

Renaud Toussaint

List of Publications by Year in descending order

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137
papers

3,499
citations

147726

31
h-index

182361

51
g-index

160
all docs

160
docs citations

160
times ranked

2373
citing authors

#	ARTICLE	IF	CITATIONS
1	Correlation of multi-temporal ground-based optical images for landslide monitoring: Application, potential and limitations. ISPRS Journal of Photogrammetry and Remote Sensing, 2012, 70, 39-55.	4.9	168
2	Local Waiting Time Fluctuations along a Randomly Pinned Crack Front. Physical Review Letters, 2006, 96, 045501.	2.9	139
3	Steady-State Two-Phase Flow in Porous Media: Statistics and Transport Properties. Physical Review Letters, 2009, 102, 074502.	2.9	126
4	Stylolites: A review. Journal of Structural Geology, 2018, 114, 163-195.	1.0	113
5	Dynamic fracturing by successive coseismic loadings leads to pulverization in active fault zones. Journal of Geophysical Research: Solid Earth, 2016, 121, 2338-2360.	1.4	109
6	Growth activity during fingering in a porous Hele-Shaw cell. Physical Review E, 2004, 70, 026301.	0.8	106
7	Growth of stylolite teeth patterns depending on normal stress and finite compaction. Earth and Planetary Science Letters, 2007, 257, 582-595.	1.8	99
8	Fracture morphology and viscous transport. International Journal of Rock Mechanics and Minings Sciences, 2008, 45, 422-430.	2.6	78
9	Pattern formation during air injection into granular materials confined in a circular Hele-Shaw cell. Physical Review E, 2006, 74, 011301.	0.8	72
10	Granular Rayleigh-Taylor Instability: Experiments and Simulations. Physical Review Letters, 2007, 99, 048001.	2.9	72
11	Influence of pore-scale disorder on viscous fingering during drainage. Europhysics Letters, 2005, 71, 583-589.	0.7	70
12	Stress sensitivity of stylolite morphology. Earth and Planetary Science Letters, 2009, 277, 394-398.	1.8	69
13	The Mechanical Coupling of Fluid-Filled Granular Material Under Shear. Pure and Applied Geophysics, 2011, 168, 2289-2323.	0.8	65
14	Roughness of Stylolites: Implications of 3D High Resolution Topography Measurements. Physical Review Letters, 2004, 93, 238501.	2.9	60
15	Pore pressure evolution in deforming granular material: A general formulation and the infinitely stiff approximation. Journal of Geophysical Research, 2010, 115, .	3.3	55
16	Impact of stylolites on the mechanical strength of limestone. Tectonophysics, 2016, 690, 4-20.	0.9	55
17	Fracture roughness scaling: A case study on planar cracks. Europhysics Letters, 2010, 92, 44001.	0.7	53
18	Influence of Viscous Fingering on Dynamic Saturationâ€“Pressure Curves in Porous Media. Transport in Porous Media, 2011, 86, 305-324.	1.2	53

