John Clayton

List of Publications by Year in Descending Order

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	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	
109	The influence of the tertiary bronchi on dynamic lung deformation.. *Journal of the Mechanical Behavior of Biomedical Materials*, **2022**, 130, 105181	4.1	0
108	Manipulating shock waves with metallurgy. *Acta Materialia*, **2022**, 234, 118042	8.4	0
107	A Multi-Scale Approach for Phase Field Modeling of Ultra-Hard Ceramic Composites. *Materials*, **2021**, 14,	3.5	2
106	Coordinate indexing: On the use of Eulerian and Lagrangian Laplace stretches. *Applications in Engineering Science*, **2021**, 5, 100029	0.4	2
105	Nonlinear thermodynamic phase field theory with application to fracture and dynamic inelastic phenomena in ceramic polycrystals. *Journal of the Mechanics and Physics of Solids*, **2021**, 157, 104633	5	1
104	A Dynamic Finite-Deformation Constitutive Model for Steels Undergoing Slip, Twinning, and Phase Changes. *Journal of Dynamic Behavior of Materials*, **2021**, 7, 217-247	1.8	2
103	A nonlinear thermoelastic-viscoelastic continuum model of lung mechanics for shock wave analysis **2020**,		2
102	Compatibility conditions from a GramSchmidt decomposition of deformation gradient in two dimensions. *Mechanics Research Communications*, **2020**, 104, 103498	2.2	1
101	A constitutive framework for finite viscoelasticity and damage based on the GramSchmidt decomposition. *Acta Mechanica*, **2020**, 231, 3319-3362	2.1	7
100	Dynamic Strength of AZ31B-4E and AMX602 Magnesium Alloys Under Shock Loading. *Journal of Dynamic Behavior of Materials*, **2020**, 6, 403-422	1.8	3
99	A constitutive model for lung mechanics and injury applicable to static, dynamic, and shock loading. *Mechanics of Soft Materials*, **2020**, 2, 1	2.1	7
98	Modeling lung tissue dynamics and injury under pressure and impact loading. *Biomechanics and Modeling in Mechanobiology*, **2020**, 19, 2603-2626	3.8	2
97	Laplace stretch: Eulerian and Lagrangian formulations. *Zeitschrift Fur Angewandte Mathematik Und Physik*, **2020**, 71, 1	1.6	4
96	Deformation Twinning in Single Crystals. *Shock Wave and High Pressure Phenomena*, **2019**, 275-327	0.3	
95	Equations of State. *Shock Wave and High Pressure Phenomena*, **2019**, 117-132	0.3	
94	Shock Compression of Ductile Polycrystals. *Shock Wave and High Pressure Phenomena*, **2019**, 195-274	0.3	

93	Deformation and Failure Mechanics of Boron Carbide–Titanium Diboride Composites at Multiple Scales. *Jom*, **2019**, 71, 2567-2575	2.1	5
92	Finsler-Geometric Modeling of Structural Changes in Solids. *Shock Wave and High Pressure Phenomena*, **2019**, 385-452	0.3	
91	Fracture and Flow in Brittle Solids. *Shock Wave and High Pressure Phenomena*, **2019**, 329-381	0.3	
90	Dislocation Plasticity in Single Crystals. *Shock Wave and High Pressure Phenomena*, **2019**, 135-193	0.3	
89	Nonlinear Elastic and Inelastic Models for Shock Compression of Crystalline Solids. *Shock Wave and High Pressure Phenomena*, **2019**,	0.3	13
88	Phase field modeling of heterogeneous microcrystalline ceramics. *International Journal of Solids and Structures*, **2019**, 166, 183-196	3.1	7
87	Logarithmic Formulation. *Shock Wave and High Pressure Phenomena*, **2019**, 99-115	0.3	
86	Computational Modeling of Dual-Phase Ceramics with Finsler-Geometric Phase Field Mechanics. *CMES - Computer Modeling in Engineering and Sciences*, **2019**, 120, 333-350	1.7	5
85	Lagrangian Formulation. *Shock Wave and High Pressure Phenomena*, **2019**, 53-71	0.3	
84	Eulerian Formulation. *Shock Wave and High Pressure Phenomena*, **2019**, 73-98	0.3	
83	Nonlinear thermomechanics for analysis of weak shock profile data in ductile polycrystals. *Journal of the Mechanics and Physics of Solids*, **2019**, 124, 714-757	5	10
82	Analysis of nonlinear elastic aspects of precursor attenuation in shock-compressed metallic crystals. *Journal of Physics Communications*, **2018**, 2, 045032	1.2	11
81	Continuum modeling of twinning, amorphization, and fracture: theory and numerical simulations. *Continuum Mechanics and Thermodynamics*, **2018**, 30, 421-455	3.5	16
80	Generalized pseudo-Finsler geometry applied to the nonlinear mechanics of torsion of crystalline solids. *International Journal of Geometric Methods in Modern Physics*, **2018**, 15, 1850113	1.5	5
79	Mesoscale models of interface mechanics in crystalline solids: a review. *Journal of Materials Science*, **2018**, 53, 5515-5545	4.3	10
78	Shock compression of metal single crystals modeled via Finsler-geometric continuum theory **2018**,		5
77	Geometric micromechanical modeling of structure changes, fracture and grain boundary layers in polycrystals. *Journal of Micromechanics and Molecular Physics*, **2018**, 03, 1840001	1.4	6
76	Finsler-geometric continuum dynamics and shock compression. *International Journal of Fracture*, **2017**, 208, 53-78	2.3	11

