

# Robert W Zimmerman

## List of Publications by Year in descending order

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110  
papers

7,933  
citations

50170

46  
h-index

49773

87  
g-index

115  
all docs

115  
docs citations

115  
times ranked

5260  
citing authors

#	ARTICLE	IF	CITATIONS
1	Fracture growth leading to mechanical spalling around deposition boreholes of an underground nuclear waste repository. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2022, 152, 105038.	2.6	5
2	Semi-analytical Method for Modeling Wellbore Breakout Development. <i>Rock Mechanics and Rock Engineering</i> , 2022, 55, 2987-3000.	2.6	6
3	Mechanical characterization of Laffan and Nahr Umr anisotropic shales. <i>Journal of Petroleum Science and Engineering</i> , 2021, 200, 108195.	2.1	13
4	Perturbation Solution for One-Dimensional Flow to a Constant-Pressure Boundary in a Stress-Sensitive Reservoir. <i>Transport in Porous Media</i> , 2021, 137, 471-487.	1.2	2
5	The effect of pore shape on the Poisson ratio of porous materials. <i>Mathematics and Mechanics of Solids</i> , 2021, 26, 1191-1203.	1.5	18
6	A unified methodology for computing the stresses around an arbitrarily-shaped hole in isotropic or anisotropic materials. <i>International Journal of Solids and Structures</i> , 2020, 199, 131-143.	1.3	16
7	Hydro-mechanical interaction effects and channelling in three-dimensional fracture networks undergoing growth and nucleation. <i>Journal of Rock Mechanics and Geotechnical Engineering</i> , 2020, 12, 707-719.	3.7	19
8	Growth of three-dimensional fractures, arrays, and networks in brittle rocks under tension and compression. <i>Computers and Geotechnics</i> , 2020, 121, 103447.	2.3	22
9	Permeability of Three-Dimensional Numerically Grown Geomechanical Discrete Fracture Networks With Evolving Geometry and Mechanical Apertures. <i>Journal of Geophysical Research: Solid Earth</i> , 2020, 125, e2019JB018899.	1.4	32
10	Caprock integrity and public perception studies of carbon storage in depleted hydrocarbon reservoirs. <i>International Journal of Greenhouse Gas Control</i> , 2020, 98, 103057.	2.3	38
11	Gravity Hydraulic Fracturing: A Method to Create Self-Driven Fractures. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL087563.	1.5	15
12	Finite-Element Modeling of the Growth and Interaction of Hydraulic Fractures in Poroelastic Rock Formations. , 2018, , 1-19.		7
13	A three-dimensional coupled thermo-hydro-mechanical model for deformable fractured geothermal systems. <i>Geothermics</i> , 2018, 71, 212-224.	1.5	145
14	Relationship Between the Orientation of Maximum Permeability and Intermediate Principal Stress in Fractured Rocks. <i>Water Resources Research</i> , 2018, 54, 8734-8755.	1.7	27
15	Permeability of observed three dimensional fracture networks in spent fuel pins. <i>Journal of Nuclear Materials</i> , 2018, 510, 613-622.	1.3	3
16	Commemorating Dr. Gudmundur Ólafur Bodvarsson (1951–2006), a Leader of the Deep Unsaturated Flow and Transport Investigations. <i>Water (Switzerland)</i> , 2018, 10, 18.	1.2	13
17	Effect of cold CO <sub>2</sub> injection on fracture apertures and growth. <i>International Journal of Greenhouse Gas Control</i> , 2018, 74, 130-141.	2.3	40
18	Three-dimensional poroelastic effects during hydraulic fracturing in permeable rocks. <i>International Journal of Solids and Structures</i> , 2017, 108, 153-163.	1.3	88

