Rainer Helmig

List of Publications by Year
in descending order

204 papers	6,437 citations	61984 43 h-index	95266 68 g-index
213 all docs	213 docs citations	213 times ranked	3993 citing authors

#	Article	IF	Citations
1	Multiphase Flow and Transport Processes in the Subsurface. , 1997, , .		486
2	A benchmark study on problems related to CO2 storage in geologic formations. Computational Geosciences, 2009, 13, 409-434.	2.4	348
3	DuMux: DUNE for multi-{phase,component,scale,physics,â€¦} flow and transport in porous media. Advances in Water Resources, 2011, 34, 1102-1112.	3.8	258
4	A mixed-dimensional finite volume method for two-phase flow in fractured porous media. Advances in Water Resources, 2006, 29, 1020-1036.	3.8	225
5	Numerical simulation of biodegradation controlled by transverse mixing. Journal of Contaminant Hydrology, 1999, 40, 159-182.	3.3	189
6	Numerical simulation of non-isothermal multiphase multicomponent processes in porous media.. Advances in Water Resources, 2002, 25, 533-550.	3.8	157
7	Investigations on CO2 storage capacity in saline aquifers. International Journal of Greenhouse Gas Control, 2009, 3, 263-276.	4.6	124
8	Black-Oil Simulations for Three-Component, Three-Phase Flow in Fractured Porous Media. SPE Journal, 2009, 14, 338-354.	3.1	121
9	Hydraulic fracturing in unconventional gas reservoirs: risks in the geological system, part 2. Environmental Earth Sciences, 2013, 70, 3855-3873.	2.7	112
10	A coupling concept for twoâ€phase compositional porousâ€medium and singleâ€phase compositional free flow. Water Resources Research, 2011, 47, .	4.2	108
11	Darcyâ€scale modeling of microbially induced carbonate mineral precipitation in sand columns. Water Resources Research, 2012, 48, .	4.2	96
12	Investigations on CO2 storage capacity in saline aquifersâ€”Part 2: Estimation of storage capacity coefficients. International Journal of Greenhouse Gas Control, 2009, 3, 277-287.	4.6	93
13	A concept for data-driven uncertainty quantification and its application to carbon dioxide storage in geological formations. Advances in Water Resources, 2011, 34, 1508-1518.	3.8	92
14	CO2 leakage through an abandoned well: problem-oriented benchmarks. Computational Geosciences, 2007, 11, 103-115.	2.4	90
15	Streamline-oriented grid generation for transport modelling in two-dimensional domains including wells. Advances in Water Resources, 1999, 22, 697-710.	3.8	88
16	Efficient fully-coupled solution techniques for two-phase flow in porous media. Advances in Water Resources, 1999, 23, 199-216.	3.8	88
17	Dimensionally reduced flow models in fractured porous media: crossings and boundaries. Computational Geosciences, 2015, 19, 1219-1230.	2.4	82
18	A revised model for microbially induced calcite precipitation: Improvements and new insights based on recent experiments. Water Resources Research, 2015, 51, 3695-3715.	4.2	75

#	Article	IF	Citations
19	A discrete fracture model for two-phase flow in fractured porous media. Advances in Water Resources, 2017, 110, 335-348.	3.8	74
20	Title is missing!. Annals of Software Engineering, 2000, 4, 141-164.	0.5	72
21	Comparison of Galerkin-type discretization techniques for two-phase flow in heterogeneous porous media. Advances in Water Resources, 1998, 21, 697-711.	3.8	70
22	Modeling Concentration Distribution and Deformation During Convection-Enhanced Drug Delivery into Brain Tissue. Transport in Porous Media, 2012, 92, 119-143.	2.6	70
23	Multiphase flow in heterogeneous porous media: A classical finite element method versus an implicit pressure-explicit saturation-based mixed finite element-finite volume approach. International Journal for Numerical Methods in Fluids, 1999, 29, 899-920.	1.6	69
24	An integrative approach to robust design and probabilistic risk assessment for CO2 storage in geological formations. Computational Geosciences, 2011, 15, 565-577.	2.4	68
