

Nadia Lapusta

List of Publications by Year in descending order

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66
papers

5,044
citations

136740

32
h-index

102304

66
g-index

74
all docs

74
docs citations

74
times ranked

2258
citing authors

#	ARTICLE	IF	CITATIONS
1	Rate and state dependent friction and the stability of sliding between elastically deformable solids. <i>Journal of the Mechanics and Physics of Solids</i> , 2001, 49, 1865-1898.	2.3	521
2	Elastodynamic analysis for slow tectonic loading with spontaneous rupture episodes on faults with rate- and state-dependent friction. <i>Journal of Geophysical Research</i> , 2000, 105, 23765-23789.	3.3	482
3	Stable creeping fault segments can become destructive as a result of dynamic weakening. <i>Nature</i> , 2013, 493, 518-521.	13.7	400
4	Nucleation and early seismic propagation of small and large events in a crustal earthquake model. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	300
5	Towards inferring earthquake patterns from geodetic observations of interseismic coupling. <i>Nature Geoscience</i> , 2010, 3, 363-369.	5.4	294
6	Comparison of finite difference and boundary integral solutions to three-dimensional spontaneous rupture. <i>Journal of Geophysical Research</i> , 2005, 110, .	3.3	284
7	Three-dimensional boundary integral modeling of spontaneous earthquake sequences and aseismic slip. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	217
8	Under the Hood of the Earthquake Machine: Toward Predictive Modeling of the Seismic Cycle. <i>Science</i> , 2012, 336, 707-710.	6.0	212
9	The SCEC/USGS Dynamic Earthquake Rupture Code Verification Exercise. <i>Seismological Research Letters</i> , 2009, 80, 119-126.	0.8	210
10	Scaling of small repeating earthquakes explained by interaction of seismic and aseismic slip in a rate and state fault model. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	156
11	Spectral element modeling of spontaneous earthquake rupture on rate and state faults: Effect of velocity-strengthening friction at shallow depths. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	152
12	Comparison of average stress drop measures for ruptures with heterogeneous stress change and implications for earthquake physics. <i>Geophysical Journal International</i> , 2013, 193, 1691-1712.	1.0	133
13	Three-dimensional earthquake sequence simulations with evolving temperature and pore pressure due to shear heating: Effect of heterogeneous hydraulic diffusivity. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	121
14	Deeper penetration of large earthquakes on seismically quiescent faults. <i>Science</i> , 2016, 352, 1293-1297.	6.0	103
15	Transition of mode II cracks from sub-Rayleigh to intersonic speeds in the presence of favorable heterogeneity. <i>Journal of the Mechanics and Physics of Solids</i> , 2008, 56, 25-50.	2.3	87
16	Quasi-dynamic versus fully dynamic simulations of earthquakes and aseismic slip with and without enhanced coseismic weakening. <i>Journal of Geophysical Research: Solid Earth</i> , 2014, 119, 1986-2004.	1.4	80
17	Understanding dynamic friction through spontaneously evolving laboratory earthquakes. <i>Nature Communications</i> , 2017, 8, 15991.	5.8	79
18	Variability of earthquake nucleation in continuum models of rate- and state faults and implications for aftershock rates. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	74