75	Generalized Finsler geometric continuum physics with applications in fracture and phase transformations. *Zeitschrift Fur Angewandte Mathematik Und Physik*, **2017**, 68, 1	1.6	17
74	Continuum Modelling and Simulation of Indentation in Transparent Single Crystalline Minerals and Energetic Solids **2017**, 347-368		2
73	Finsler geometry of nonlinear elastic solids with internal structure. *Journal of Geometry and Physics*, **2017**, 112, 118-146	1.2	16
72	Dimensional analysis and extended hydrodynamic theory applied to long-rod penetration of ceramics. *Defence Technology*, **2016**, 12, 334-342	3	13
71	Phase field modeling and simulation of coupled fracture and twinning in single crystals and polycrystals. *Computer Methods in Applied Mechanics and Engineering*, **2016**, 312, 447-467	5.7	57
70	Finsler-geometric continuum mechanics and the micromechanics of fracture in crystals. *Journal of Micromechanics and Molecular Physics*, **2016**, 01, 1640003	1.4	13
69	Simulation-based Study of Layered Aluminum Crystal Microstructures Subjected to Shock Loading. *Procedia Engineering*, **2015**, 103, 349-356		2
68	A nonlinear anisotropic elastic-inelastic constitutive model for polycrystalline ceramics and minerals with application to boron carbide. *International Journal of Solids and Structures*, **2015**, 64-65, 191-207	3.1	31
67	Penetration resistance of armor ceramics: Dimensional analysis and property correlations. *International Journal of Impact Engineering*, **2015**, 85, 124-131	4	17
66	Nonlinear phase field theory for fracture and twinning with analysis of simple shear. *Philosophical Magazine*, **2015**, 95, 2661-2696	1.6	23
65	Phase field modeling of directional fracture in anisotropic polycrystals. *Computational Materials Science*, **2015**, 98, 158-169	3.2	113
64	Defects in nonlinear elastic crystals: differential geometry, finite kinematics, and second-order analytical solutions. *ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik*, **2015**, 95, 476-510	1	23
63	Shock compression modeling of metallic single crystals: comparison of finite difference, steady wave, and analytical solutions. *Advanced Modeling and Simulation in Engineering Sciences*, **2015**, 2,	2.7	11
62	Mechanics and Geometry of Solids and Surfaces. *Advances in Mathematical Physics*, **2015**, 2015, 1-3	1.1	
61	Modeling and Simulation of Ballistic Penetration of Ceramic-Polymer-Metal Layered Systems. *Mathematical Problems in Engineering*, **2015**, 2015, 1-10	1.1	12
60	On Finsler Geometry and Applications in Mechanics: Review and New Perspectives. *Advances in Mathematical Physics*, **2015**, 2015, 1-11	1.1	7
59	Crystal thermoelasticity at extreme loading rates and pressures: Analysis of higher-order energy potentials. *Extreme Mechanics Letters*, **2015**, 3, 113-122	3.9	20
58	An alternative three-term decomposition for single crystal deformation motivated by non-linear elastic dislocation solutions. *Quarterly Journal of Mechanics and Applied Mathematics*, **2014**, 67, 127-158 [1]		18