25	Heat and water transport in soils and across the soilâ€atmosphere interface: 1. Theory and different model concepts. Water Resources Research, 2017, 53, 1057-1079.	4.2	67
26	A new approach for phase transitions in miscible multi-phase flow in porous media. Advances in Water Resources, 2011, 34, 957-966.	3.8	66
27	Uncertainty evaluation of mass discharge estimates from a contaminated site using a fully Bayesian framework. Water Resources Research, 2010, 46, .	4.2	62
28	Free-Flowâ€“Porous-Media Coupling for Evaporation-Driven Transport and Precipitation of Salt in Soil. Transport in Porous Media, 2015, 110, 251-280.	2.6	62
29	Modelling biofilm growth in the presence of carbon dioxide and water flow in the subsurface. Advances in Water Resources, 2010, 33, 762-781.	3.8	61
30	Macro-Scale Dynamic Effects in Homogeneous and Heterogeneous Porous Media. Transport in Porous Media, 2005, 58, 121-145.	2.6	60
31	Non-isothermal, multi-phase, multi-component flows through deformable methane hydrate reservoirs. Computational Geosciences, 2015, 19, 1063-1088.	2.4	60
32	Numerical methods for reactive transport on rectangular and streamline-oriented grids. Advances in Water Resources, 1999, 22, 711-728.	3.8	59
33	Modeling non-isothermal two-phase multicomponent flow in the cathode of PEM fuel cells. Journal of Power Sources, 2006, 159, 1123-1141.	7.8	59
34	Hydraulic fracturing in unconventional gas reservoirs: risks in the geological system part 1. Environmental Earth Sciences, 2013, 70, 3839-3853.	2.7	56
35	Dynamic capillary effects in heterogeneous porous media. Computational Geosciences, 2007, 11, 261-274.	2.4	54
36	Modeling and analysis of evaporation processes from porous media on the REV scale. Water Resources Research, 2014, 50, 1059-1079.	4.2	54

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37	Development of Open-Source Porous Media Simulators: Principles and Experiences. Transport in Porous Media, 2019, 130, 337-361.	2.6	53
38	Comparison of cell- and vertex-centered discretization methods for flow in a two-dimensional discrete-fractureâ€“matrix system. Advances in Water Resources, 2009, 32, 1740-1755.	3.8	50
39	An upscaled model for biofilm growth in a thin strip. Water Resources Research, 2010, 46, .	4.2	49
40	Model coupling for multiphase flow in porous media. Advances in Water Resources, 2013, 51, 52-66.	3.8	49
41	Lattice Boltzmann methods in porous media simulations: From laminar to turbulent flow. Computers and Fluids, 2016, 140, 247-259.	2.5	48
42	A contribution to risk analysis for leakage through abandoned wells in geological CO2 storage. Advances in Water Resources, 2010, 33, 867-879.	3.8	46
43	Dimensional analysis of two-phase flow including a rate-dependent capillary pressureâ€“saturation relationship. Advances in Water Resources, 2008, 31, 1137-1150.	3.8	45
44	Monotone nonlinear finiteâ€volume method for nonisothermal twoâ€phase twoâ€component flow in porous media. International Journal for Numerical Methods in Fluids, 2017, 84, 352-381.	1.6	45
45	Water Table Depth and Soil Salinization: From Poreâ€Scale Processes to Fieldâ€Scale Responses. Water Resources Research, 2020, 56, e2019WR026707.	4.2	45
46	A Coupled Discrete/Continuum Model for Describing Cancer-Therapeutic Transport in the Lung. PLoS ONE, 2012, 7, e31966.	2.5	43
47	Multi-scale modeling of three-phaseâ€“three-component processes in heterogeneous porous media. Advances in Water Resources, 2007, 30, 2309-2325.	3.8	42
48	Numerical scheme for coupling two-phase compositional porous-media flow and one-phase compositional free flow. IMA Journal of Applied Mathematics, 2012, 77, 887-909.	1.6	42
49	Numerical simulation of non-isothermal multiphase multicomponent processes in porous media.. Advances in Water Resources, 2002, 25, 551-564.	3.8	39