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19	Pulse-like and crack-like ruptures in experiments mimicking crustal earthquakes. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 18931-18936.	3.3	71
20	Postseismic variations in seismic moment and recurrence interval of repeating earthquakes. Earth and Planetary Science Letters, 2010, 299, 118-125.	1.8	61
21	Spectral-element simulations of long-term fault slip: Effect of low-rigidity layers on earthquake-cycle dynamics. Journal of Geophysical Research, 2011, 116, .	3.3	60
22	Pulse-like partial ruptures and high-frequency radiation at creeping-locked transition during megathrust earthquakes. Geophysical Research Letters, 2017, 44, 8345-8351.	1.5	45
23	Response of rate-and-state seismogenic faults to harmonic shear-stress perturbations. Geophysical Journal International, 2014, 198, 385-413.	1.0	43
24	The Community Code Verification Exercise for Simulating Sequences of Earthquakes and Aseismic Slip (SEAS). Seismological Research Letters, 2020, 91, 874-890.	0.8	43
25	Fault rock heterogeneity can produce fault weakness and reduce fault stability. Nature Communications, 2022, 13, 326.	5.8	41
26	Propagation of large earthquakes as self-healing pulses or mild cracks. Nature, 2021, 591, 252-258.	13.7	39
27	Analysis of supershear transition regimes in rupture experiments: the effect of nucleation conditions and friction parameters. Geophysical Journal International, 2009, 177, 717-732.	1.0	36
28	Full-field Ultrahigh-speed Quantification of Dynamic Shear Ruptures Using Digital Image Correlation. Experimental Mechanics, 2019, 59, 551-582.	1.1	36
29	Unraveling Scaling Properties of Slow-slip Events. Geophysical Research Letters, 2020, 47, e2020GL087477.	1.5	35
30	Pulse-like and crack-like dynamic shear ruptures on frictional interfaces: experimental evidence, numerical modeling, and implications. International Journal of Fracture, 2010, 163, 27-39.	1.1	34
31	Repeating microearthquake sequences interact predominantly through postseismic slip. Nature Communications, 2016, 7, 13020.	5.8	33
32	Rate-and-state friction properties of the Longitudinal Valley Fault from kinematic and dynamic modeling of seismic and aseismic slip. Journal of Geophysical Research: Solid Earth, 2017, 122, 3115-3137.	1.4	33
33	Numerical modeling of long-term earthquake sequences on the NE Japan megathrust: Comparison with observations and implications for fault friction. Earth and Planetary Science Letters, 2015, 419, 187-198.	1.8	31
34	Connecting depth limits of interseismic locking, microseismicity, and large earthquakes in models of long-term fault slip. Journal of Geophysical Research: Solid Earth, 2017, 122, 6491-6523.	1.4	30
35	Rupture modes in laboratory earthquakes: Effect of fault prestress and nucleation conditions. Journal of Geophysical Research, 2010, 115, .	3.3	28
36	Community-Driven Code Comparisons for Three-Dimensional Dynamic Modeling of Sequences of Earthquakes and Aseismic Slip. Journal of Geophysical Research: Solid Earth, 2022, 127, .	1.4	27

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37	Static Laboratory Earthquake Measurements with the Digital Image Correlation Method. <i>Experimental Mechanics</i> , 2015, 55, 77-94.	1.1	25
38	Constraining Fault Friction and Stability With Fluidâ€Injection Field Experiments. <i>Geophysical Research Letters</i> , 2021, 48, e2020GL091188.	1.5	25
39	Microseismicity Simulated on Asperityâ€Like Fault Patches: On Scaling of Seismic Moment With Duration and Seismological Estimates of Stress Drops. <i>Geophysical Research Letters</i> , 2018, 45, 8145-8155.	1.5	24
40	Pressure shock fronts formed by ultra-fast shear cracks in viscoelastic materials. <i>Nature Communications</i> , 2018, 9, 4754.	5.8	23
41	Evidence for non-self-similarity of microearthquakes recorded at a Taiwan borehole seismometer array. <i>Geophysical Journal International</i> , 2016, 206, 757-773.	1.0	22
42	Recent Milestones in Unraveling the Full-Field Structure of Dynamic Shear Cracks and Fault Ruptures in Real-Time: From Photoelasticity to Ultrahigh-Speed Digital Image Correlation. <i>Journal of Applied Mechanics, Transactions ASME</i> , 2020, 87, .	1.1	21
43	Nearly Magnitudeâ€Invariant Stress Drops in Simulated Crackâ€Like Earthquake Sequences on Rateâ€andâ€State Faults with Thermal Pressurization of Pore Fluids. <i>Journal of Geophysical Research: Solid Earth</i> , 2020, 125, e2019JB018597.	1.4	20
44	A unified perspective of seismicity and fault coupling along the San Andreas Fault. <i>Science Advances</i> , 2022, 8, eabk1167.	4.7	19
45	Experimental investigation of strong ground motion due to thrust fault earthquakes. <i>Journal of Geophysical Research: Solid Earth</i> , 2014, 119, 1316-1336.	1.4	18
46	Spatiotemporal Properties of Subâ€Rayleigh and Supershear Ruptures Inferred From Fullâ€Field Dynamic Imaging of Laboratory Experiments. <i>Journal of Geophysical Research: Solid Earth</i> , 2020, 125, e2019JB018922.	1.4	18
47	Intermittent lab earthquakes in dynamically weakening fault gouge. <i>Nature</i> , 2022, 606, 922-929.	13.7	18
48	Microseismicity on Patches of Higher Compression During Largerâ€Scale Earthquake Nucleation in a Rateâ€andâ€State Fault Model. <i>Journal of Geophysical Research: Solid Earth</i> , 2019, 124, 1962-1990.	1.4	16
49	Illuminating the physics of dynamic friction through laboratory earthquakes on thrust faults. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 21095-21100.	3.3	15
50	Static and sliding contact of rough surfaces: Effect of asperity-scale properties and long-range elastic interactions. <i>Journal of the Mechanics and Physics of Solids</i> , 2018, 116, 217-238.	2.3	13
51	Enhanced Digital Image Correlation Analysis of Ruptures with Enforced Traction Continuity Conditions Across Interfaces. <i>Applied Sciences (Switzerland)</i> , 2019, 9, 1625.	1.3	13
52	The roller coaster of fault friction. <i>Nature Geoscience</i> , 2009, 2, 676-677.	5.4	12
53	Dynamic rupture initiation and propagation in a fluid-injection laboratory setup with diagnostics across multiple temporal scales. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	3.3	12
54	On Averaging Interface Response During Dynamic Rupture and Energy Partitioning Diagrams for Earthquakes. <i>Journal of Applied Mechanics, Transactions ASME</i> , 2012, 79, .	1.1	11