57	Analysis of intrinsic stability criteria for isotropic third-order Green elastic and compressible neo-Hookean solids. *Mechanics of Materials*, **2014**, 68, 104-119	3.3	13
56	SHOCK COMPRESSION OF METAL CRYSTALS: A COMPARISON OF EULERIAN AND LAGRANGIAN ELASTIC-PLASTIC THEORIES. *International Journal of Applied Mechanics*, **2014**, 06, 1450048	2.4	19
55	Finite strain analysis of shock compression of brittle solids applied to titanium diboride. *International Journal of Impact Engineering*, **2014**, 73, 56-65	4	19
54	Simulation of shock wave propagation in single crystal and polycrystalline aluminum. *International Journal of Plasticity*, **2014**, 60, 118-144	7.6	65
53	Plane wave simulation of elastic-viscoplastic single crystals. *Journal of the Mechanics and Physics of Solids*, **2014**, 69, 14-32	5	48
52	The missing term in the decomposition of finite deformation. *International Journal of Plasticity*, **2014**, 52, 51-76	7.6	24
51	A geometrically nonlinear phase field theory of brittle fracture. *International Journal of Fracture*, **2014**, 189, 139-148	2.3	63
50	Modeling single-crystal microstructure evolution due to shock loading. *Journal of Physics: Conference Series*, **2014**, 500, 112040	0.3	5
49	Analysis of shock compression of strong single crystals with logarithmic thermoelastic-plastic theory. *International Journal of Engineering Science*, **2014**, 79, 1-20	5.7	45
48	Differential Geometry and Kinematics of Continua **2014**,		18
47	Phase Field Theory and Analysis of Pressure-Shear Induced Amorphization and Failure in Boron Carbide Ceramic. *AIMS Materials Science*, **2014**, 1, 143-158	1.9	15
46	Edge on Impact Simulations and Experiments. *Procedia Engineering*, **2013**, 58, 445-452		16
45	Phase-field analysis of fracture-induced twinning in single crystals. *Acta Materialia*, **2013**, 61, 5341-5353	8.4	38
44	Mesoscale modeling of dynamic compression of boron carbide polycrystals. *Mechanics Research Communications*, **2013**, 49, 57-64	2.2	17
43	Nonlinear Eulerian thermoelasticity for anisotropic crystals. *Journal of the Mechanics and Physics of Solids*, **2013**, 61, 1983-2014	5	41
42	Towards a nonlinear elastic representation of finite compression and instability of boron carbide ceramic. *Philosophical Magazine*, **2012**, 92, 2860-2893	1.6	35
41	Mesoscale modeling of nonlinear elasticity and fracture in ceramic polycrystals under dynamic shear and compression. *International Journal of Solids and Structures*, **2012**, 49, 2686-2702	3.1	33
40	On anholonomic deformation, geometry, and differentiation. *Mathematics and Mechanics of Solids*, **2012**, 17, 702-735	2.3	27

39	Dynamic compressibility, shear strength, and fracture behavior of ceramic microstructures predicted from mesoscale models **2012**,		4
38	Elastic-plastic behavior of cyclotrimethylene trinitramine single crystals under spherical indentation: Modeling and simulation. *Journal of Applied Physics*, **2012**, 111, 063512	2.5	32
37	Nonlinear Mechanics of Crystals. *Solid Mechanics and Its Applications*, **2011**,	0.4	79
36	A phase field model of deformation twinning: Nonlinear theory and numerical simulations. *Physica D: Nonlinear Phenomena*, **2011**, 240, 841-858	3.3	131
35	Phase field modeling of twinning in indentation of transparent crystals. *Modelling and Simulation in Materials Science and Engineering*, **2011**, 19, 085005	2	44
34	A Nonlinear Thermomechanical Model of Spinel Ceramics Applied to Aluminum Oxynitride (AlON). *Journal of Applied Mechanics, Transactions ASME*, **2011**, 78,	2.7	22
33	Modeling nonlinear electromechanical behavior of shocked silicon carbide. *Journal of Applied Physics*, **2010**, 107, 013520	2.5	42
32	Two-scale modelling of effects of microstructure and thermomechanical properties on dynamic performance of an aluminium alloy. *International Journal of Materials and Structural Integrity*, **2010**, 4, 116	0.3	3
31	Deformation, fracture, and fragmentation in brittle geologic solids. *International Journal of Fracture* , **2010**, 163, 151-172	2.3	53
30	Modeling finite deformations in trigonal ceramic crystals with lattice defects. *International Journal of Plasticity*, **2010**, 26, 1357-1386	7.6	20
29	A continuum description of nonlinear elasticity, slip and twinning, with application to sapphire. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2009**, 465, 307-334	2.4	79
28	Finite Deformations and Internal Forces in Elastic-Plastic Crystals: Interpretations From Nonlinear Elasticity and Anharmonic Lattice Statics. *Journal of Engineering Materials and Technology, Transactions of the ASME*, **2009**, 131,	1.8	21
27	Modeling effects of crystalline microstructure, energy storage mechanisms, and residual volume changes on penetration resistance of precipitate-hardened aluminum alloys. *Composites Part B: Engineering*, **2009**, 40, 443-450	10	22
26	A non-linear model for elastic dielectric crystals with mobile vacancies. *International Journal of Non-Linear Mechanics*, **2009**, 44, 675-688	2.8	15
25	Deformation, fracture, and fragmentation in brittle geologic solids. *IUTAM Symposium on Cellular, Molecular and Tissue Mechanics*, **2009**, 405-426	0.3	
24	Continuum modeling of charged vacancy migration in elastic dielectric solids, with application to perovskite thin films. *Mechanics Research Communications*, **2008**, 35, 57-64	2.2	6
23	Heterogeneous deformation and spall of an extruded tungsten alloy: plate impact experiments and crystal plasticity modeling. *Journal of the Mechanics and Physics of Solids*, **2008**, 56, 297-335	5	82
22	Kinematics, electromechanics, and kinetics of dielectric and piezoelectric crystals with lattice defects. *International Journal of Engineering Science*, **2008**, 46, 10-30	5.7	13

