

Hui-Hai Liu

List of Publications by Year in descending order

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110
papers

3,391
citations

172457

29
h-index

155660

55
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113
all docs

113
docs citations

113
times ranked

2514
citing authors

#	ARTICLE	IF	CITATIONS
1	A New Coal-Permeability Model: Internal Swelling Stress and Fracture-Matrix Interaction. <i>Transport in Porous Media</i> , 2010, 82, 157-171.	2.6	320
2	Fractional Brownian motion and fractional Gaussian noise in subsurface hydrology: A review, presentation of fundamental properties, and extensions. <i>Water Resources Research</i> , 1997, 33, 2273-2286.	4.2	194
3	On the relationship between stress and elastic strain for porous and fractured rock. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2009, 46, 289-296.	5.8	189
4	A triple-continuum approach for modeling flow and transport processes in fractured rock. <i>Journal of Contaminant Hydrology</i> , 2004, 73, 145-179.	3.3	158
5	An active fracture model for unsaturated flow and transport in fractured rocks. <i>Water Resources Research</i> , 1998, 34, 2633-2646.	4.2	157
6	Relationships between permeability, porosity and effective stress for low-permeability sedimentary rock. <i>International Journal of Rock Mechanics and Minings Sciences</i> , 2015, 78, 304-318.	5.8	134
7	A water retention curve and unsaturated hydraulic conductivity model for deformable soils: consideration of the change in pore-size distribution. <i>Geotechnique</i> , 2013, 63, 1389-1405.	4.0	114
8	Multifractal analyses of hydraulic conductivity distributions. <i>Water Resources Research</i> , 1997, 33, 2483-2488.	4.2	102
9	Field-scale effective matrix diffusion coefficient for fractured rock: Results from literature survey. <i>Journal of Contaminant Hydrology</i> , 2007, 93, 161-187.	3.3	98
10	Modeling of Coupled Thermo-Hydro-Mechanical Processes with Links to Geochemistry Associated with Bentonite-Backfilled Repository Tunnels in Clay Formations. <i>Rock Mechanics and Rock Engineering</i> , 2014, 47, 167-186.	5.4	92
11	On the impact of temperatures up to 200 Å°C in clay repositories with bentonite engineer barrier systems: A study with coupled thermal, hydrological, chemical, and mechanical modeling. <i>Engineering Geology</i> , 2015, 197, 278-295.	6.3	90
12	Normal-stress dependence of fracture hydraulic properties including two-phase flow properties. <i>Hydrogeology Journal</i> , 2013, 21, 371-382.	2.1	68
13	Constitutive relations for unsaturated flow in a fracture network. <i>Journal of Hydrology</i> , 2001, 252, 116-125.	5.4	58
14	Modeling flow and transport in unsaturated fractured rock: an evaluation of the continuum approach. <i>Journal of Contaminant Hydrology</i> , 2003, 62-63, 173-188.	3.3	58
15	On the relationship between water flux and hydraulic gradient for unsaturated and saturated clay. <i>Journal of Hydrology</i> , 2012, 475, 242-247.	5.4	56
16	A theoretical derivation of the Hoek-Brown failure criterion for rock materials. <i>Journal of Rock Mechanics and Geotechnical Engineering</i> , 2015, 7, 361-366.	8.1	56
17	Comment on "Evidence for non-Gaussian scaling behavior in heterogeneous sedimentary formations" by Scott Painter. <i>Water Resources Research</i> , 1997, 33, 907-908.	4.2	54
18	An efficient, three-dimensional, anisotropic, fractional Brownian motion and truncated fractional Levy motion simulation algorithm based on successive random additions. <i>Computers and Geosciences</i> , 2003, 29, 15-25.	4.2	54

