Emmanuel Detournay

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/8951747/publications.pdf

Version: 2024-02-01

127 papers	7,122 citations	57758 44 h-index	58581 82 g-index
128 all docs	128 docs citations	128 times ranked	2714 citing authors

#	Article	IF	Citations
1	Propagation Regimes of Fluid-Driven Fractures in Impermeable Rocks. International Journal of Geomechanics, 2004, 4, 35-45.	2.7	512
2	Mechanics of Hydraulic Fractures. Annual Review of Fluid Mechanics, 2016, 48, 311-339.	25.0	377
3	Propagation of a penny-shaped fluid-driven fracture in an impermeable rock: asymptotic solutions. International Journal of Solids and Structures, 2002, 39, 6311-6337.	2.7	329
4	Limit load in translational failure mechanisms for associative and non-associative materials. Geotechnique, 1993, 43, 443-456.	4.0	280
5	A simplified model to explore the root cause of stickâ€“slip vibrations in drilling systems with drag bits. Journal of Sound and Vibration, 2007, 305, 432-456.	3.9	264
6	An implicit level set method for modeling hydraulically driven fractures. Computer Methods in Applied Mechanics and Engineering, 2008, 197, 2858-2885.	6.6	245
7	Drilling response of drag bits: Theory and experiment. International Journal of Rock Mechanics and Minings Sciences, 2008, 45, 1347-1360.	5.8	236
8	Mandel's problem revisited. Geotechnique, 1996, 46, 187-195.	4.0	233
9	Toughness-dominated Hydraulic Fracture with Leak-off. International Journal of Fracture, 2005, 134, 175-190.	2.2	201
10	Rock strength determination from scratch tests. Engineering Geology, 2012, 147-148, 91-100.	6.3	179
11	Discrete element modeling of toolâ€rock interaction I: rock cutting. International Journal for Numerical and Analytical Methods in Geomechanics, 2013, 37, 1913-1929.	3.3	176
12	Plane strain propagation of a hydraulic fracture in a permeable rock. Engineering Fracture Mechanics, 2008, 75, 4666-4694.	4.3	161
13	Self-similar solution of a plane-strain fracture driven by a power-law fluid. International Journal for Numerical and Analytical Methods in Geomechanics, 2002, 26, 579-604.	3.3	159
14	An implicit algorithm for the propagation of a hydraulic fracture with a fluid lag. Computer Methods in Applied Mechanics and Engineering, 2007, 196, 4863-4880.	6.6	150
15	Multiscale tip asymptotics in hydraulic fracture with leak-off. Journal of Fluid Mechanics, 2011, 669, 260-297.	3.4	148
16	From mixture theory to biotâ€™s approach for porous media. International Journal of Solids and Structures, 1998, 35, 4619-4635.	2.7	140
17	Multiple mode analysis of the self-excited vibrations of rotary drilling systems. Journal of Sound and Vibration, 2009, 325, 362-381.	3.9	136
18	Elastoplastic model of a deep tunnel for a rock with variable dilatancy. Rock Mechanics and Rock Engineering, 1986, 19, 99-108.	5.4	129