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19	Local dynamics of a randomly pinned crack front during creep and forced propagation: An experimental study. <i>Physical Review E</i> , 2011, 83, 046108.	0.8	53
20	Two-Phase Flow: Structure, Upscaling, and Consequences for Macroscopic Transport Properties. <i>Vadose Zone Journal</i> , 2012, 11, vzj2011.0123.	1.3	48
21	Modelling of stylolite geometries and stress scaling. <i>Earth and Planetary Science Letters</i> , 2012, 341-344, 104-113.	1.8	47
22	Sedimentary stylolite networks and connectivity in limestone: Large-scale field observations and implications for structure evolution. <i>Journal of Structural Geology</i> , 2014, 63, 106-123.	1.0	46
23	Decompaction and fluidization of a saturated and confined granular medium by injection of a viscous liquid or gas. <i>Physical Review E</i> , 2008, 78, 051302.	0.8	44
24	The influence of rock heterogeneity on the scaling properties of simulated and natural stylolites. <i>Journal of Structural Geology</i> , 2009, 31, 72-82.	1.0	43
25	Fracture roughness and thermal exchange: A case study at Soultz-sous-Forêts. <i>Comptes Rendus - Geoscience</i> , 2010, 342, 616-625.	0.4	42
26	Characterization of rockfalls from seismic signal: Insights from laboratory experiments. <i>Journal of Geophysical Research: Solid Earth</i> , 2015, 120, 7102-7137.	1.4	41
27	Hydrothermal coupling in a self-affine rough fracture. <i>Physical Review E</i> , 2010, 82, 036317.	0.8	38
28	Experiments and simulations of a gravitational granular flow instability. <i>Physical Review E</i> , 2007, 76, 051306.	0.8	36
29	Average crack-front velocity during subcritical fracture propagation in a heterogeneous medium. <i>Physical Review E</i> , 2011, 84, 036104.	0.8	33
30	Geometrical evolution of interlocked rough slip surfaces: The role of normal stress. <i>Earth and Planetary Science Letters</i> , 2016, 443, 153-161.	1.8	33
31	The Al Hoceima earthquake sequence of 1994, 2004 and 2016: Stress transfer and poroelasticity in the Rif and Alboran Sea region. <i>Geophysical Journal International</i> , 2018, 212, 42-53.	1.0	32
32	Mixing of a granular layer falling through a fluid. <i>Physical Review E</i> , 2010, 82, 011301.	0.8	31
33	Dynamic Development of Hydrofracture. <i>Pure and Applied Geophysics</i> , 2013, 170, 1685-1703.	0.8	31
34	Morphological analysis of stylolites for paleostress estimation in limestones. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2014, 67, 212-225.	2.6	31
35	Dynamic Roughening and Fluctuations of Dipolar Chains. <i>Physical Review Letters</i> , 2004, 93, 108304.	2.9	30
36	Sedimentation instabilities: Impact of the fluid compressibility and viscosity. <i>Physical Review E</i> , 2010, 82, 051302.	0.8	30

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37	Anisotropic scaling of tectonic stylolites: A fossilized signature of the stress field?. Journal of Geophysical Research, 2010, 115, .	3.3	30
38	Upper bound on stylolite roughness as indicator for amount of dissolution. Earth and Planetary Science Letters, 2012, 337-338, 186-196.	1.8	30
39	Coupled air/granular flow in a linear Hele-Shaw cell. Physical Review E, 2008, 77, 011301.	0.8	29
40	Dynamic aerofracture of dense granular packings. Physical Review E, 2012, 86, 061315.	0.8	29
41	Influence of water pressure dynamics and fluid flow on the streamingâ€potential response for unsaturated conditions. Geophysical Prospecting, 2015, 63, 694-712.	1.0	29
42	Non-Gaussian Nature of Fracture and the Survival of Fat-Tail Exponents. Physical Review Letters, 2013, 110, 145501.	2.9	28
43	Modeling the growth of stylolites in sedimentary rocks. Journal of Geophysical Research, 2012, 117, .	3.3	27
44	Self-induced seismicity due to fluid circulation along faults. Geophysical Journal International, 2014, 196, 1544-1563.	1.0	27
45	Impact of sample geometry on the measurement of pressureâ€saturation curves: Experiments and simulations. Water Resources Research, 2015, 51, 8900-8926.	1.7	27
46	Interaction model for magnetic holes in a ferrofluid layer. Physical Review E, 2004, 69, 011407.	0.8	25
47	An experimental study of secondary oil migration in a three-dimensional tilted porous medium. AAPG Bulletin, 2012, 96, 773-788.	0.7	25
48	The importance of fracture-healing on the deformation of fluid-filled layered systems. Journal of Structural Geology, 2014, 67, 94-106.	1.0	25
49	Thermodynamics of fiber bundles. Physica A: Statistical Mechanics and Its Applications, 2002, 312, 159-171.	1.2	24
50	Interacting damage models mapped onto Ising and percolation models. Physical Review E, 2005, 71, 046127.	0.8	24
51	Quake Catalogs from an Optical Monitoring of an Interfacial Crack Propagation. Pure and Applied Geophysics, 2009, 166, 777-799.	0.8	23
52	Influence of asperities on fluid and thermal flow in a fracture: A coupled lattice Boltzmann study. Journal of Geophysical Research: Solid Earth, 2013, 118, 3394-3407.	1.4	23
53	Unsteady granular flows down an inclined plane. Physical Review E, 2016, 93, 042902.	0.8	23
54	Link Between the Dynamics of Granular Flows and the Generated Seismic Signal: Insights From Laboratory Experiments. Journal of Geophysical Research F: Earth Surface, 2018, 123, 1407-1429.	1.0	23

