Eran Bouchbinder

List of Publications by Year
in descending order

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98 papers	3,656 citations	94433 37 h-index	144013 57 g-index
99 all docs	99 docs citations	99 times ranked	2232 citing authors

#	Article	IF	Citations
1	Velocity-driven frictional sliding: Coarsening and steady-state pulses. Journal of the Mechanics and Physics of Solids, 2022, 158, 104607.	4.8	10
2	Advancing the Mechanical Performance of Glasses: Perspectives and Challenges. Advanced Materials, 2022, 34, e2109029.	21.0	50
3	The Fracture of Highly Deformable Soft Materials: A Tale of Two Length Scales. Annual Review of Condensed Matter Physics, 2021, 12, 71-94.	14.5	103
4	Elastic moduli fluctuations predict wave attenuation rates in glasses. Journal of Chemical Physics, 2021, 154, 081101.	3.0	24
5	Mean-field model of interacting quasilocalized excitations in glasses. SciPost Physics Core, 2021, 4, .	2.8	17
6	Low-frequency vibrational spectrum of mean-field disordered systems. Physical Review B, 2021, 103, .	3.2	27
7	Unconventional singularities and energy balance in frictional rupture. Nature Communications, 2021, 12, 2585.	12.8	11
8	Oscillatory and tip-splitting instabilities in 2D dynamic fracture: The roles of intrinsic material length and time scales. Journal of the Mechanics and Physics of Solids, 2021, 151, 104372.	4.8	5
9	Theory of unconventional singularities of frictional shear cracks. Journal of the Mechanics and Physics of Solids, 2021, 153, 104466.	4.8	4
10	Does mesoscopic elasticity control viscous slowing down in glassforming liquids?. Journal of Chemical Physics, 2021, 155, 074502.	3.0	9
11	Unified quantifier of mechanical disorder in solids. Physical Review E, 2021, 104, 035001.	2.1	6
12	Brittle-to-ductile transitions in glasses: Roles of soft defects and loading geometry. MRS Bulletin, 2021, 46, 902-914.	3.5	13
13	Low-energy quasilocalized excitations in structural glasses. Journal of Chemical Physics, 2021, 155, 200901.	3.0	34
14	The emergence of crack-like behavior of frictional rupture: Edge singularity and energy balance. Earth and Planetary Science Letters, 2020, 531, 115978.	4.4	31
15	Universality of the Nonphononic Vibrational Spectrum across Different Classes of Computer Glasses. Physical Review Letters, 2020, 125, 085502.	7.8	60
16	Extracting the properties of quasilocalized modes in computer glasses: Long-range continuum fields, contour integrals, and boundary effects. Physical Review E, 2020, 102, 033008.	2.1	11
17	Statistical mechanics of local force dipole responses in computer glasses. Journal of Chemical Physics, 2020, 152, 194503.	3.0	11
18	Pinching a glass reveals key properties of its soft spots. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 5228-5234.	7.1	67

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19	Cellular contractile forces are nonmechanosensitive. Science Advances, 2020, 6, eaaz6997.	10.3	37
20	Wave attenuation in glasses: Rayleigh and generalized-Rayleigh scattering scaling. Journal of Chemical Physics, 2019, 151, 104503.	3.0	44
21	Anisotropic structural predictor in glassy materials. Physical Review E, 2019, 99, 060601.	2.1	26
22	Spatiotemporal Dynamics of Frictional Systems: The Interplay of Interfacial Friction and Bulk Elasticity. Lubricants, 2019, 7, 91.	2.9	11
23	Emergence of Cracklike Behavior of Frictional Rupture: The Origin of Stress Drops. Physical Review X, 2019, 9, .	8.9	14
24	Frustration-induced internal stresses are responsible for quasilocalized modes in structural glasses. Physical Review E, 2018, 97, 032140.	2.1	41
25	Tissue-Level Mechanosensitivity: Predicting and Controlling the Orientation of 3D Vascular Networks. Nano Letters, 2018, 18, 7698-7708.	9.1	16
26	Unstable Slip Pulses and Earthquake Nucleation as a Nonequilibrium First-Order Phase Transition. Physical Review Letters, 2018, 121, 234302.	7.8	25
27	Universality and Stability Phase Diagram of Two-Dimensional Brittle Fracture. Physical Review Letters, 2018, 121, 134301.	7.8	16
28	Universal Nonphononic Density of States in 2D, 3D, and 4D Glasses. Physical Review Letters, 2018, 121, 055501.	7.8	83
29	Universal disorder-induced broadening of phonon bands: from disordered lattices to glasses. New Journal of Physics, 2018, 20, 073022.	2.9	43
30	Mechanical glass transition revealed by the fracture toughness of metallic glasses. Nature Communications, 2018, 9, 3271.	12.8	103
31	A characteristic energy scale in glasses. Journal of Chemical Physics, 2018, 148, 214502.	3.0	63
32	Necking instabilities in elastoviscoplastic materials. Physical Review Materials, 2018, 2, .	2.4	2
33	Gaussian fluctuations of spatially inhomogeneous polymers. Soft Matter, 2017, 13, 995-1005.	2.7	1
34	Instability in dynamic fracture and the failure of the classical theory of cracks. Nature Physics, 2017, 13, 1186-1190.	16.7	54
35	Effect of instantaneous and continuous quenches on the density of vibrational modes in model glasses. Physical Review E, 2017, 96, 020104.	2.1	53
36	Nonmonotonicity of the Frictional Bimaterial Effect. Journal of Geophysical Research: Solid Earth, 2017, 122, 8270-8284.	3.4	6