#	Article	IF	Citations
19	Integral equation solution of heat extraction from a fracture in hot dry rock. International Journal for Numerical and Analytical Methods in Geomechanics, 2001, 25, 1327-1338.	3.3	124
20	Self-excited stickâ€“slip oscillations of drill bits. Comptes Rendus - Mecanique, 2004, 332, 619-626.	2.1	117
21	Plane-Strain Propagation of a Fluid-Driven Fracture: Small Toughness Solution. Journal of Applied Mechanics, Transactions ASME, 2005, 72, 916-928.	2.2	116
22	Analysis of the classical pseudo-3D model for hydraulic fracture with equilibrium height growth across stress barriers. International Journal of Rock Mechanics and Minings Sciences, 2010, 47, 625-639.	5.8	107
23	Plane strain analysis of a stationary hydraulic fracture in a poroelastic medium. International Journal of Solids and Structures, 1991, 27, 1645-1662.	2.7	94
24	An Analytical Model for the Indentation of Rocks by Blunt Tools. Rock Mechanics and Rock Engineering, 2000, 33, 267-284.	5.4	93
25	On singular integral equations and fundamental solutions of poroelasticity. International Journal of Solids and Structures, 1998, 35, 4521-4555.	2.7	91
26	Experimental validation of the tip asymptotics for a fluid-driven crack. Journal of the Mechanics and Physics of Solids, 2008, 56, 3101-3115.	4.8	91
27	Normal Wedge Indentation in Rocks with Lateral Confinement. Rock Mechanics and Rock Engineering, 1998, 31, 81-94.	5.4	86
28	The near-tip region of a fluid-driven fracture propagating in a permeable elastic solid. Journal of Fluid Mechanics, 2003, 494, 1-32.	3.4	86
29	On the moving boundary conditions for a hydraulic fracture. International Journal of Engineering Science, 2014, 84, 147-155.	5.0	83
30	A direct boundary element method for plane strain poroelasticity. International Journal for Numerical and Analytical Methods in Geomechanics, 1988, 12, 551-572.	3.3	80
31	Intrinsic Length Scales in Tool-Rock Interaction. International Journal of Geomechanics, 2008, 8, 39-44.	2.7	75
32	Instability regimes and self-excited vibrations in deep drilling systems. Journal of Sound and Vibration, 2014, 333, 2019-2039.	3.9	69
33	Fracture-Mechanics Analysis of the Breakdown Process in Minifracture or Leakoff Test. SPE Production and Operations, 1997, 12, 195-199.	0.6	68
34	Discrete element modeling of toolâ€rock interaction II: rockâ€‰indentation. International Journal for Numerical and Analytical Methods in Geomechanics, 2013, 37, 1930-1947.	3.3	67
35	Comparison between laboratory experiments and coupled simulations of saucer-shaped hydraulic fractures in homogeneous brittle-elastic solids. Journal of the Mechanics and Physics of Solids, 2013, 61, 1636-1654.	4.8	66
36	A Reexamination of the Classical PKN Model of Hydraulic Fracture. Transport in Porous Media, 2010, 81, 317-339.	2.6	65

#	Article	IF	Citations
37	Influence of pore pressure on the drilling response in low-permeability shear-dilatant rocks. International Journal of Rock Mechanics and Minings Sciences, 2000, 37, 1091-1101.	5.8	58
38	Title is missing!. International Journal of Fracture, 2002, 115, 125-158.	2.2	57
39	An analysis of the influence of the pressurization rate on the borehole breakdown pressure. International Journal of Solids and Structures, 1997, 34, 3099-3118.	2.7	54
40	Propagation of a hydraulic fracture parallel to a free surface. International Journal for Numerical and Analytical Methods in Geomechanics, 2005, 29, 1317-1340.	3.3	54
41	Early-Time Solution for a Radial Hydraulic Fracture. Journal of Engineering Mechanics - ASCE, 2007, 133, 534-540.	2.9	53
42	A fixed grid algorithm for simulating the propagation of a shallow hydraulic fracture with a fluid lag. International Journal for Numerical and Analytical Methods in Geomechanics, 2011, 35, 602-629.	3.3	48
43	A comparison between a semi-analytical and a numerical solution of a two-dimensional hydraulic fracture. International Journal of Solids and Structures, 1999, 36, 4869-4888.	2.7	47
44	Design charts for a deep circular tunnel under non-uniform loading. Rock Mechanics and Rock Engineering, 1988, 21, 119-137.	5.4	45
45	Chemoporoelastic analysis and experimental validation of the pore pressure transmission test for reactive shales. International Journal of Rock Mechanics and Minings Sciences, 2011, 48, 759-772.	5.8	45
46	Bit/rock interface laws in directional drilling. International Journal of Rock Mechanics and Minings Sciences, 2012, 51, 81-90.	5.8	45
47	Model-Based Robust Control of Directional Drilling Systems. IEEE Transactions on Control Systems Technology, 2016, 24, 226-239.	5.2	45
48	A reassessment ofin situstress determination by hydraulic fracturing. Geophysical Journal International, 2016, 205, 1859-1873.	2.4	41
49	Displacement discontinuity method for modeling axisymmetric cracks in an elastic half-space. International Journal of Solids and Structures, 2011, 48, 2614-2629.	2.7	40
50	Eulerian formulation of constrained elastica. International Journal of Solids and Structures, 2011, 48, 625-636.	2.7	40
51	Asymptotic solution for a penny-shaped near-surface hydraulic fracture. Engineering Fracture Mechanics, 2005, 72, 2468-2486.	4.3	39
52	An approximate statical solution of the elastoplastic interface for the problem of Galin with a cohesive-frictional material. International Journal of Solids and Structures, 1986, 22, 1435-1454.	2.7	38
53	Resolving the Geometry of Hydraulic Fractures from Tilt Measurements. Pure and Applied Geophysics, 2005, 162, 2433-2452.	1.9	31
54	Crack tip behavior in near-surface fluid-driven fracture experiments. Comptes Rendus - Mecanique, 2005, 333, 299-304.	2.1	28