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19	A Corrected and Generalized Successive Random Additions Algorithm for Simulating Fractional Levy Motions. <i>Mathematical Geosciences</i> , 2004, 36, 361-378.	0.9	54
20	Two-phase flow properties of a horizontal fracture: The effect of aperture distribution. <i>Advances in Water Resources</i> , 2015, 76, 43-54.	3.8	52
21	A constitutive model for unsaturated soils with consideration of inter-particle bonding. <i>Computers and Geotechnics</i> , 2014, 59, 127-144.	4.7	44
22	Flow and transport in unsaturated fractured rock: effects of multiscale heterogeneity of hydrogeologic properties. <i>Journal of Contaminant Hydrology</i> , 2003, 60, 1-30.	3.3	42
23	Impact of climate change on groundwater recharge in dry areas: An ecohydrology approach. <i>Journal of Hydrology</i> , 2011, 407, 175-183.	5.4	40
24	Reconciliation between Measured and Theoretical Temperature Effects on Soil Water Retention Curves. <i>Soil Science Society of America Journal</i> , 1993, 57, 1202-1207.	2.2	36
25	Two-phase flow properties in aperture-based fractures under normal deformation conditions: Analytical approach and numerical simulation. <i>Journal of Hydrology</i> , 2017, 545, 72-87.	5.4	36
26	Unconventional Spontaneous Imbibition into Shale Matrix: Theory and a Methodology to Determine Relevant Parameters. <i>Transport in Porous Media</i> , 2016, 111, 41-57.	2.6	33
27	Inverse modeling of ground surface uplift and pressure with iTOUGH-PEST and TOUGH-FLAC: The case of CO ₂ injection at In Salah, Algeria. <i>Computers and Geosciences</i> , 2017, 108, 98-109.	4.2	33
28	Behavior of the mass transfer coefficient during the MADE-2 experiment: New insights. <i>Water Resources Research</i> , 2008, 44, .	4.2	31
29	Evidence of Multi-Process Matrix Diffusion in a Single Fracture from a Field Tracer Test. <i>Transport in Porous Media</i> , 2006, 63, 473-487.	2.6	30
30	A new particle-tracking approach to simulating transport in heterogeneous fractured porous media. <i>Water Resources Research</i> , 2010, 46, .	4.2	30
31	Non-Darcian flow in low-permeability media: key issues related to geological disposal of high-level nuclear waste in shale formations. <i>Hydrogeology Journal</i> , 2014, 22, 1525-1534.	2.1	30
32	Numerical prediction of the decline of the shale gas production rate with considering the geomechanical effects based on the two-part Hooke's model. <i>Fuel</i> , 2016, 185, 362-369.	6.4	30
33	Unsaturated properties for non-Darcian water flow in clay. <i>Journal of Hydrology</i> , 2012, 430-431, 173-178.	5.4	29
34	A permeability-change relationship in the dryout zone for CO ₂ injection into saline aquifers. <i>International Journal of Greenhouse Gas Control</i> , 2013, 15, 42-47.	4.6	29
35	An Elastic Stress-Strain Relationship for Porous Rock Under Anisotropic Stress Conditions. <i>Rock Mechanics and Rock Engineering</i> , 2012, 45, 389-399.	5.4	27
36	Experimental Investigation on Brazilian Tensile Strength of Organic-Rich Gas Shale. <i>SPE Journal</i> , 2017, 22, 148-161.	3.1	27