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55	Flow regime associated with vertical secondary migration. <i>Marine and Petroleum Geology</i> , 2013, 45, 150-158.	1.5	22
56	Experimental validation of theoretical methods to estimate the energy radiated by elastic waves during an impact. <i>Journal of Sound and Vibration</i> , 2016, 362, 176-202.	2.1	22
57	The Interstellar Object "Oumuamua as a Fractal Dust Aggregate. <i>Astrophysical Journal Letters</i> , 2019, 885, L41.	3.0	22
58	Size invariance of the granular Rayleigh-Taylor instability. <i>Physical Review E</i> , 2010, 81, 041308.	0.8	21
59	Interplay of seismic and aseismic deformations during earthquake swarms: An experimental approach. <i>Earth and Planetary Science Letters</i> , 2012, 331-332, 215-223.	1.8	21
60	"Oumuamua as a Cometary Fractal Aggregate: The "Dust Bunny" Model. <i>Astrophysical Journal Letters</i> , 2020, 900, L22.	3.0	21
61	Invasion patterns during two-phase flow in deformable porous media. <i>Frontiers in Physics</i> , 2015, 3, .	1.0	20
62	Fracture of disordered solids in compression as a critical phenomenon. I. Statistical mechanics formalism. <i>Physical Review E</i> , 2002, 66, 036135.	0.8	19
63	Family-Vicsek scaling of detachment fronts in granular Rayleigh-Taylor instabilities during sedimentating granular/fluid flows. <i>European Physical Journal: Special Topics</i> , 2012, 204, 27-40.	1.2	19
64	Two-phase Lattice Boltzmann modelling of streaming potentials: influence of the air-water interface on the electrokinetic coupling. <i>Geophysical Journal International</i> , 2017, 208, 1139-1156.	1.0	19
65	Hydraulic transmissivity and heat exchange efficiency of open fractures: a model based on lowpass filtered apertures. <i>Geophysical Journal International</i> , 2011, 186, 1064-1072.	1.0	18
66	Elastic wave generated by granular impact on rough and erodible surfaces. <i>Journal of Applied Physics</i> , 2018, 123, 044901.	1.1	18
67	Critical behavior in porous media flow. <i>Europhysics Letters</i> , 2017, 118, 14004.	0.7	17
68	Connectivity enhancement due to film flow in porous media. <i>Physical Review Fluids</i> , 2019, 4, .	1.0	17
69	Fracture of disordered solids in compression as a critical phenomenon. II. Model Hamiltonian for a population of interacting cracks. <i>Physical Review E</i> , 2002, 66, 036136.	0.8	16
70	Fracture of disordered solids in compression as a critical phenomenon. III. Analysis of the localization transition. <i>Physical Review E</i> , 2002, 66, 036137.	0.8	16
71	Laboratory experiments on DNAPL gravity fingering in water-saturated porous media. <i>International Journal of Multiphase Flow</i> , 2012, 40, 83-92.	1.6	16
72	Bubbles breaking the wall: Two-dimensional stress and stability analysis. <i>Physical Review E</i> , 2015, 91, 052204.	0.8	16