50	Microscopic velocity field measurements inside a regular porous medium adjacent to a low Reynolds number channel flow. Physics of Fluids, 2019, 31, .	4.0	39
51	Interface condition and linearization schemes in the Newton iterations for two-phase flow in heterogeneous porous media. Advances in Water Resources, 2005, 28, 671-687.	3.8	37
52	Macro-scale effective constitutive relationships for two-phase flow processes in heterogeneous porous media with emphasis on the relative permeabilityâ€“saturation relationship. Journal of Contaminant Hydrology, 2005, 76, 47-85.	3.3	37
53	Heat and water transport in soils and across the soilâ€atmosphere interface: 2. Numerical analysis. Water Resources Research, 2017, 53, 1080-1100.	4.2	37
54	A New Simulation Framework for Soilâ€“Root Interaction, Evaporation, Root Growth, and Solute Transport. Vadose Zone Journal, 2018, 17, 1-21.	2.2	37

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55	Influence of soil structure and root water uptake strategy on unsaturated flow in heterogeneous media. Water Resources Research, 2012, 48, .	4.2	36
56	Multirate time integration for coupled saturated/unsaturated porous medium and free flow systems. Computational Geosciences, 2015, 19, 299-309.	2.4	35
57	Probabilistic exposure risk assessment with advectiveâ€“dispersive well vulnerability criteria. Advances in Water Resources, 2012, 36, 121-132.	3.8	33
58	Thermodynamically constrained averaging theory approach for modeling flow and transport phenomena in porous medium systems: 9. Transition region models. Advances in Water Resources, 2012, 42, 71-90.	3.8	33
59	Effective equations for two-phase flow in porous media: the effect of trapping on the microscale. Transport in Porous Media, 2007, 69, 411-428.	2.6	32
60	Drainage in heterogeneous sand columns with different geometric structures. Advances in Water Resources, 2008, 31, 1205-1220.	3.8	32
61	Hybrid Models for Simulating Blood Flow in Microvascular Networks. Multiscale Modeling and Simulation, 2019, 17, 1076-1102.	1.6	31
62	Numerical Simulation of Multiphase Flow in Fractured Porous Media. , 2000, , 50-68.		30
63	Comparison of conductivity averaging methods for one-dimensional unsaturated flow in layered soils. Advances in Water Resources, 2011, 34, 1012-1025.	3.8	30
64	Investigating the Influence of the Initial Biomass Distribution and Injection Strategies on Biofilm-Mediated Calcite Precipitation in Porous Media. Transport in Porous Media, 2016, 114, 557-579.	2.6	29
65	Testing a thermoâ€chemoâ€hydroâ€geomechanical model for gas hydrateâ€bearing sediments using triaxial compression laboratory experiments. Geochemistry, Geophysics, Geosystems, 2017, 18, 3419-3437.	2.5	28
66	Effect of Turbulence and Roughness on Coupled Porous-Medium/Free-Flow Exchange Processes. Transport in Porous Media, 2016, 114, 395-424.	2.6	27
67	Monotone nonlinear finite-volume method for challenging grids. Computational Geosciences, 2018, 22, 565-586.	2.4	27
68	Internal flow patterns of a droplet pinned to the hydrophobic surfaces of a confined microchannel using micro-PIV and VOF simulations. Chemical Engineering Journal, 2019, 370, 444-454.	12.7	27
69	Impact of groundwater flow on methane gas migration and retention in unconsolidated aquifers. Journal of Contaminant Hydrology, 2020, 230, 103619.	3.3	27
70	Non-equilibrium in multiphase multicomponent flow in porous media: An evaporation example. International Journal of Heat and Mass Transfer, 2014, 74, 128-142.	4.8	26
71	Multiscale formulation for coupled flow-heat equations arising from single-phase flow in fractured geothermal reservoirs. Computational Geosciences, 2018, 22, 1305-1322.	2.4	26