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19	Quantification of Fracture Interaction Using Stress Intensity Factor Variation Maps. Journal of Geophysical Research: Solid Earth, 2017, 122, 7698-7717.	1.4	19
20	Introduction to Rock Properties. , 2017, , 1-46.		1
21	Finite element simulations of interactions between multiple hydraulic fractures in a poroelastic rock. International Journal of Rock Mechanics and Minings Sciences, 2017, 99, 9-20.	2.6	77
22	Effect of Poroelasticity on Hydraulic Fracture Interactions. , 2017, , .		5
23	Pore Volume and Porosity Changes under Uniaxial Strain Conditions. Transport in Porous Media, 2017, 119, 481-498.	1.2	33
24	A finite element framework for modeling internal frictional contact in three-dimensional fractured media using unstructured tetrahedral meshes. Computer Methods in Applied Mechanics and Engineering, 2016, 306, 123-150.	3.4	47
25	Evolution of fracture normal stiffness due to pressure dissolution and precipitation. International Journal of Rock Mechanics and Minings Sciences, 2016, 88, 12-22.	2.6	26
26	Inclusion-Based Effective Medium Models for the Permeability of a 3D Fractured Rock Mass. Transport in Porous Media, 2016, 113, 137-158.	1.2	54
27	A direct fragmentation method with Weibull function distribution of sizes based on finite- and discrete element simulations. International Journal of Solids and Structures, 2016, 80, 38-51.	1.3	50
28	Effect of the interphase zone on the conductivity or diffusivity of a particulate composite using Maxwell's homogenization method. International Journal of Engineering Science, 2016, 98, 51-59.	2.7	20
29	Hydraulic sealing due to pressure solution contact zone growth in siliciclastic rock fractures. Journal of Geophysical Research: Solid Earth, 2015, 120, 4080-4101.	1.4	45
30	A disk-shaped domain integral method for the computation of stress intensity factors using tetrahedral meshes. International Journal of Solids and Structures, 2015, 69-70, 230-251.	1.3	39
31	On the use of quarter-point tetrahedral finite elements in linear elastic fracture mechanics. Engineering Fracture Mechanics, 2015, 144, 194-221.	2.0	55
32	Permeability tensor of three-dimensional fractured porous rock and a comparison to trace map predictions. Journal of Geophysical Research: Solid Earth, 2014, 119, 6288-6307.	1.4	193
33	Modification of Griffith's "McClintock" Walsh model for crack growth under compression to incorporate stick-slip along the crack faces. International Journal of Rock Mechanics and Minings Sciences, 2014, 72, 311-318.	2.6	14
34	Validity of linear elasticity in the crack-tip region of ideal brittle solids. International Journal of Fracture, 2014, 189, 103-110.	1.1	18
35	An impulse-based energy tracking method for collision resolution. Computer Methods in Applied Mechanics and Engineering, 2014, 278, 160-185.	3.4	30
36	Numerical fracture growth modeling using smooth surface geometric deformation. Engineering Fracture Mechanics, 2013, 108, 19-36.	2.0	34

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37	Impact of stress on solute transport in a fracture network: A comparison study. <i>Journal of Rock Mechanics and Geotechnical Engineering</i> , 2013, 5, 110-123.	3.7	33
38	Fracture and impulse based finite-discrete element modeling of fragmentation. <i>Computational Mechanics</i> , 2013, 52, 1071-1084.	2.2	45
39	Laboratory measurements of low- and high-frequency elastic moduli in Fontainebleau sandstone. <i>Geophysics</i> , 2013, 78, D369-D379.	1.4	60
40	Model for Frequency-Dependence of Elastic Wave Velocities in Porous Rocks. , 2013, , .		1
41	Energy conservative property of impulse-based methods for collision resolution. <i>International Journal for Numerical Methods in Engineering</i> , 2013, 95, 529-540.	1.5	27
42	Comparison of discrete fracture network and equivalent continuum simulations of fluid flow through two-dimensional fracture networks for the DECOVALEX-2011 project. <i>Mineralogical Magazine</i> , 2012, 76, 3179-3190.	0.6	16
43	Estimating the Hydraulic Conductivity of Two-Dimensional Fracture Networks Using Network Geometric Properties. <i>Transport in Porous Media</i> , 2012, 93, 777-797.	1.2	99
44	Estimating the permeability of cement pastes and mortars using image analysis and effective medium theory. <i>Cement and Concrete Research</i> , 2012, 42, 476-483.	4.6	57
45	Pressure Buildup During CO <sub>2</sub> Injection into a Closed Brine Aquifer. <i>Transport in Porous Media</i> , 2011, 89, 383-397.	1.2	86
46	Compressibility and shear compliance of spheroidal pores: Exact derivation via the Eshelby tensor, and asymptotic expressions in limiting cases. <i>International Journal of Solids and Structures</i> , 2011, 48, 680-686.	1.3	64
47	Effect of entrained air voids on the microstructure and mass transport properties of concrete. <i>Cement and Concrete Research</i> , 2011, 41, 1067-1077.	4.6	133
48	Numerical simulation of multiple 3D fracture propagation using arbitrary meshes. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2011, 200, 953-966.	3.4	87
49	Elastic moduli of solids containing spheroidal pores. <i>International Journal of Engineering Science</i> , 2011, 49, 544-560.	2.7	57
50	A fully coupled thermo-hydro-mechanical model for simulating multiphase flow, deformation and heat transfer in buffer material and rock masses. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2010, 47, 205-217.	2.6	105
51	Influence of the interfacial transition zone and microcracking on the diffusivity, permeability and sorptivity of cement-based materials after drying. <i>Magazine of Concrete Research</i> , 2009, 61, 571-589.	0.9	202
52	An effective thermal conductivity model of geological porous media for coupled thermo-hydro-mechanical systems with multiphase flow. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2009, 46, 1358-1369.	2.6	125
53	Approximate Solutions for Pressure Buildup During CO <sub>2</sub> Injection in Brine Aquifers. <i>Transport in Porous Media</i> , 2009, 79, 265-284.	1.2	129
54	A new well path optimization model for increased mechanical borehole stability. <i>Journal of Petroleum Science and Engineering</i> , 2009, 69, 53-62.	2.1	64

