Guruswami Ravichandran

List of Publications by Year
in descending order

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89 papers	4,120 citations	172457 29 h-index	114465 63 g-index
92 all docs	92 docs citations	92 times ranked	3707 citing authors

#	Article	IF	Citations
1	Deformation behavior of the Zr41.2Ti13.8Cu12.5Ni10Be22.5 bulk metallic glass over a wide range of strain-rates and temperatures. Acta Materialia, 2003, 51, 3429-3443.	7.9	679
2	Study of mechanical deformation in bulk metallic glass through instrumented indentation. Acta Materialia, 2001, 49, 3781-3789.	7.9	313
3	Quantifying cellular traction forces in three dimensions. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 22108-22113.	7.1	251
4	Three-Dimensional Traction Force Microscopy: A New Tool for Quantifying Cell-Matrix Interactions. PLoS ONE, 2011, 6, e17833.	2.5	208
5	Three-dimensional Full-field Measurements of Large Deformations in Soft Materials Using Confocal Microscopy and Digital Volume Correlation. Experimental Mechanics, 2007, 47, 427-438.	2.0	203
6	Dynamic compressive failure of a glass ceramic under lateral confinement. Journal of the Mechanics and Physics of Solids, 1997, 45, 1303-1328.	4.8	186
7	An analysis of nanoindentation in linearly elastic solids. International Journal of Solids and Structures, 2008, 45, 6018-6033.	2.7	144
8	Large strain electrostrictive actuation in barium titanate. Applied Physics Letters, 2000, 77, 1698-1700.	3.3	130
9	An experimental investigation of shock wave propagation in periodically layered composites. Journal of the Mechanics and Physics of Solids, 2003, 51, 245-265.	4.8	124
10	Ferroelectric perovskites for electromechanical actuation. Acta Materialia, 2003, 51, 5941-5960.	7.9	120
11	Pressure-dependent flow behavior of Zr41.2Ti13.8Cu12.5Ni10Be22.5 bulk metallic glass. Journal of Materials Research, 2003, 18, 2039-2049.	2.6	117
12	Failure mode transition in ceramics under dynamic multiaxial compression. International Journal of Fracture, 2000, 101, 141-159.	2.2	104
13	The mechanical response of pure iron at high strain rates under dominant shear. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2006, 432, 191-201.	5.6	95
14	Microbuckling of fibrin provides a mechanism for cell mechanosensing. Journal of the Royal Society Interface, 2015, 12, 20150320.	3.4	89
15	Extracting inter-particle forces in opaque granular materials: Beyond photoelasticity. Journal of the Mechanics and Physics of Solids, 2014, 63, 154-166.	4.8	82
16	Fundamental structure of steady plastic shock waves in metals. Journal of Applied Physics, 2004, 95, 1718-1732.	2.5	72
17	Contractile forces regulate cell division in three-dimensional environments. Journal of Cell Biology, 2014, 205, 155-162.	5.2	71
18	Analysis of shear banding in metallic glasses under bending. Acta Materialia, 2005, 53, 4087-4095.	7.9	69

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19	Fracture through cavitation in a metallic glass. Europhysics Letters, 2008, 83, 66006.	2.0	50
20	Effect of Poissonâ€™s ratio on crack tip fields and fracture behavior of metallic glasses. Acta Materialia, 2008, 56, 6077-6086.	7.9	48
21	Quantifying cell-induced matrix deformation in three dimensions based on imaging matrix fibers. Integrative Biology (United Kingdom), 2015, 7, 1186-1195.	1.3	48
22	A model for compression-weakening materials and the elastic fields due to contractile cells. Journal of the Mechanics and Physics of Solids, 2015, 85, 16-32.	4.8	47
23	Dynamic compressive behavior of unidirectional E-glass/vinylester composites. Journal of Materials Science, 2001, 36, 831-838.	3.7	44
24	An analysis of nanoindentation in elasto-plastic solids. International Journal of Solids and Structures, 2008, 45, 6399-6415.	2.7	44
25	Analysis of nanoindentation of soft materials with an atomic force microscope. Journal of Materials Research, 2012, 27, 229-237.	2.6	44
26	Transverse Failure in Thick S2-Glass/ Epoxy Fiber-Reinforced Composites. Journal of Composite Materials, 2004, 38, 609-623.	2.4	42
27	Dynamic pore collapse in viscoplastic materials. Journal of Applied Physics, 1993, 74, 2425-2435.	2.5	40
28	Plastic Work to Heat Conversion During High-Strain Rate Deformation of Mg and Mg Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2017, 48, 14-19.	2.2	40
29	Failure Mode Transition in Unidirectional E-Glass/Vinylester Composites under Multiaxial Compression. Journal of Composite Materials, 2000, 34, 2081-2097.	2.4	34
30	Dynamic Inter-Particle Force Inference in Granular Materials: Method and Application. Experimental Mechanics, 2016, 56, 217-229.	2.0	30
31	Rate Dependent Adhesion Energy and Nonsteady Peeling of Inextensible Tapes. Journal of Applied Mechanics, Transactions ASME, 2014, 81, .	2.2	29
32	Particle-level modeling of dynamic consolidation of Ti-SiC powders. Modelling and Simulation in Materials Science and Engineering, 1995, 3, 771-796.	2.0	27
33	Three-Dimensional Analysis of the Effect of Epidermal Growth Factor on Cell-Cell Adhesion in Epithelial Cell Clusters. Biophysical Journal, 2012, 102, 1323-1330.	0.5	27
34	Large Deformation of Nitinol Under Shear Dominant Loading. Experimental Mechanics, 2009, 49, 225-233.	2.0	24
35	Characterization of domain walls in BaTiO3 using simultaneous atomic force and piezo response force microscopy. Applied Physics Letters, 2006, 88, 102907.	3.3	23
36	A model for large electrostrictive actuation in ferroelectric single crystals. International Journal of Solids and Structures, 2007, 44, 2053-2065.	2.7	23