72	From the pore scale to the lab scale: 3-D lab experiment and numerical simulation of drainage in heterogeneous porous media. Advances in Water Resources, 2008, 31, 1253-1268.	3.8	25

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73	Comparison of finite-volume schemes for diffusion problems. Oil and Gas Science and Technology, 2018, 73, 82.	1.4	23
74	On the Beaversâ€“Joseph Interface Condition for Non-parallel Coupled Channel Flow over a Porous Structure at High Reynolds Numbers. Transport in Porous Media, 2019, 128, 431-457.	2.6	23
75	Efficient multiphysics modelling with adaptive grid refinement using a MPFA method. Computational Geosciences, 2014, 18, 625-636.	2.4	22
76	Numerical Simulation of Turbulent Flow and Heat Transfer in a Three-Dimensional Channel Coupled with Flow Through Porous Structures. Transport in Porous Media, 2018, 122, 145-167.	2.6	22
77	An efficient coupling of free flow and porous media flow using the pore-network modeling approach. Journal of Computational Physics: X, 2019, 1, 100011.	0.7	22
78	Kinetic Approach to Model Reactive Transport and Mixed Salt Precipitation in a Coupled Free-Flowâ€“Porous-Media System. Transport in Porous Media, 2016, 114, 341-369.	2.6	20
79	Numerical modelling of a peripheral arterial stenosis using dimensionally reduced models and kernel methods. International Journal for Numerical Methods in Biomedical Engineering, 2018, 34, e3095.	2.1	20
80	Two-Phase Flow in Heterogeneous Porous Media with Non-Wetting Phase Trapping. Transport in Porous Media, 2011, 86, 27-47.	2.6	19
81	Modeling Macroporous Soils with a Two-Phase Dual-Permeability Model. Transport in Porous Media, 2012, 95, 585-601.	2.6	19
82	Coupling staggered-grid and MPFA finite volume methods for free flow/porous-medium flow problems. Journal of Computational Physics, 2020, 401, 109012.	3.8	19
83	Influence of Radiation on Evaporation Rates: A Numerical Analysis. Water Resources Research, 2020, 56, e2020WR027332.	4.2	19
84	Modeling tissue perfusion in terms of 1d-3d embedded mixed-dimension coupled problems with distributed sources. Journal of Computational Physics, 2020, 410, 109370.	3.8	19
85	Variational inequalities for modeling flow in heterogeneous porous media with entry pressure. Computational Geosciences, 2009, 13, 373-389.	2.4	18
86	Poreâ€scale determination of parameters for macroscale modeling of evaporation processes in porous media. Water Resources Research, 2011, 47, .	4.2	18
87	Modeling drop dynamics at the interface between free and porous-medium flow using the mortar method. International Journal of Heat and Mass Transfer, 2016, 99, 660-671.	4.8	18
88	Multi-rate time stepping schemes for hydro-geomechanical model for subsurface methane hydrate reservoirs. Advances in Water Resources, 2016, 91, 78-87.	3.8	18
89	A hybrid-dimensional discrete fracture model for non-isothermal two-phase flow in fractured porous media. GEM - International Journal on Geomathematics, 2019, 10, 1.	1.6	18
90	Multiphase Processes in Porous Media. , 2006, , 45-82.		18

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91	Dimensional analysis and upscaling of two-phase flow in porous media with piecewise constant heterogeneities. Advances in Water Resources, 2004, 27, 1033-1040.	3.8	17
92	Upscaling of Two-Phase Flow Processes in Porous Media. , 2005, , 237-257.		17
93	Estimation of effective parameters for a two-phase flow problem in non-Gaussian heterogeneous porous media. Journal of Contaminant Hydrology, 2011, 120-121, 141-156.	3.3	17
94	Reduced oneâ€dimensional modelling and numerical simulation for mass transport in fluids. International Journal for Numerical Methods in Fluids, 2013, 72, 135-156.	1.6	17
95	Geometrical interpretation of the multiâ€point flux approximation Lâ€method. International Journal for Numerical Methods in Fluids, 2009, 60, 1173-1199.	1.6	16