#	Article	IF	Citations
55	The Impact of the Near-Tip Logic on the Accuracy and Convergence Rate of Hydraulic Fracture Simulators Compared to Reference Solutions. , 0, , .		26
56	Damage around a cylindrical opening in a brittle rock mass. International Journal of Rock Mechanics and Minings Sciences, 2004, 41, 1447-1457.	5.8	23
57	Multiple Scales Solution for a Beam with a Small Bending Stiffness. Journal of Engineering Mechanics - ASCE, 2010, 136, 69-77.	2.9	23
58	Constrained buckling of variable length elastica: Solution by geometrical segmentation. International Journal of Non-Linear Mechanics, 2018, 99, 204-217.	2.6	21
59	Analysis of Spiraled-Borehole Data by Use of a Novel Directional-Drilling Model. SPE Drilling and Completion, 2014, 29, 267-278.	1.6	19
60	Dependence of Drilling Specific Energy on Bottom-Hole Pressure in Shales. , 2002, , .		18
61	An in-situ thermo-hydraulic experiment in a saturated granite I: design and results. International Journal of Rock Mechanics and Minings Sciences, 2004, 41, 1377-1394.	5.8	17
62	Numerical simulation of percussive drilling. International Journal for Numerical and Analytical Methods in Geomechanics, 2015, 39, 889-912.	3.3	17
63	Creating Open Source Models, Test Cases, and Data for Oilfield Drilling Challenges. , 2019, , .		17
64	Dynamics of Drilling Systems With an Antistall Tool: Effect on Rate of Penetration and Mechanical Specific Energy. SPE Journal, 2019, 24, 1982-1996.	3.1	17
65	Experimental chemoporoelastic characterization of shale using millimeter-scale specimens. Journal of Petroleum Science and Engineering, 2014, 118, 40-51.	4.2	16
66	Eulerian formulation of elastic rods. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20150547.	2.1	16
67	A Model of Planar Borehole Propagation. SIAM Journal on Applied Mathematics, 2017, 77, 1089-1114.	1.8	16
68	Influence of PDC bit cutter layout on stickâ€“slip vibrations of deep drilling systems. Journal of Petroleum Science and Engineering, 2021, 206, 109005.	4.2	16
69	Steady-state solutions of a propagating borehole. International Journal of Solids and Structures, 2013, 50, 1226-1240.	2.7	15
70	Equilibrium Inclinations of Straight Boreholes. SPE Journal, 2013, 18, 395-405.	3.1	15
71	The Tip Region of a Near-Surface Hydraulic Fracture. Journal of Applied Mechanics, Transactions ASME, 2018, 85, .	2.2	15
72	Accuracy of oneâ€step integration schemes for damped/forced linear structural dynamics. International Journal for Numerical Methods in Engineering, 2014, 99, 333-353.	2.8	14