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73	Relations Between the Characteristics of Granular Column Collapses and Resultant High-Frequency Seismic Signals. <i>Journal of Geophysical Research F: Earth Surface</i> , 2019, 124, 2987-3021.	1.0	16
74	Lattice Boltzmann modelling of streaming potentials: variations with salinity in monophasic conditions. <i>Geophysical Journal International</i> , 2016, 205, 648-664.	1.0	15
75	Sinking during earthquakes: Critical acceleration criteria control drained soil liquefaction. <i>Physical Review E</i> , 2018, 97, 022905.	0.8	15
76	Effects of Pressure Oscillations on Drainage in an Elastic Porous Medium. <i>Transport in Porous Media</i> , 2010, 84, 569-585.	1.2	14
77	How cracks are hot and cool: a burning issue for paper. <i>Soft Matter</i> , 2016, 12, 5563-5571.	1.2	14
78	Verification of a Dynamic Scaling for the Pair Correlation Function during the Slow Drainage of a Porous Medium. <i>Physical Review Letters</i> , 2017, 119, 154503.	2.9	14
79	Pressure evolution and deformation of confined granular media during pneumatic fracturing. <i>Physical Review E</i> , 2018, 97, 012908.	0.8	14
80	How heat controls fracture: the thermodynamics of creeping and avalanching cracks. <i>Soft Matter</i> , 2020, 16, 9590-9602.	1.2	14
81	Does roughening of rock-fluid-rock interfaces emerge from a stress-induced instability?. <i>European Physical Journal B</i> , 2009, 67, 121-131.	0.6	13
82	Note: "Lock-in accelerometry" to follow sink dynamics in shaken granular matter. <i>Review of Scientific Instruments</i> , 2014, 85, 126101.	0.6	13
83	Fracture aperture reconstruction and determination of hydrological properties: a case study at Draix (French Alps). <i>Hydrological Processes</i> , 2012, 26, 2095-2105.	1.1	12
84	Mean-field theory of localization in a fuse model. <i>Physical Review E</i> , 2006, 73, 046103.	0.8	11
85	Dynamics of hydrofracturing and permeability evolution in layered reservoirs. <i>Frontiers in Physics</i> , 2015, 3, .	1.0	11
86	Pneumatic fractures in confined granular media. <i>Physical Review E</i> , 2017, 95, 062901.	0.8	11
87	Variation of Elastic Energy Shows Reliable Signal of Upcoming Catastrophic Failure. <i>Frontiers in Physics</i> , 2019, 7, .	1.0	11
88	Pattern formation of frictional fingers in a gravitational potential. <i>Physical Review Fluids</i> , 2018, 3, .	1.0	11
89	Revolving rivers in sandpiles: From continuous to intermittent flows. <i>Physical Review E</i> , 2008, 77, 031305.	0.8	10
90	Testing oil saturation distribution in migration paths using MRI. <i>Journal of Petroleum Science and Engineering</i> , 2012, 86-87, 237-245.	2.1	10

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91	Dispersion in Fractures With Ramified Dissolution Patterns. <i>Frontiers in Physics</i> , 2018, 6, .	1.0	10
92	Downscaling of fracture energy during brittle creep experiments. <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	9
93	Numerical approach to frictional fingers. <i>Physical Review E</i> , 2015, 92, 032203.	0.8	9
94	Bridging aero-fracture evolution with the characteristics of the acoustic emissions in a porous medium. <i>Frontiers in Physics</i> , 2015, 3, .	1.0	9
95	Dissolution Phase Diagram in Radial Geometry. <i>Frontiers in Physics</i> , 2020, 8, .	1.0	9
96	Characterization of major discontinuities from borehole cores of the black consolidated marl formation of Draix (French Alps). <i>Hydrological Processes</i> , 2012, 26, 2085-2094.	1.1	8
97	Source Localization of Microseismic Emissions During Pneumatic Fracturing. <i>Geophysical Research Letters</i> , 2019, 46, 3726-3733.	1.5	8
98	Gravitational and Finite-Size Effects On Pressure Saturation Curves During Drainage. <i>Water Resources Research</i> , 2020, 56, e2019WR026279.	1.7	8
99	Intermittent Dynamics of Slow Drainage Experiments in Porous Media: Characterization Under Different Boundary Conditions. <i>Frontiers in Physics</i> , 2020, 7, .	1.0	8
100	Laboratory Landquakes: Insights From Experiments Into the High-Frequency Seismic Signal Generated by Geophysical Granular Flows. <i>Journal of Geophysical Research F: Earth Surface</i> , 2021, 126, e2021JF006172.	1.0	8
101	Thermal weakening of cracks and brittle-ductile transition of matter: A phase model. <i>Physical Review Materials</i> , 2020, 4, .	0.9	8
102	Memory of fluctuating Brownian dipolar chains. <i>Physical Review E</i> , 2006, 74, 051405.	0.8	7
103	Avalanches and extreme value statistics in interfacial crackling dynamics. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2019, 377, 20170394.	1.6	7
104	Fracturing and Porosity Channeling in Fluid Overpressure Zones in the Shallow Earth's Crust. <i>Geofluids</i> , 2020, 2020, 1-17.	0.3	7
105	Relative rates of fluid advection, elemental diffusion and replacement govern reaction front patterns. <i>Earth and Planetary Science Letters</i> , 2021, 565, 116950.	1.8	7
106	Burst Dynamics, Upscaling and Dissipation of Slow Drainage in Porous Media. <i>Frontiers in Physics</i> , 2021, 9, .	1.0	7
107	Note: Localization based on estimated source energy homogeneity. <i>Review of Scientific Instruments</i> , 2016, 87, 096101.	0.6	6
108	Scaling analysis, correlation length and compaction estimates of natural and simulated stylolites. <i>Journal of Structural Geology</i> , 2022, 161, 104670.	1.0	6