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37	Critical Nucleation Length for Accelerating Frictional Slip. Geophysical Research Letters, 2017, 44, 11,390.	4.0	13
38	Local thermal energy as a structural indicator in glasses. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 7289-7294.	7.1	65
39	Preface to the special section on nano- and mesoscale friction. Journal of Physics Condensed Matter, 2016, 28, 130301.	1.8	0
40	Frictional Sliding without Geometrical Reflection Symmetry. Physical Review X, 2016, 6, .	8.9	13
41	Statistics and Properties of Low-Frequency Vibrational Modes in Structural Glasses. Physical Review Letters, 2016, 117, 035501.	7.8	166
42	Notch Fracture Toughness of Glasses: Dependence on Rate, Age, and Geometry. Physical Review Applied, 2016, 6, .	3.8	30
43	Dynamic instabilities of frictional sliding at a bimaterial interface. Journal of the Mechanics and Physics of Solids, 2016, 89, 149-173.	4.8	20
44	Velocity-strengthening friction significantly affects interfacial dynamics, strength and dissipation. Scientific Reports, 2015, 5, 7841.	3.3	26
45	Spatial distribution of thermal energy in equilibrium. Physical Review E, 2015, 91, 060103.	2.1	4
46	Recent developments in dynamic fracture: some perspectives. International Journal of Fracture, 2015, 196, 33-57.	2.2	48
47	An Eulerian projection method for quasi-static elastoplasticity. Journal of Computational Physics, 2015, 300, 136-166.	3.8	15
48	Two-temperature continuum thermomechanics of deforming amorphous solids. Journal of the Mechanics and Physics of Solids, 2014, 73, 269-288.	4.8	52
49	Variable-amplitude oscillatory shear response of amorphous materials. Physical Review E, 2014, 89, 062307.	2.1	22
50	The dynamics of rapid fracture: instabilities, nonlinearities and length scales. Reports on Progress in Physics, 2014, 77, 046501.	20.1	79
51	On the velocityâ€strengthening behavior of dry friction. Journal of Geophysical Research: Solid Earth, 2014, 119, 1738-1748.	3.4	75
52	Cell reorientation under cyclic stretching. Nature Communications, 2014, 5, 3938.	12.8	167
53	Nonequilibrium thermodynamics and glassy rheology. Soft Matter, 2013, 9, 8786.	2.7	10
54	Dynamic Stability of Crack Fronts: Out-Of-Plane Corrugations. Physical Review Letters, 2013, 110, 014302.	7.8	16

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55	Instabilities at frictional interfaces: Creep patches, nucleation, and rupture fronts. Physical Review E, 2013, 88, 060403.	2.1	40
56	Simple nonlinear equation for structural relaxation in glasses. Physical Review E, 2012, 86, 010501.	2.1	11
57	Fracture Toughness of Metallic Glasses: Annealing-Induced Embrittlement. Physical Review Letters, 2012, 109, 194301.	7.8	90
58	A nonlinear symmetry breaking effect in shear cracks. Journal of the Mechanics and Physics of Solids, 2012, 60, 1703-1709.	4.8	7
59	Slow rupture of frictional interfaces. Geophysical Research Letters, 2012, 39, .	4.0	52
60	Intrinsic Nonlinear Scale Governs Oscillations in Rapid Fracture. Physical Review Letters, 2012, 108, 104303.	7.8	23
61	Slow Cracklike Dynamics at the Onset of Frictional Sliding. Physical Review Letters, 2011, 107, 235501.	7.8	56
62	Viscoelastic fracture of biological composites. Journal of the Mechanics and Physics of Solids, 2011, 59, 2279-2293.	4.8	11
63	Linear Response Theory for Hard and Soft Glassy Materials. Physical Review Letters, 2011, 106, 148301.	7.8	43
64	Shear-transformation-zone theory of linear glassy dynamics. Physical Review E, 2011, 83, 061503.	2.1	37
65	Weakly nonlinear fracture mechanics: experiments and theory. International Journal of Fracture, 2010, 162, 3-20.	2.2	28
66	Thermodynamic theory of dislocation-mediated plasticity. Acta Materialia, 2010, 58, 3718-3732.	7.9	139
67	Nonequilibrium thermodynamics of the Kovacs effect. Soft Matter, 2010, 6, 3065.	2.7	27
68	Autonomy and singularity in dynamic fracture. Physical Review E, 2010, 82, 015101.	2.1	9
69	Dynamics of Simple Cracks. Annual Review of Condensed Matter Physics, 2010, 1, 371-395.	14.5	77
70	The Near-Tip Fields of Fast Cracks. Science, 2010, 327, 1359-1363.	12.6	134
71	Dynamic Crack Tip Equation of Motion: High-Speed Oscillatory Instability. Physical Review Letters, 2009, 103, 164301.	7.8	32
72	The 1/r singularity in weakly nonlinear fracture mechanics. Journal of the Mechanics and Physics of Solids, 2009, 57, 1568-1577.	4.8	47