21	A model for deformation and fragmentation in crushable brittle solids. *International Journal of Impact Engineering*, **2008**, 35, 269-289	4	48
20	Multiscale Modeling of Point and Line Defects in Cubic Lattices. *International Journal for Multiscale Computational Engineering*, **2007**, 5, 203-226	2.4	4
19	Plasticity and Spall in High Density Polycrystals: Modeling and Simulation. *AIP Conference Proceedings*, **2006**,	0	2
18	Stress Driven Rearrangement Instability of Crystalline Films with Electromechanical Interaction. *Materials Research Society Symposia Proceedings*, **2006**, 924, 1		1
17	Modeling dislocations and disclinations with finite micropolar elastoplasticity. *International Journal of Plasticity*, **2006**, 22, 210-256	7.6	95
16	An atomistic-to-continuum framework for nonlinear crystal mechanics based on asymptotic homogenization. *Journal of the Mechanics and Physics of Solids*, **2006**, 54, 1604-1639	5	48
15	Continuum multiscale modeling of finite deformation plasticity and anisotropic damage in polycrystals. *Theoretical and Applied Fracture Mechanics*, **2006**, 45, 163-185	3.7	37
14	Dynamic plasticity and fracture in high density polycrystals: constitutive modeling and numerical simulation. *Journal of the Mechanics and Physics of Solids*, **2005**, 53, 261-301	5	139
13	Modeling dynamic plasticity and spall fracture in high density polycrystalline alloys. *International Journal of Solids and Structures*, **2005**, 42, 4613-4640	3.1	58
12	A geometric framework for the kinematics of crystals with defects. *Philosophical Magazine*, **2005**, 85, 3983-4010	1.6	60
11	Homogenized finite elastoplasticity and damage: theory and computations. *Mechanics of Materials*, **2004**, 36, 799-824	3.3	36
10	A multiscale gradient theory for single crystalline elastoviscoplasticity. *International Journal of Engineering Science*, **2004**, 42, 427-457	5.7	34
9	Anholonomic configuration spaces and metric tensors in finite elastoplasticity. *International Journal of Non-Linear Mechanics*, **2004**, 39, 1039-1049	2.8	38
8	Finite polycrystalline elastoplasticity and damage: multiscale kinematics. *International Journal of Solids and Structures*, **2003**, 40, 5669-5688	3.1	25
7	A multiscale multiplicative decomposition for elastoplasticity of polycrystals. *International Journal of Plasticity*, **2003**, 19, 1401-1444	7.6	87
6	Distributions of Stretch and Rotation in Polycrystalline OFHC Cu. *Journal of Engineering Materials and Technology, Transactions of the ASME*, **2002**, 124, 302-313	1.8	14
5	Numerical integration in the axisymmetric finite element formulation. *Advances in Engineering Software*, **2000**, 31, 137-141	3.6	13
4	Integrated diagnostic/prognostic tools for small cracks in structures. *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, **2000**, 214, 1123-1140	1.3	1

3	Finsler differential geometry in continuum mechanics: Fundamental concepts, history, and renewed application to ferromagnetic solids. *Mathematics and Mechanics of Solids*,108128652110494	2.3	0
2	Phase field modeling of diamond-silicon carbide ceramic composites with tertiary grain boundary phases. *International Journal of Fracture*,1	2.3	1
1	Mesoscale Modeling of Dynamic Failure of Ceramic Polycrystals. *Ceramic Engineering and Science Proceedings*,237-248	0.1	1