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109	Thermally activated crack fronts propagating in pinning disorder: simultaneous brittle/creep behaviour depending on scale. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2019, 377, 20170399.	1.6	5
110	Compaction front and pore fluid pressurization in horizontally shaken drained granular layers. Physical Review Fluids, 2020, 5, .	1.0	5
111	A General Criterion for Liquefaction in Granular Layers with Heterogeneous Pore Pressure. , 2013, , .		4
112	Onsager symmetry from mesoscopic time reversibility and the hydrodynamic dispersion tensor for coarse-grained systems. Physical Review E, 2017, 95, 022136.	0.8	4
113	The Combined Effect of Buoyancy and Excess Pore Pressure in Facilitating Soil Liquefaction. , 2017, , .		4
114	Microseismic Emissions During Pneumatic Fracturing: A Numerical Model to Explain the Experiments. Journal of Geophysical Research: Solid Earth, 2018, 123, 6922-6939.	1.4	4
115	Experimental Observation of Dissolution Finger Growth in Radial Geometry. Frontiers in Physics, 2019, 7, .	1.0	4
116	Thermally activated intermittent dynamics of creeping crack fronts along disordered interfaces. Scientific Reports, 2021, 11, 20418.	1.6	4
117	The slip deficit on the North Anatolian Fault (Turkey) in the Marmara Sea: insights from paleoseismicity, seismicity and geodetic data. Mediterranean Geoscience Reviews, 2021, 3, 45-56.	0.6	3
118	Thermal dissipation as both the strength and weakness of matter. A material failure prediction by monitoring creep. Soft Matter, 2021, 17, 4143-4150.	1.2	3
119	Thermo-mechanical pain: the signaling role of heat dissipation in biological tissues. New Journal of Physics, 2021, 23, 023028.	1.2	2
120	Frictional Anisotropy of 3D-Printed Fault Surfaces. Frontiers in Earth Science, 2021, 9, .	0.8	2
121	3D Printing in Geology and Geophysics: A New World of Opportunities in Research, Outreach, and Education. Frontiers in Earth Science, 2021, 9, .	0.8	2
122	Self-Assembly and Dynamics of Magnetic Holes. NATO Science Series Series II, Mathematics, Physics and Chemistry, 2004, , 165-179.	0.1	2
123	Interactions of magnetic holes in ferrofluid layers. , 2004, , 151-155.		1
124	Granular Rayleigh-Taylor instability. , 2009, , .		1
125	Localization of Shear in Saturated Granular Media: Insights from a Multi-Scaled Granular-Fluid Model. , 2013, , .		1
126	Editorial: Flow and Transformation in Porous Media. Frontiers in Physics, 2016, 4, .	1.0	1

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127	Simulating Hydraulic Fracturing: Failure in Soft Versus Hard Rocks. Pure and Applied Geophysics, 2020, 177, 2771-2789.	0.8	1
128	Granular Rayleigh-Taylor Instability. , 2009, , 577-586.		1
129	Performance of Image Correlation Techniques for Landslide Displacement Monitoring. , 2013, , 217-226.		1
130	Heat Emitting Damage in Skin: A Thermal Pathway for Mechanical Algesia. Frontiers in Neuroscience, 2021, 15, 780623.	1.4	1
131	SELF-AFFINE SCALING DURING INTERFACIAL CRACK FRONT PROPAGATION. , 2006, , 49-59.		1
132	Visualization by optical fluorescence of two-phase flow in a three-dimensional porous medium. Journal of Physics: Conference Series, 2022, 2241, 012004.	0.3	1
133	Direct velocity measurement of a turbulent shear flow in a planar Couette cell. Physical Review E, 2014, 89, 013026.	0.8	0
134	Mechanical Instability of Sandy Soils Under Seismic Effect (Algeria). Advances in Science, Technology and Innovation, 2019, , 201-203.	0.2	0
135	Quake Catalogs from an Optical Monitoring of an Interfacial Crack Propagation. , 2009, , 777-799.		0
136	Sink versus tilt penetration into shaken dry granular matter: The role of the foundation. Physical Review E, 2022, 105, 024903.	0.8	0
137	Competing Gravitational and Viscous Effects in 3D Two-Phase Flow Investigated With a Table-Top Optical Scanner. Frontiers in Physics, 0, 10, .	1.0	0