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37	Heterodyne transverse velocimetry for pressure-shear plate impact experiments. Journal of Applied Physics, 2018, 123, .	2.5	21
38	Cells exploit a phase transition to mechanically remodel the fibrous extracellular matrix. Journal of the Royal Society Interface, 2021, 18, 20200823.	3.4	21
39	An Experimental Investigation of Damage Evolution in a Ceramic Matrix Composite. Journal of Engineering Materials and Technology, Transactions of the ASME, 1995, 117, 101-108.	1.4	20
40	Processing SiC-particulate reinforced titanium-based metal matrix composites by shock wave consolidation. Acta Metallurgica Et Materialia, 1995, 43, 235-250.	1.8	20
41	Dynamic behavior of selected ceramic powders. International Journal of Impact Engineering, 2006, 32, 1768-1785.	5.0	18
42	Application of digital image correlation method to biogel. Polymer Engineering and Science, 2010, 50, 1585-1593.	3.1	18
43	Modeling plastic shocks in periodic laminates with gradient plasticity theories. Journal of the Mechanics and Physics of Solids, 2006, 54, 2495-2526.	4.8	17
44	High strain-rate compression behavior of polymeric rod and plate Kelvin lattice structures. Mechanics of Materials, 2022, 166, 104216.	3.2	17
45	In situ mechanical characterization during deformation of PVC polymeric foams using ultrasonics and digital image correlation. Mechanics of Materials, 2012, 55, 82-88.	3.2	15
46	Fracture Diodes: Directional Asymmetry of Fracture Toughness. Physical Review Letters, 2021, 126, 025503.	7.8	14
47	Sandwich Structures. Experimental Mechanics, 2012, 52, 1-2.	2.0	13
48	Dynamic Strength of Copper at High Pressures Using Pressure Shear Plate Experiments. Journal of Dynamic Behavior of Materials, 2021, 7, 248-261.	1.7	13
49	Effect of Cohesive Zone Size on Peeling of Heterogeneous Adhesive Tape. Journal of Applied Mechanics, Transactions ASME, 2018, 85, .	2.2	12
50	A Note on the Direct Determination of the Confining Pressure of Cylindrical Specimens. Experimental Mechanics, 2008, 48, 375-377.	2.0	11
51	Guiding and Trapping Cracks With Compliant Inclusions for Enhancing Toughness of Brittle Composite Materials. Journal of Applied Mechanics, Transactions ASME, 2020, 87, .	2.2	11
52	Stress Field Evolution under Mechanically Simulated Hull Slamming Conditions. Experimental Mechanics, 2012, 52, 107-116.	2.0	10
53	A model coupling plasticity and phase transformation with application to dynamic shear deformation of iron. Mechanics of Materials, 2015, 80, 255-263.	3.2	10
54	Pressure-Shear Plate Impact Experiments at High Pressures. Journal of Dynamic Behavior of Materials, 2020, 6, 489-501.	1.7	10