96	Numerical Investigation of Microbially Induced Calcite Precipitation as a Leakage Mitigation Technology. Energy Procedia, 2013, 40, 392-397.	1.8	16
97	A (Dual) Network Model for Heat Transfer in Porous Media. Transport in Porous Media, 2021, 140, 107-141.	2.6	16
98	The Role of Mixed Convection and Hydrodynamic Dispersion During CO₂ Dissolution in Saline Aquifers: A Numerical Study. Water Resources Research, 2022, 58, .	4.2	16
99	Novel approach for modeling kinetic interface-sensitive (KIS) tracers with respect to time-dependent interfacial area change for the optimization of supercritical carbon dioxide injection into deep saline aquifers. International Journal of Greenhouse Gas Control, 2015, 33, 145-153.	4.6	15
100	Transport of Turbulence Across Permeable Interface in a Turbulent Channel Flow: Interface-Resolved Direct Numerical Simulation. Transport in Porous Media, 2021, 136, 165-189.	2.6	15
101	Upscaling unsaturated flow in binary porous media with air entry pressure effects. Water Resources Research, 2012, 48, .	4.2	13
102	An adaptive multiscale approach for modeling two-phase flow in porous media including capillary pressure. Water Resources Research, 2013, 49, 8139-8159.	4.2	13
103	Finding a Balance between Accuracy and Effort For Modeling Biomineralization. Energy Procedia, 2016, 97, 379-386.	1.8	13
104	Heat release at the wetting front during capillary filling of cellulosic micro-substrates. Journal of Colloid and Interface Science, 2017, 504, 751-757.	9.4	13
105	Stable Propagation of Saturation Overshoots for Two-Phase Flow in Porous Media. Transport in Porous Media, 2018, 121, 621-641.	2.6	13
106	Experimental and Numerical Study of Evaporation From Wavy Surfaces by Coupling Free Flow and Porous Media Flow. Water Resources Research, 2018, 54, 9096-9117.	4.2	13
107	Simultaneous thermal and optical imaging of two-phase flow in a micro-model. Lab on A Chip, 2014, 14, 2515.	6.0	12
108	Drying of a tape-cast layer: Numerical modelling of the evaporation process in a graded/layered material. International Journal of Heat and Mass Transfer, 2016, 103, 1144-1154.	4.8	12

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109	On multicomponent gas diffusion and coupling concepts for porous media and free flow: a benchmark study. Computational Geosciences, 2021, 25, 1493-1507.	2.4	12
110	Conditional statistical inverse modeling in groundwater flow by multigrid methods. Annals of Software Engineering, 1999, 3, 49-68.	0.5	11
111	Sequential Coupling of Models for Contaminant Spreading in the Vadose Zone. Vadose Zone Journal, 2008, 7, 721-731.	2.2	11
112	Estimation of CO2 storage capacity coefficients in geologic formations. Energy Procedia, 2009, 1, 2863-2870.	1.8	11
113	Numerical modeling of two-phase hysteresis combined with an interface condition for heterogeneous porous media. Computational Geosciences, 2010, 14, 273-287.	2.4	11
114	Methods for predicting the spreading of steam below the water table during subsurface remediation. Water Resources Research, 2010, 46, .	4.2	11
115	Modeling gasâ€water processes in fractures with fracture flow properties obtained through upscaling. Water Resources Research, 2010, 46, .	4.2	11
116	Multi-physics modeling of non-isothermal compositional flow on adaptive grids. Computer Methods in Applied Mechanics and Engineering, 2015, 292, 16-34.	6.6	11
117	A numerical modeling study on the influence of porosity changes during thermochemical heat storage. Applied Energy, 2020, 259, 114152.	10.1	11
118	Fronts in twoâ€phase porous media flow problems: The effects of hysteresis and dynamic capillarity. Studies in Applied Mathematics, 2020, 144, 449-492.	2.4	11
119	Macro-Scale Dynamic Effects in Homogeneous and Heterogeneous Porous Media. , 2005, , 121-145.		11
120	Heterogeneity Effects on Evaporation-Induced Halite and Gypsum Co-precipitation in Porous Media. Transport in Porous Media, 2017, 118, 39-64.	2.6	10