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37	Electromagnetic thermal stimulation of shale reservoirs for petroleum production. <i>Journal of Natural Gas Science and Engineering</i> , 2018, 59, 183-192.	4.4	27
38	Site characterization of the Yucca Mountain disposal system for spent nuclear fuel and high-level radioactive waste. <i>Reliability Engineering and System Safety</i> , 2014, 122, 32-52.	8.9	26
39	Modeling gas relative permeability in shales and tight porous rocks. <i>Fuel</i> , 2020, 272, 117686.	6.4	25
40	Analysis of a mesoscale infiltration and water seepage test in unsaturated fractured rock: Spatial variabilities and discrete fracture patterns. <i>Journal of Contaminant Hydrology</i> , 2006, 87, 96-122.	3.3	24
41	Porosity-permeability relationships in modeling salt precipitation during CO ₂ sequestration: Review of conceptual models and implementation in numerical simulations. <i>International Journal of Greenhouse Gas Control</i> , 2016, 52, 24-31.	4.6	24
42	Scale-dependent permeability and formation factor in porous media: Applications of percolation theory. <i>Fuel</i> , 2021, 301, 121090.	6.4	20
43	Incorporation of Physics into Machine Learning for Production Prediction from Unconventional Reservoirs: A Brief Review of the Gray-Box Approach. <i>SPE Reservoir Evaluation and Engineering</i> , 2021, 24, 847-858.	1.8	19
44	Coupled Hydro-mechanical Processes Associated with Multiphase Flow in a Dual-continuum System: Formulations and an Application. <i>Rock Mechanics and Rock Engineering</i> , 2013, 46, 1103-1112.	5.4	18
45	Effect of Capillary Condensation on Gas Transport in Shale: A Pore-Scale Model Study. <i>SPE Journal</i> , 2016, 21, 601-612.	3.1	18
46	A GEOMETRICAL APERTURE-WIDTH RELATIONSHIP FOR ROCK FRACTURES. <i>Fractals</i> , 2019, 27, 1940002.	3.7	18
47	A Conductivity Relationship for Steady-State Unsaturated Flow Processes under Optimal Flow Conditions. <i>Vadose Zone Journal</i> , 2011, 10, 736-740.	2.2	17
48	A coupled stress-strain and hydraulic hysteresis model for unsaturated soils: Thermodynamic analysis and model evaluation. <i>Computers and Geotechnics</i> , 2015, 63, 159-170.	4.7	17
49	A coupled two-phase fluid flow and elastoplastic deformation model for unsaturated soils: theory, implementation, and application. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2016, 40, 1023-1058.	3.3	17
50	Clarifying pore diameter, pore width, and their relationship through pressure measurements: A critical study. <i>Marine and Petroleum Geology</i> , 2019, 107, 142-148.	3.3	16
51	Effects of diffusive property heterogeneity on effective matrix diffusion coefficient for fractured rock. <i>Water Resources Research</i> , 2006, 42, .	4.2	15
52	Pressure pulse-decay tests in a dual-continuum medium: Late-time behavior. <i>Journal of Petroleum Science and Engineering</i> , 2016, 147, 292-301.	4.2	15
53	Electromagnetic-heating enhancement of source rock permeability for high recovery. <i>Fuel</i> , 2021, 283, 118976.	6.4	15
54	The Active Fracture Model: Its Relation to Fractal Flow Patterns and an Evaluation Using Field Observations. <i>Vadose Zone Journal</i> , 2003, 2, 259-269.	2.2	15

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55	Unsaturated flow and transport through a fault embedded in fractured welded tuff. <i>Water Resources Research</i> , 2004, 40, .	4.2	14
56	Analytical solutions of tracer transport in fractured rock associated with precipitation-dissolution reactions. <i>Hydrogeology Journal</i> , 2011, 19, 1151-1160.	2.1	14
57	Model evaluation of geochemically induced swelling/shrinkage in argillaceous formations for nuclear waste disposal. <i>Applied Clay Science</i> , 2014, 97-98, 24-32.	5.2	14
58	Radionuclide Transport Behavior in a Generic Geological Radioactive Waste Repository. <i>Ground Water</i> , 2015, 53, 440-451.	1.3	14
59	The Active Fracture Model: Its Relation to Fractal Flow Patterns and an Evaluation Using Field Observations. <i>Vadose Zone Journal</i> , 2003, 2, 259-269.	2.2	13
60	Estimating Large-scale Fracture Permeability of Unsaturated Rock Using Barometric Pressure Data. <i>Vadose Zone Journal</i> , 2006, 5, 1129-1142.	2.2	13
61	A Fractal-Based Model for Fracture Deformation Under Shearing and Compression. <i>Rock Mechanics and Rock Engineering</i> , 2013, 46, 1539-1549.	5.4	13
62	Commemorating Dr. Gudmundur Böðvarsson (1951–2006), a Leader of the Deep Unsaturated Flow and Transport Investigations. <i>Water (Switzerland)</i> , 2018, 10, 18.	2.7	13
63	Flow Focusing in Unsaturated Fracture Networks: A Numerical Investigation. <i>Vadose Zone Journal</i> , 2004, 3, 624-633.	2.2	12
64	Long term infiltration and tracer transport in fractured rocks: Field observations and model analyses. <i>Journal of Hydrology</i> , 2011, 396, 33-48.	5.4	12
65	The use of two-part Hooke's model (TPHM) to model the mine-by test at Mont Terri Site, Switzerland. <i>Computers and Geotechnics</i> , 2014, 58, 28-46.	4.7	12
66	A numerical formulation with unified unilateral boundary condition for unsaturated flow problems in porous media. <i>Acta Geotechnica</i> , 2017, 12, 277-291.	5.7	12
67	Correction of source-rock permeability measurements owing to slip flow and Knudsen diffusion: a method and its evaluation. <i>Petroleum Science</i> , 2018, 15, 116-125.	4.9	12
68	Nuclear magnetic resonance measurement of methane diffusion in organic-rich shales. <i>Fuel</i> , 2019, 247, 160-163.	6.4	12
69	A note on equations for steady-state optimal landscapes. <i>Geophysical Research Letters</i> , 2011, 38, n/a-n/a.	4.0	10
70	Constitutive Relations for Reactive Transport Modeling: Effects of Chemical Reactions on Multi-phase Flow Properties. <i>Transport in Porous Media</i> , 2016, 114, 795-814.	2.6	10
71	A criterion for evaluating the effect of shale-matrix dual-continuum flow on gas production. <i>Geomechanics and Geophysics for Geo-Energy and Geo-Resources</i> , 2019, 5, 87-102.	2.9	10
72	Matrix permeability measurement from fractured unconventional source-rock samples: Method and application. <i>Journal of Contaminant Hydrology</i> , 2020, 233, 103663.	3.3	9