#	Article	IF	Citations
73	Influence of Weight-on-Bit on Percussive Drilling Performance. Rock Mechanics and Rock Engineering, 2021, 54, 3491-3505.	5.4	14
74	Comment [on â€œWell bore breakouts and in situ stressâ€•by Mark D. Zoback, Daniel Moos, Larry Mastin, and Roger N. Anderson]. Journal of Geophysical Research, 1986, 91, 14161-14162.	3.3	13
75	An Eulerian moving front algorithm with weakâ€form tip asymptotics for modeling hydraulically driven fractures. Communications in Numerical Methods in Engineering, 2009, 25, 185-200.	1.3	13
76	Line source in a poroelastic layer bounded by an elastic space. International Journal for Numerical and Analytical Methods in Geomechanics, 2015, 39, 1484-1505.	3.3	13
77	Mechanics of Actuated Disc Cutting. Rock Mechanics and Rock Engineering, 2017, 50, 465-483.	5.4	12
78	Direct measurement of the unjacketed pore modulus of porous solids. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180602.	2.1	12
79	Stickâ€“slip motion in a friction oscillator with normal and tangential mode coupling. Comptes Rendus Mecanique, 2000, 328, 671-678.	0.2	11
80	A drifting impact oscillator with periodic impulsive loading: Application to percussive drilling. Physica D: Nonlinear Phenomena, 2013, 258, 1-10.	2.8	11
81	An alternative formulation for modeling self-excited oscillations of rotary drilling systems. Journal of Sound and Vibration, 2020, 474, 115241.	3.9	11
82	Axisymmetric benchmark solutions in fracture mechanics. Engineering Fracture Mechanics, 2013, 102, 348-357.	4.3	10
83	Discussion on the â€œFracture mechanics interpretation of the scratch testâ€•by Akono et al.. Engineering Fracture Mechanics, 2016, 168, 46-50.	4.3	10
84	Modelling and dynamic analysis of an anti-stall tool in a drilling system including spatial friction. Nonlinear Dynamics, 2019, 98, 2631-2650.	5.2	10
85	Rock Cutting Experiments with an Actuated Disc. Rock Mechanics and Rock Engineering, 2019, 52, 3443-3458.	5.4	10
86	Propagation of natural hydraulic fractures. International Journal of Rock Mechanics and Minings Sciences, 1997, 34, 63.e1-63.e11.	5.8	9
87	Evolution and morphology of saucer-shaped sills in analogue experiments. Geological Society Special Publication, 2008, 302, 109-120.	1.3	9
88	Time-dependent closure of a borehole in a viscoplastic rock. Geomechanics for Energy and the Environment, 2019, 19, 100115.	2.5	9
89	Influence of bit design on the stability of a rotary drilling system. Nonlinear Dynamics, 2020, 100, 51-75.	5.2	9
90	A poroelastic model for laboratory hydraulic fracturing of weak permeable rock. Journal of the Mechanics and Physics of Solids, 2020, 143, 104090.	4.8	9

#	Article	IF	Citations
91	Slickwater hydraulic fracturing ofÂshales. Journal of Fluid Mechanics, 2020, 886, .	3.4	9
92	Numerical simulation of hydraulic fracturing in the viscosity dominated regime. , 2007, , .		8
93	Anomalous Behaviors of a Propagating Borehole. , 2012, , .		8
94	Fracture toughness interpretation from breakdown pressure. Engineering Fracture Mechanics, 2021, 243, 107518.	4.3	8
95	Hydraulic fracturing of weak rock during waterflooding. International Journal for Numerical and Analytical Methods in Geomechanics, 2022, 46, 416-435.	3.3	8
96	Hydraulic fracture induced by water injection in weak rock. Journal of Fluid Mechanics, 2021, 927, .	3.4	7
97	Chemoporoelastic Parameter Identification of a Reactive Shale. , 2005, , 125-132.		7
98	An in situ thermoâ€“hydraulic experiment in a saturated granite II: analysis and parameter estimation. International Journal of Rock Mechanics and Minings Sciences, 2004, 41, 1395-1411.	5.8	6
99	Determination of ground reaction curve for hyperbolic soil model using the hodograph method. Canadian Geotechnical Journal, 2005, 42, 964-968.	2.8	6
100	Propagation of a Semi-Infinite Hydraulic Fracture in a Poroelastic Medium. , 2013, , .		6
101	Cylindrical Cavity Expansion from a Finite Radius. , 2010, , .		5
102	A Remark on the Poroelastic Center of Dilation. Journal of Elasticity, 2014, 116, 189-206.	1.9	5
103	Fast In-Plane Dynamics of a Beam with Unilateral Constraints. Journal of Engineering Mechanics - ASCE, 2017, 143, .	2.9	5
104	Spiraled Boreholes: An Expression of 3D Directional Instability of Drilling Systems. , 2015, , .		4
105	Spiraled Boreholes: An Expression of 3D Directional Instability of Drilling Systems. SPE Journal, 2016, 21, 434-448.	3.1	4
106	An unstructured mesh algorithm for simulation of hydraulic fracture. Journal of Computational Physics, 2020, 419, 109691.	3.8	4
107	Eshelbian force on a steadily moving liquid blister. International Journal of Engineering Science, 2022, 170, 103591.	5.0	4
108	Drag bit/rock interface laws for the transition between two layers. International Journal of Rock Mechanics and Minings Sciences, 2022, 150, 104980.	5.8	4