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55	Screening and selection of sites for CO <sub>2</sub> sequestration based on pressure buildup. International Journal of Greenhouse Gas Control, 2009, 3, 577-585.	2.3	95
56	Boundary Perturbation Solution for Nearly Circular Holes and Rigid Inclusions in an Infinite Elastic Medium. Journal of Applied Mechanics, Transactions ASME, 2008, 75, .	1.1	20
57	Sensitivity of the impact of geological uncertainty on production from faulted and unfaulted shallow-marine oil reservoirs: objectives and methods. Petroleum Geoscience, 2008, 14, 3-15.	0.9	93
58	Shear compliance of two-dimensional pores possessing N -fold axis of rotational symmetry. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2008, 464, 759-775.	1.0	21
59	Assessing the effect of geological uncertainty on recovery estimates in shallow-marine reservoirs: the application of reservoir engineering to the SAIGUP project. Petroleum Geoscience, 2008, 14, 35-44.	0.9	34
60	Influence of volume/mass on grain-size curves and conversion of image-analysis size to sieve size. Engineering Geology, 2007, 90, 124-137.	2.9	52
61	Compressibility of two-dimensional pores having n -fold axes of symmetry. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2006, 462, 1933-1947.	1.0	29
62	Pore-scale modelling of NMR relaxation for the characterization of wettability. Journal of Petroleum Science and Engineering, 2006, 52, 172-186.	2.1	66
63	Thermal and Electrical Conductivity of Composites with Graded Interfaces. Advances in Science and Technology, 2006, 45, 1097.	0.2	0
64	Analysis of counter-current imbibition with gravity in weakly water-wet systems. Journal of Petroleum Science and Engineering, 2005, 48, 94-104.	2.1	62
65	Relation between the Mogi and the Coulomb failure criteria. International Journal of Rock Mechanics and Minings Sciences, 2005, 42, 431-439.	2.6	388
66	Effect of an inhomogeneous interphase zone on the bulk modulus and conductivity of a particulate composite. International Journal of Solids and Structures, 2005, 42, 429-437.	1.3	93
67	Analytic Analysis for Oil Recovery During Counter-Current Imbibition in Strongly Water-Wet Systems. Transport in Porous Media, 2005, 58, 173-189.	1.2	82
68	Analytic Analysis for Oil Recovery During Counter-Current Imbibition in Strongly Water-Wet Systems. , 2005, , 173-189.		4
69	Comparison of methods for upscaling permeability from the pore scale to the core scale. Journal of Hydraulic Research/De Recherches Hydrauliques, 2004, 42, 3-8.	0.7	16
70	Non-linear regimes of fluid flow in rock fractures. International Journal of Rock Mechanics and Minings Sciences, 2004, 41, 163-169.	2.6	277
71	Polymers as relative permeability modifiers: adsorption and the dynamic formation of thick polyacrylamide layers. Journal of Petroleum Science and Engineering, 2004, 45, 233-245.	2.1	61
72	Hydromechanical Behavior of Fractured Rocks. International Geophysics, 2004, , 363-421.	0.6	55