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73	Shale gas transport in rock matrix: Diffusion in the presence of surface adsorption and capillary condensation. <i>Journal of Natural Gas Science and Engineering</i> , 2019, 66, 18-25.	4.4	8
74	Effects of dry fractures on matrix diffusion in unsaturated fractured rocks. <i>Geophysical Research Letters</i> , 2003, 30, .	4.0	7
75	Equivalent diffusion coefficient of clay-rich geological formations: comparison between numerical and analytical estimates. <i>Stochastic Environmental Research and Risk Assessment</i> , 2013, 27, 1081-1091.	4.0	7
76	Measurement of elastic properties in Brazilian disc test: solution derivation and numerical verification. <i>Geomechanics and Geophysics for Geo-Energy and Geo-Resources</i> , 2018, 4, 63-77.	2.9	7
77	On the relationship between effective permeability and stress for unconventional rocks: Analytical estimates from laboratory measurements. <i>Journal of Natural Gas Science and Engineering</i> , 2018, 56, 408-413.	4.4	7
78	An efficient laboratory method to measure the combined effects of Knudsen diffusion and mechanical deformation on shale permeability. <i>Journal of Contaminant Hydrology</i> , 2020, 232, 103652.	3.3	7
79	The optimum pressure drawdown for production from a shale gas reservoir: A numerical study with a coupled geomechanics and reservoir model. <i>Journal of Natural Gas Science and Engineering</i> , 2021, 88, 103848.	4.4	7
80	Modified Generalized Likelihood Uncertainty Estimation (GLUE) Methodology for Considering the Subjectivity of Likelihood Measure Selection. <i>Journal of Hydrologic Engineering - ASCE</i> , 2011, 16, 558-561.	1.9	6
81	An Improved Hydraulic Fracturing Treatment for Stimulating Tight Organic-Rich Carbonate Reservoirs. <i>SPE Journal</i> , 2020, 25, 632-645.	3.1	6
82	A thermodynamic hypothesis regarding optimality principles for flow processes in geosystems. <i>Science Bulletin</i> , 2014, 59, 1880-1884.	1.7	5
83	Modeling bacterial attenuation in on-site wastewater treatment systems using the active region model and column-scale data. <i>Environmental Earth Sciences</i> , 2015, 74, 4827-4837.	2.7	5
84	Pressure pulse-decay tests in a dual-continuum medium: An improved technique to estimate flow parameters. <i>Journal of Natural Gas Science and Engineering</i> , 2019, 65, 16-24.	4.4	5
85	Flow Focusing in Unsaturated Fracture Networks: A Numerical Investigation. <i>Vadose Zone Journal</i> , 2004, 3, 624-633.	2.2	5
86	EDZ formation and associated hydromechanical behaviour around ED-B tunnel: A numerical study based on a two-part Hooke's model (TPHM). <i>KSCE Journal of Civil Engineering</i> , 2015, 19, 318-331.	1.9	4
87	An Experimental Study on Interactions Between Imbibed Fracturing Fluid and Organic-Rich Tight Carbonate Source Rocks. <i>SPE Journal</i> , 2018, 23, 2133-2146.	3.1	4
88	The Active Fracture Model. <i>Vadose Zone Journal</i> , 2003, 2, 259.	2.2	4
89	Upscaling of Normal Stress-Permeability Relationships for Fracture Networks Obeying Fractional Levy Motion. <i>Elsevier Geo-Engineering Book Series</i> , 2004, , 263-268.	0.0	3
90	Temperature dependence of large-scale water-retention curves: a case study. <i>Hydrogeology Journal</i> , 2006, 14, 1403-1408.	2.1	3