121	The Complexity of Porous Media Flow Characterized in a Microfluidic Model Based on Confocal Laser Scanning Microscopy and Micro-PIV. Transport in Porous Media, 2021, 136, 343-367.	2.6	10
122	Prediction of soil evaporation measured with weighable lysimeters using the FAO Penmanâ€“Monteith method in combination with Richardsâ€™ equation. Vadose Zone Journal, 2021, 20, e20102.	2.2	10
123	A Dynamic and Fully Implicit Nonâ€Isothermal, Twoâ€Phase, Twoâ€Component Poreâ€Network Model Coupled to Singleâ€Phase Free Flow for the Poreâ€Scale Description of Evaporation Processes. Water Resources Research, 2021, 57, e2020WR028772.	4.2	10
124	Modeling Subsurface Hydrogen Storage With Transport Properties From Entropy Scaling Using the PCâ€SAFT Equation of State. Water Resources Research, 2022, 58, .	4.2	10
125	Heat transport in the unsaturated zone â€“ comparison of experimental results and numerical simulations. Journal of Hydraulic Research/De Recherches Hydrauliques, 1998, 36, 933-962.	1.7	9
126	Equidimensional modelling of flow and transport processes in fractured porous systems I. Developments in Water Science, 2002, 47, 335-342.	0.1	9

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127	Equidimensional modelling of flow and transport processes in fractured porous systems II. Developments in Water Science, 2002, 47, 343-350.	0.1	9
128	EfficientModeling of Flow and Transport in Porous Media Using Multiphysics andMultiscale Approaches. , 2010, , 417-457.		9
129	ViPLab: a virtual programming laboratory for mathematics and engineering. Interactive Technology and Smart Education, 2012, 9, 246-262.	5.6	9
130	Debatesâ€"Hypothesis testing in hydrology: A subsurface perspective. Water Resources Research, 2017, 53, 1784-1791.	4.2	9
131	An Adaptive Multiphysics Model Coupling Vertical Equilibrium and Full Multidimensions for Multiphase Flow in Porous Media. Water Resources Research, 2018, 54, 4347-4360.	4.2	9
132	Multi-scale three-domain approach for coupling free flow and flow in porous media including droplet-related interface processes. Journal of Computational Physics, 2021, 429, 109993.	3.8	9
133	A fully implicit coupled pore-network/free-flow model for the pore-scale simulation of drying processes. Drying Technology, 2022, 40, 697-718.	3.1	9
134	Sequential Model Coupling for Feasibility Studies of CO2Storage in Deep Saline Aquifers. Oil and Gas Science and Technology, 2011, 66, 93-103.	1.4	9
135	Permanent Fronts in Two-Phase Flows in a Porous Medium. Transport in Porous Media, 2001, 44, 507-537.	2.6	8
136	Dynamic capillary pressure effects in two-phase flow through heterogeneous porous media. Developments in Water Science, 2004, 55, 631-644.	0.1	8
137	Multi-scale modelling of two-phaseâ€"two-component processes in heterogeneous porous media. Numerical Linear Algebra With Applications, 2006, 13, 699-715.	1.6	8
138	A model for multiphase flow and transport in porous media including a phenomenological approach to account for deformationâ€"a model concept and its validation within a code intercomparison study. Computational Geosciences, 2009, 13, 281-300.	2.4	8
139	Simulation of Infiltration Processes in the Unsaturated Zone Using a Multiscale Approach. Vadose Zone Journal, 2012, 11, vzj2011.0193.	2.2	8
140	An Approach Towards a FEP-based Model for Risk Assessment for Hydraulic Fracturing Operations. Energy Procedia, 2016, 97, 387-394.	1.8	8
141	Development of an experimental approach to study coupled soilâ€plantâ€atmosphere processes using plant analogs. Water Resources Research, 2017, 53, 3319-3340.	4.2	8
142	A Pseudoâ€Vertical Equilibrium Model for Slow Gravity Drainage Dynamics. Water Resources Research, 2017, 53, 10491-10507.	4.2	8