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55	An experimental investigation of the stability of peeling for adhesive tapes. Mechanics of Materials, 2013, 66, 69-78.	3.2	8
56	Shock compression behavior of stainless steel 316L octet-truss lattice structures. International Journal of Impact Engineering, 2022, 169, 104324.	5.0	8
57	Deformation and crystallization of Zr-based amorphous alloys in homogeneous flow regime. Journal of Materials Research, 2010, 25, 1137-1148.	2.6	7
58	Stability of peeling for systems with rate independent decohesion energy. International Journal of Solids and Structures, 2013, 50, 1974-1980.	2.7	7
59	Structure and Biomechanics during Xylem Vessel Transdifferentiation in Arabidopsis thaliana. Plants, 2020, 9, 1715.	3.5	7
60	Shock compression of molybdenum single crystals to 110â€‰GPa: Elasticâ€“plastic deformation and crystal anisotropy. Journal of Applied Physics, 2020, 127, .	2.5	7
61	Crack propagation and renucleation in soft brittle hydrogels. International Journal of Fracture, 2020, 222, 37-52.	2.2	7
62	Competing failure mechanisms in thin films: Application to layer transfer. Journal of Applied Physics, 2009, 105, 073514.	2.5	6
63	Shock Wave Structure in Particulate Composites. Procedia Engineering, 2015, 103, 515-521.	1.2	6
64	Structure of shock waves in particulate composites. Journal of Applied Physics, 2020, 127, .	2.5	6
65	Probing the properties and mechanisms of failure waves in soda-lime glass. Journal of Applied Physics, 2021, 129, .	2.5	6
66	A minimal mechanosensing model predicts keratocyte evolution on flexible substrates. Journal of the Royal Society Interface, 2020, 17, 20200175.	3.4	6
67	Inelastic behavior of tungsten carbide at high pressures. Journal of the Mechanics and Physics of Solids, 2022, 159, 104762.	4.8	6
68	An In Situ Ultrasonic Technique for Simultaneous Measurement of Longitudinal and Shear Wave Speeds in Solids. Experimental Mechanics, 2007, 47, 753-759.	2.0	5
69	Three-dimensional Traction Force Microscopy for Studying Cellular Interactions with Biomaterials. Procedia IUTAM, 2012, 4, 144-150.	1.2	5
70	Dynamic Strength of Iron at High Pressures and Strain Rates. Physical Review Letters, 2022, 128, 015705.	7.8	5
71	Measuring Terzaghiâ€™s effective stress by decoding force transmission in fluid-saturated granular media. Journal of the Mechanics and Physics of Solids, 2022, 165, 104912.	4.8	4
72	Pressure-shear plate impact experiment on soda-lime glass at a pressure of 30 GPa and strain rate of 4Â·107 sâ€“1. AIP Conference Proceedings, 2018, , .	0.4	3

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73	Shock structure and spall behavior of porous aluminum. AIP Conference Proceedings, 2020, , .	0.4	3
74	An investigation of shock-induced phase transition in soda-lime glass. Journal of Applied Physics, 2022, 131, .	2.5	3
75	Confocal Microscopy and Digital Volume Correlation Methods for Intergranular Force Transmission Experiments. Experimental Techniques, 2019, 43, 457-468.	1.5	2
76	Upstream jetting phenomenon in planar shock wave experiments with ceramic powders. Shock Waves, 2010, 20, 387-393.	1.9	1
77	Application of 3D Traction Force Microscopy to Mechanotransduction of Cell Clusters. Applied Mechanics and Materials, 0, 70, 21-27.	0.2	1
78	High pressure hugoniot measurements using mach waves. , 2012, , .		1
79	Microbuckling of Fibrous Matrices Enables Long Range Cell Mechanosensing. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 135-141.	0.5	1
80	Heterodyne diffracted beam photonic Doppler velocimeter (DPDV) for measurement of transverse and normal particle velocities in pressure-shear plate impact experiments. AIP Conference Proceedings, 2018, , .	0.4	1
81	Experimental investigation of the shearing resistance of SODA-Lime glass at pressures of 9â€...GPa and strain rates of 106sâ¯1. AIP Conference Proceedings, 2018, , .	0.4	1
82	An Experimental Method to Induce and Measure Crack Propagation in Brittle Polymers with Heterogeneities. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 21-23.	0.5	1
83	Peak states of molybdenum single crystals shock compressed to high stresses. Journal of Applied Physics, 2021, 129, 245906.	2.5	1
84	Active Materials. Springer Handbooks, 2008, , 159-168.	0.6	1
85	Prediction of incipient shear band trajectories in a thick wall cylinder explosion test. Experimental Mechanics, 2005, 45, 447-450.	2.0	0
86	Transverse Response of Unidirectional Composites Under a Wide Range of Confinements and Strain Rates. , 2009, , 131-152.		0
87	Modeling of Atomic Force Microscope Contact Experiments on Escherichia coli Bacteria Cellular Systems. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 45-46.	0.5	0
88	Pressure-shear plate impact experiments at very high pressures. AIP Conference Proceedings, 2020, , .	0.4	0
89	Cell wall and cytoskeletal contributions in single cell biomechanics of Nicotiana tabacum. Quantitative Plant Biology, 2022, 3, .	2.0	0