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91	Preface: Recent Advances in Modeling Multiphase Flow and Transport with the TOUGH Family of Codes. <i>Vadose Zone Journal</i> , 2008, 7, 284-286.	2.2	3
92	Assessing Tensile Strength of Unconventional Tight Rocks Using Microwaving. , 2015, , .		3
93	A method for correcting low permeability laboratory measurements for leaks: Theory, methodology and algorithms. <i>Journal of Natural Gas Science and Engineering</i> , 2018, 56, 608-618.	4.4	3
94	Comment on "Sensitivity of the active fracture model parameter to fracture network orientation and injection scenarios" paper published in <i>Hydrogeology Journal</i> (2009) 17:1347-1358, by Hakan BaÅYaÄYaoÄYlu, Sauro Succi, Chandrika Manepally, Randall Fedors, Danielle Y. Wyrick. <i>Hydrogeology Journal</i> , 2010, 18, 535-537.	2.1	2
95	Textural and Mineralogical Control on Tensile Strength of Eagle Ford and Manco Shales Samples. , 2016, , .		2
96	An Experimental Study on Interactions between Imbibed Fracturing Fluid and Organic-Rich Tight Carbonate Source Rocks. , 2017, , .		2
97	Multiscale Experimental Studies on Interactions Between Aqueous-Based Fracturing Fluids and Tight Organic-Rich Carbonate Source Rocks. <i>SPE Reservoir Evaluation and Engineering</i> , 2019, 22, 402-417.	1.8	2
98	Is water saturation a fracability indicator for organic-rich, yet low-clay content, tight carbonate source rock reservoirs?. <i>Canadian Journal of Chemical Engineering</i> , 2022, 100, 1202-1213.	1.7	2
99	Generalization of the Darcy-Buckingham Law: Optimality and Water Flow in Unsaturated Media. <i>Theory and Applications of Transport in Porous Media</i> , 2017, , 45-102.	0.4	1
100	An Innovative Laboratory Method To Measure Pore-Pressure-Dependent Gas Permeability of Shale: Theory and Numerical Experiments. <i>SPE Reservoir Evaluation and Engineering</i> , 2019, 22, 326-335.	1.8	1
101	Determination of Unsaturated Flow Paths in a 2-D Randomly Distributed Fracture Network. , 2003, , 131.		0
102	An Emergent Conductivity Relationship for Water Flow Based on Minimized Energy Dissipation. <i>Geophysical Monograph Series</i> , 2015, , 129-136.	0.1	0
103	Two-Part Hooke Model (TPHM): Theory, Validation and Applications. <i>Theory and Applications of Transport in Porous Media</i> , 2017, , 103-207.	0.4	0
104	Generalization of Darcy's Law: Non-Darcian Liquid Flow in Low-Permeability Media. <i>Theory and Applications of Transport in Porous Media</i> , 2017, , 1-43.	0.4	0
105	Final Remarks: An "Unfinished" Book. <i>Theory and Applications of Transport in Porous Media</i> , 2017, , 225-226.	0.4	0
106	Addendum to "Liu H. H. (2011). A conductivity relationship for steady-state unsaturated flow processes under optimal flow conditions. <i>Vadose Zone Journal</i> , 10 (2), 736-740". <i>Vadose Zone Journal</i> , 2020, 19, e20067.	2.2	0
107	Coupling the Dual-Porosity Theory with a Modified Hoek-Brown Criterion on Wellbore Stability Analysis. , 2020, , .		0
108	Microscopic Scale Experimental Investigation into Fracturing Fluid Uptake Pathways for Tight Carbonate Source Rocks. , 2020, , .		0

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109	Development and Verification of an Enhanced Equation of State in TOUGH2. Journal of Verification, Validation and Uncertainty Quantification, 2021, 6, .	0.4	0
110	An Advanced Nano Permeameter: Transformation from Point by Point Method to the Direct Measurement of Permeability Pressure Function. , 2019, , .		0