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55	Dilatancy and Compaction of a Rate- and State Fault in a Poroelastic Medium: Linearized Stability Analysis. <i>Journal of Geophysical Research: Solid Earth</i> , 2021, 126, e2021JB022071.	1.4	11
56	Rupture-dependent breakdown energy in fault models with thermo-hydro-mechanical processes. <i>Solid Earth</i> , 2020, 11, 2283-2302.	1.2	11
57	Finite-fault source inversion using adjoint methods in 3-D heterogeneous media. <i>Geophysical Journal International</i> , 2018, 214, 402-420.	1.0	10
58	Modeling High Stress Drops, Scaling, Interaction, and Irregularity of Repeating Earthquake Sequences Near Parkfield. <i>Journal of Geophysical Research: Solid Earth</i> , 2018, 123, 10,854.	1.4	10
59	On behaviour and scaling of small repeating earthquakes in rate and state fault models. <i>Geophysical Journal International</i> , 2019, 218, 2001-2018.	1.0	10
60	Subduction earthquake sequences in a non-linear visco-elasto-plastic megathrust. <i>Geophysical Journal International</i> , 2022, 229, 1098-1121.	1.0	10
61	Scale Dependence of Earthquake Rupture Prestress in Models With Enhanced Weakening: Implications for Event Statistics and Inferences of Fault Stress. <i>Journal of Geophysical Research: Solid Earth</i> , 2021, 126, e2021JB021886.	1.4	9
62	Resolving Simulated Sequences of Earthquakes and Fault Interactions: Implications for Physics-Based Seismic Hazard Assessment. <i>Journal of Geophysical Research: Solid Earth</i> , 2021, 126, e2021JB022193.	1.4	9
63	Dynamics and Near-Field Surface Motions of Transitioned Supershear Laboratory Earthquakes in Thrust Faults. <i>Journal of Geophysical Research: Solid Earth</i> , 2022, 127, .	1.4	3
64	The relation between a microscopic threshold-force model and macroscopic models of adhesion. <i>Acta Mechanica Sinica/Lixue Xuebao</i> , 2017, 33, 508-515.	1.5	2
65	Special Issue Honoring Professor James R. Rice. <i>Journal of Applied Mechanics, Transactions ASME</i> , 2012, 79, .	1.1	1
66	Evolution of dynamic shear strength of frictional interfaces during rapid normal stress variations. <i>EPJ Web of Conferences</i> , 2021, 250, 01016.	0.1	0