#	Article	IF	Citations
109	A high-dimensional model to study the self-excited oscillations of rotary drilling systems. Communications in Nonlinear Science and Numerical Simulation, 2022, 112, 106549.	3.3	4
110	Similarity solution of a penny-shaped fluid-driven fracture in a zero-toughness linear elastic solid. Comptes Rendus Mecanique, 2001, 329, 255-262.	0.2	3
111	The potential for induced seismicity in energy technologies. The Leading Edge, 2012, 31, 1438-1444.	0.7	3
112	Force on a moving liquid blister. Journal of Fluid Mechanics, 2021, 918, .	3.4	3
113	An Alternative Formulation for Modeling Self-Excited Vibrations of Drillstring With Polycrystalline Diamond Compact Bits. Journal of Computational and Nonlinear Dynamics, 2022, 17, .	1.2	3
114	Sunset similarity solution for a receding hydraulic fracture. Journal of Fluid Mechanics, 2022, 944, .	3.4	3
115	Stationary shock in cohesive-frictional materials. International Journal for Numerical and Analytical Methods in Geomechanics, 2000, 5, 195-214.	0.8	2
116	Steady-state solutions of a propagating borehole: Helical trajectory. , 2011, , .		2
117	Withdrawal of Fluid from a Poroelastic Layer. , 2013, , .		2
118	Event-driven integration of linear structural dynamics models under unilateral elastic constraints. Computer Methods in Applied Mechanics and Engineering, 2014, 276, 312-340.	6.6	2
119	A Novel Approach to Improve Wellbore Stability in Shale Through Rapid Chemoporoelastic Characterisation of Drill Cuttings. , 2008, , .		2
120	Paper: â€œTheoretical analysis of Hertzian contact fracture: Ring crackâ€¦ by Xu-Yue Wang, Lawrence Kwok-Yan Li, Yiu-Wing Mai, and Yao-Gen Shen; Engineering Fracture Mechanics 75 (2008) 4247â€“4256. Engineering Fracture Mechanics, 2011, 78, 446-447.	4.3	1
121	Poroelastic Center of Dilation Revisited. , 2013, , .		1
122	A Simple Free-Fold Test to Measure Bending Stiffness of Slender Soft Actuators. IEEE Robotics and Automation Letters, 2021, 6, 8702-8709.	5.1	1
123	Eulerian formulation of a drillstring constrained inside a curved borehole. , 2011, , .		0
124	Editorial to Special Issue: Including Selected Papers from the 48th US Rock Mechanics/Geomechanics Symposium on "Rock Mechanics Across Length and Time Scales" held at the University of Minnesota, Minneapolis, June 1â€“4, 2014. Rock Mechanics and Rock Engineering, 2015, 48, 2495-2495.	5.4	0
125	Self-Similar Propagation of a Hydraulic Fracture in a Poroelastic Medium. , 2017, , .		0
126	Self-Similar Propagation of a Plastic Zone Due to Fluid Injection in a Porous Medium. , 2017, , .		0

#	Article	IF	Citations
127	Experimental Study of Forces Induced in Mechanical Excavation of Rock. , 2020, , .		0