeling of Point and Line Defects in Cubic Lattices. <i>International Journal for Multiscale Computational Engineering</i> , 2007 , 5, 203-226	2.4	4
32	Laplace stretch: Eulerian and Lagrangian formulations. <i>Zeitschrift Fur Angewandte Mathematik Und Physik</i> , 2020 , 71, 1	1.6	4
31	Dynamic Strength of AZ31B-4E and AMX602 Magnesium Alloys Under Shock Loading. <i>Journal of Dynamic Behavior of Materials</i> , 2020 , 6, 403-422	1.8	3
30	Two-scale modelling of effects of microstructure and thermomechanical properties on dynamic performance of an aluminium alloy. <i>International Journal of Materials and Structural Integrity</i> , 2010 , 4, 116	0.3	3
29	Simulation-based Study of Layered Aluminum Crystal Microstructures Subjected to Shock Loading. <i>Procedia Engineering</i> , 2015 , 103, 349-356		2
28	A nonlinear thermoelastic-viscoelastic continuum model of lung mechanics for shock wave analysis 2020 ,		2
27	Continuum Modelling and Simulation of Indentation in Transparent Single Crystalline Minerals and Energetic Solids 2017 , 347-368		2
26	Plasticity and Spall in High Density Polycrystals: Modeling and Simulation. <i>AIP Conference Proceedings</i> , 2006 ,	0	2
25	Modeling lung tissue dynamics and injury under pressure and impact loading. <i>Biomechanics and Modeling in Mechanobiology</i> , 2020 , 19, 2603-2626	3.8	2
24	A Multi-Scale Approach for Phase Field Modeling of Ultra-Hard Ceramic Composites. <i>Materials</i> , 2021 , 14,	3.5	2
23	Coordinate indexing: On the use of Eulerian and Lagrangian Laplace stretches. <i>Applications in Engineering Science</i> , 2021 , 5, 100029	0.4	2
22	A Dynamic Finite-Deformation Constitutive Model for Steels Undergoing Slip, Twinning, and Phase Changes. <i>Journal of Dynamic Behavior of Materials</i> , 2021 , 7, 217-247	1.8	2

21	Compatibility conditions from a GramSchmidt decomposition of deformation gradient in two dimensions. <i>Mechanics Research Communications</i> , 2020 , 104, 103498	2.2	1
20	Stress Driven Rearrangement Instability of Crystalline Films with Electromechanical Interaction. <i>Materials Research Society Symposia Proceedings</i> , 2006 , 924, 1		1
19	Integrated diagnostic/prognostic tools for small cracks in structures. <i>Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science</i> , 2000 , 214, 1123-1140	1.3	1
18	Phase field modeling of diamond-silicon carbide ceramic composites with tertiary grain boundary phases. <i>International Journal of Fracture</i> ,1	2.3	1
17	Nonlinear thermodynamic phase field theory with application to fracture and dynamic inelastic phenomena in ceramic polycrystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2021 , 157, 104633	5	1
16	Mesoscale Modeling of Dynamic Failure of Ceramic Polycrystals. <i>Ceramic Engineering and Science Proceedings</i> ,237-248	0.1	1
15	Finsler differential geometry in continuum mechanics: Fundamental concepts, history, and renewed application to ferromagnetic solids. <i>Mathematics and Mechanics of Solids</i> ,108128652110494	2.3	0
14	The influence of the tertiary bronchi on dynamic lung deformation.. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2022 , 130, 105181	4.1	0
13	Manipulating shock waves with metallurgy. <i>Acta Materialia</i> , 2022 , 234, 118042	8.4	0
12	Deformation Twinning in Single Crystals. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 275-327	0.3	
11	Equations of State. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 117-132	0.3	
10	Shock Compression of Ductile Polycrystals. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 195-274	0.3	
9	Finsler-Geometric Modeling of Structural Changes in Solids. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 385-452	0.3	
8	Fracture and Flow in Brittle Solids. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 329-381	0.3	
7	Dislocation Plasticity in Single Crystals. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 135-193	0.3	
6	Logarithmic Formulation. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 99-115	0.3	
5	Mechanics and Geometry of Solids and Surfaces. <i>Advances in Mathematical Physics</i> , 2015 , 2015, 1-3	1.1	
4	Lagrangian Formulation. <i>Shock Wave and High Pressure Phenomena</i> , 2019 , 53-71	0.3	

- 3 Eulerian Formulation. *Shock Wave and High Pressure Phenomena*, **2019**, 73-98 0.3
- 2 Deformation, fracture, and fragmentation in brittle geologic solids. *IUTAM Symposium on Cellular, Molecular and Tissue Mechanics*, **2009**, 405-426 0.3
- 1 Analysis of shock waves in a mixture theory of a thermoelastic solid and fluid with distinct temperatures. *International Journal of Engineering Science*, **2022**, 175, 103675 5.7