143	Gas Component Transport Across the Soilâ€Atmosphere Interface for Gases of Different Density: Experiments and Modeling. Water Resources Research, 2020, 56, e2020WR027600.	4.2	8
144	A Hybrid-Dimensional Coupled Pore-Network/Free-Flow Model Including Pore-Scale Slip and Its Application to a Micromodel Experiment. Transport in Porous Media, 2020, 135, 243-270.	2.6	8

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145	Recent advances in finite element methods for multi-phase flow processes in porous media. International Journal of Computational Fluid Dynamics, 2006, 20, 245-252.	1.2	7
146	Black-Oil Simulations for Three-Component â€“ Three-Phase Flow in Fractured Porous Media. , 2007, , .		7
147	TRANSPIRATION COOLING WITH LOCAL THERMAL NONEQUILIBRIUM: MODEL COMPARISON IN MULTIPHASE FLOW IN POROUS MEDIA. Journal of Porous Media, 2016, 19, 131-153.	1.9	7
148	Numerical modeling of compensation mechanisms for peripheral arterial stenoses. Computers in Biology and Medicine, 2016, 70, 190-201.	7.0	7
149	Drying of a tape-cast layer: Numerical investigation of influencing parameters. International Journal of Heat and Mass Transfer, 2017, 108, 2229-2238.	4.8	7
150	A multiscale subvoxel perfusion model to estimate diffusive capillary wall conductivity in multiple sclerosis lesions from perfusion MRI data. International Journal for Numerical Methods in Biomedical Engineering, 2020, 36, e3298.	2.1	7
151	Development of a simulationâ€“optimization model for multiphase systems in the subsurface: a challenge to real-world simulationâ€“optimization. Journal of Hydroinformatics, 2008, 10, 139-152.	2.4	6
152	Obstacles, Interfacial Forms, and Turbulence: A Numerical Analysis of Soilâ€“Water Evaporation Across Different Interfaces. Transport in Porous Media, 2020, 134, 275-301.	2.6	6
153	Comparison of Approaches for the Coupling of Chemistry to Transport in Groundwater Systems. Notes on Numerical Fluid Mechanics, 1997, , 102-120.	0.1	6
154	Forward and Inverse Problems in Modeling of Multiphase Flow and Transport Through Porous Media. Computational Geosciences, 2004, 8, 21-47.	2.4	5
155	Multi-physics modeling of flow and transport in porous media using a downscaling approach. Advances in Water Resources, 2009, 32, 845-850.	3.8	5
156	Influence of heterogeneous air entry pressure on large scale unsaturated flow in porous media. Acta Geophysica, 2014, 62, 1179-1191.	2.0	5
157	Chemical osmosis in two-phase flow and salinity-dependent capillary pressures in rocks with microporosity. Water Resources Research, 2014, 50, 763-789.	4.2	5
158	Experimental and Numerical Analysis of Air Trapping in a Porous Medium with Coarse Textured Inclusions. Acta Geophysica, 2016, 64, 2487-2509.	2.0	5
159	Simulation of Surge Reduction Systems Using Dimensionally Reduced Models. Journal of Hydraulic Engineering, 2019, 145, .	1.5	5
160	Multiphase Flow and Transport Modeling in Heterogeneous Porous Media. Mathematics in Industry, 2006, , 449-488.	0.3	5
161	Multipoint flux approximation L-method in 3D: numerical convergence and application to two-phase flow through porous media. , 2013, , 39-80.		5
162	Evaporation-Driven Density Instabilities in Saturated Porous Media. Transport in Porous Media, 2022, 143, 297-341.	2.6	5

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163	Experimental and Numerical Studies of Saturation Overshoot during Infiltration into a Dry Soil. Vadose Zone Journal, 2019, 18, 1-13.	2.2	4
164	Modeling of Evaporation-Driven Multiple Salt Precipitation in Porous Media with a Real Field Application. Geosciences (Switzerland), 2020, 10, 395.	2.2	4
165	A new and consistent well model for one-phase flow in anisotropic porous media using a distributed source model. Journal of Computational Physics, 2020, 410, 109369.	3.8	4