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73	Nonequilibrium thermodynamics of driven amorphous materials. III. Shear-transformation-zone plasticity. Physical Review E, 2009, 80, 031133.	2.1	72
74	Nonequilibrium thermodynamics of driven amorphous materials. I. Internal degrees of freedom and volume deformation. Physical Review E, 2009, 80, 031131.	2.1	70
75	Nonequilibrium thermodynamics of driven amorphous materials. II. Effective-temperature theory. Physical Review E, 2009, 80, 031132.	2.1	96
76	Breakdown of Linear Elastic Fracture Mechanics near the Tip of a Rapid Crack. Physical Review Letters, 2008, 101, 264301.	7.8	80
77	Stability of an expanding circular cavity and the failure of amorphous solids. Physical Review E, 2008, 78, 026124.	2.1	10
78	Dynamic failure in amorphous solids via a cavitation instability. Physical Review E, 2008, 77, 025101.	2.1	21
79	Weakly Nonlinear Theory of Dynamic Fracture. Physical Review Letters, 2008, 101, 264302.	7.8	70
80	Effective temperature dynamics in an athermal amorphous plasticity theory. Physical Review E, 2008, 77, 051505.	2.1	13
81	Elastic nonlinearities in a one-dimensional model of fracture. Physical Review E, 2008, 78, 056105.	2.1	10
82	Front propagation at the onset of plastic yielding. Physical Review E, 2008, 78, 026119.	2.1	5
83	Self-affine roughness of a crack front in heterogeneous media. Physical Review E, 2007, 76, 025101.	2.1	3
84	Athermal shear-transformation-zone theory of amorphous plastic deformation. I. Basic principles. Physical Review E, 2007, 75, 036107.	2.1	92
85	Free-boundary dynamics in elastoplastic amorphous solids: The circular hole problem. Physical Review E, 2007, 76, 026115.	2.1	8
86	Oscillatory Instability in Two-Dimensional Dynamic Fracture. Physical Review Letters, 2007, 98, 124302.	7.8	21
87	Athermal shear-transformation-zone theory of amorphous plastic deformation. II. Analysis of simulated amorphous silicon. Physical Review E, 2007, 75, 036108.	2.1	54
88	Statistical Physics of Fracture Surfaces Morphology. Journal of Statistical Physics, 2006, 125, 1025-1064.	1.2	7
89	Dissipative Viscoplastic Deformation in Dynamic Fracture: Tip Blunting and Velocity Selection. Physical Review Letters, 2006, 97, 134301.	7.8	12
90	Fracture Surfaces as Multiscaling Graphs. Physical Review Letters, 2006, 96, 055509.	7.8	48

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91	Disentangling Scaling Properties in Anisotropic Fracture. Physical Review Letters, 2005, 95, 255503.	7.8	19
92	Nonuniversality in microbranching instabilities in rapid fracture. Physical Review E, 2005, 72, 055103.	2.1	11
93	Branching instabilities in rapid fracture: Dynamics and geometry. Physical Review E, 2005, 71, 056118.	2.1	32
94	Periodic Crack Propagation Under Thermal Stress. AIP Conference Proceedings, 2004, , .	0.4	0
95	Crack-microcrack interactions in dynamical fracture. Physical Review E, 2004, 70, 046107.	2.1	8
96	Stress field around arbitrarily shaped cracks in two-dimensional elastic materials. Physical Review E, 2004, 69, 026127.	2.1	9
97	Roughening of Fracture Surfaces: The Role of Plastic Deformation. Physical Review Letters, 2004, 92, 245505.	7.8	34
98	Dynamical instabilities of quasistatic crack propagation under thermal stress. Physical Review E, 2003, 68, 036601.	2.1	35