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73	Effective stress law for the permeability of clay-rich sandstones. Journal of Geophysical Research, 2004, 109, .	3.3	95
74	Laplace transform inversion for late-time behavior of groundwater flow problems. Water Resources Research, 2003, 39, .	1.7	11
75	Creeping Flow Through an Axisymmetric Sudden Contraction or Expansion. Journal of Fluids Engineering, Transactions of the ASME, 2002, 124, 273-278.	0.8	41
76	Predicting the permeability of sandstone from image analysis of pore structure. Journal of Applied Physics, 2002, 92, 6311-6319.	1.1	77
77	Flow of Water through Channels Filled with Deformable Polymer Gels. Journal of Colloid and Interface Science, 2002, 250, 466-470.	5.0	19
78	Wettability alteration by aging of a gel placed within a porous medium. Journal of Petroleum Science and Engineering, 2002, 33, 135-145.	2.1	5
79	Segregated pathways mechanism for oil and water flow through an oil-based gelant. Journal of Petroleum Science and Engineering, 2002, 35, 183-190.	2.1	10
80	Creeping flow through a pipe of varying radius. Physics of Fluids, 2001, 13, 2762-2772.	1.6	72
81	Rheology and Permeability of Crosslinked Polyacrylamide Gel. Journal of Colloid and Interface Science, 2001, 240, 601-607.	5.0	163
82	Title is missing!. Transport in Porous Media, 2001, 45, 129-138.	1.2	26
83	Laminar Flow Through Irregularly-Shaped Pores in Sedimentary Rocks. Transport in Porous Media, 2001, 45, 41-62.	1.2	46
84	A Model for Steady Laminar Flow through a Deformable Gel-Coated Channel. Journal of Colloid and Interface Science, 2000, 226, 105-111.	5.0	14
85	Fluid flow in rock fractures: From the Navier-Stokes equations to the cubic law. Geophysical Monograph Series, 2000, , 213-224.	0.1	99
86	Micromechanics of Poroelastic Rocks. Modeling and Simulation in Science, Engineering and Technology, 2000, , 411-469.	0.4	5
87	INHOMOGENEOUS INTERFACIAL TRANSITION ZONE MODEL FOR THE BULK MODULUS OF MORTAR. Cement and Concrete Research, 1997, 27, 1113-1122.	4.6	156
88	A new lumped-parameter model for flow in unsaturated dual-porosity media. Advances in Water Resources, 1996, 19, 317-327.	1.7	62
89	Hydraulic conductivity of rock fractures. Transport in Porous Media, 1996, 23, 1.	1.2	1,021
90	Coupled reservoir-wellbore simulation of geothermal reservoir behavior. Geothermics, 1995, 24, 145-166.	1.5	28

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91	Effective block size for imbibition or absorption in dual-porosity media. <i>Geophysical Research Letters</i> , 1995, 22, 1461-1464.	1.5	38
92	Behavior of the Poisson Ratio of a Two-Phase Composite Material in the High-Concentration Limit. <i>Applied Mechanics Reviews</i> , 1994, 47, S38-S44.	4.5	35
93	A numerical dual-porosity model with semianalytical treatment of fracture/matrix flow. <i>Water Resources Research</i> , 1993, 29, 2127-2137.	1.7	248
94	The effect of contact area on the permeability of fractures. <i>Journal of Hydrology</i> , 1992, 139, 79-96.	2.3	236
95	Hashin-Shtrikman bounds on the poisson ratio of a composite material. <i>Mechanics Research Communications</i> , 1992, 19, 563-569.	1.0	53
96	Reply [to "Comment on "An Approximate Solution for One-Dimensional Absorption in Unsaturated Porous Media" by R. W. Zimmerman and G. S. Bodvarsson]. <i>Water Resources Research</i> , 1991, 27, 2161-2162.	1.7	1
97	Permeability of a fracture with cylindrical asperities. <i>Fluid Dynamics Research</i> , 1991, 7, 131-137.	0.6	25
98	Elastic moduli of a solid containing spherical inclusions. <i>Mechanics of Materials</i> , 1991, 12, 17-24.	1.7	216
99	A simple approximate solution for horizontal infiltration in a Brooks-Corey medium. <i>Transport in Porous Media</i> , 1991, 6, 195.	1.2	41
100	Comment and Reply on "Application of linear elastic fracture mechanics to the quantitative evaluation of fluid-inclusion decrepitation". <i>Geology</i> , 1991, 19, 663.	2.0	1
101	Absorption of Water Into Porous Blocks of Various Shapes and Sizes. <i>Water Resources Research</i> , 1990, 26, 2797-2806.	1.7	49
102	Thermal conductivity of fluid-saturated rocks. <i>Journal of Petroleum Science and Engineering</i> , 1989, 3, 219-227.	2.1	189
103	An approximate solution for one-dimensional absorption in unsaturated porous media. <i>Water Resources Research</i> , 1989, 25, 1422-1428.	1.7	63
104	Integral method solution for diffusion into a spherical block. <i>Journal of Hydrology</i> , 1989, 111, 213-224.	2.3	23
105	Second-Order Approximation for the Compression of an Elastic Plate Containing a Pair of Circular Holes. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 1988, 68, 575-577.	0.9	31
106	Stress singularity around two nearby holes. <i>Mechanics Research Communications</i> , 1988, 15, 87-90.	1.0	22
107	Compressibility of porous rocks. <i>Journal of Geophysical Research</i> , 1986, 91, 12765-12777.	3.3	381
108	The elastic moduli of mortar as a porous-granular material. <i>Cement and Concrete Research</i> , 1986, 16, 239-245.	4.6	41

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109	The effect of microcracks on the elastic moduli of brittle materials. Journal of Materials Science Letters, 1985, 4, 1457-1460.	0.5	135
110	Navier-Stokes Simulations of Fluid Flow Through a Rock Fracture. Geophysical Monograph Series, 0, , 55-64.	0.1	25