166	Simulation and Interpretation of Multiphase Processes in Porous and Fractured-Porous Media. Water Science and Technology Library, 1994, , 941-949.	0.3	4
167	Efficient Modeling of Flow and Transport in Porous Media Using Multi-physics and Multi-scale Approaches. , 2015, , 703-749.		4
168	An Adaptive Hybrid Vertical Equilibrium/Fullâ€Dimensional Model for Compositional Multiphase Flow. Water Resources Research, 2022, 58, .	4.2	4
169	A model for transport of hydrogen sulfide in oil- and water-saturated porous media. Computing and Visualization in Science, 2010, 13, 265-273.	1.2	3
170	Convergence of the multipoint flux approximation Lâ€method for homogeneous media on uniform grids. Numerical Methods for Partial Differential Equations, 2011, 27, 329-350.	3.6	3
171	Modeling two-phase flow in a micro-model with local thermal non-equilibrium on the Darcy scale. International Journal of Heat and Mass Transfer, 2015, 88, 822-835.	4.8	3
172	Upscaled equations for two-phase flow in highly heterogeneous porous media: Varying permeability and porosity. Advances in Water Resources, 2020, 145, 103716.	3.8	3
173	Numerical Simulation of Freshwater, Salt Water and Methane Interaction Processes in a Coastal Aquifer. The IMA Volumes in Mathematics and Its Applications, 2002, , 263-281.	0.5	3
174	Interface condition and exact linearization in the newton iterations for two-phase flow in heterogeneous porous media. Developments in Water Science, 2004, 55, 597-608.	0.1	2
175	A two-scale operator-splitting method for two-phase flow in porous media. Advances in Water Resources, 2011, 34, 1581-1596.	3.8	2
176	A study on pressure evolution in a channel system during CO2 injection. Energy Procedia, 2011, 4, 3722-3729.	1.8	2
177	Streamline method for resolving sharp fronts for complex two-phase flow in porous media. Computational Geosciences, 2018, 22, 1487-1502.	2.4	2
178	Explicit continuum scale modeling of low-salinity mechanisms. Journal of Petroleum Science and Engineering, 2021, 199, 108336.	4.2	2
179	Comparison of cell- and vertex-centered finite-volume schemes for flow in fractured porous media. Journal of Computational Physics, 2022, 448, 110715.	3.8	2
180	A Multi-scale Model for Mass Transport in Arteries and Tissue. Lecture Notes in Computational Science and Engineering, 2015, , 197-213.	0.3	2

#	Article	IF	Citations
181	Frackit: a framework for stochastic fracture network generation and analysis. Journal of Open Source Software, 2020, 5, 2291.	4.6	2
182	Flux-Mortar Mixed Finite Element Methods on NonMatching Grids. SIAM Journal on Numerical Analysis, 2022, 60, 1193-1225.	2.3	2
183	Multiphase flow and transport modeling in heterogeneous porous media. Developments in Water Science, 2002, , 233-240.	0.1	1
184	Numerical Simulation of Multiphase Multicomponent Processes Considering Structural Alterations of Porous Media â„ƒ a Phenomenological Model. , 2007, , 127-134.		1
185	Numerical modelling of the flow in the resin infusion process on the REV scale: A feasibility study. AIP Conference Proceedings, 2016, , .	0.4	1
186	Impact of a Linear Array of Hydrophilic and Superhydrophobic Spheres on a Deep Water Pool. Colloids and Interfaces, 2019, 3, 29.	2.1	1
187	Determination of Vapor and Momentum Roughness Lengths Above an Undulating Soil Surface Based on PIVâ€Measured Velocity Profiles. Water Resources Research, 2021, 57, e2021WR029578.	4.2	1
188	Problems and Issues of Constitutive Relationships Needed for Accurate Modelling of Multiphase Flow in Heterogenous Porous Media. , 1996, , 245-264.		1
189	Modeling of Two Phase Flow in a Hydrophobic Porous Medium Interacting with a Hydrophilic Structure. Transport in Porous Media, 0, , .	2.6	1
190	Numerical modeling of multiphase flow and transport processes in cohesive soils and parameter identification strategies. Developments in Water Science, 2004, , 1305-1316.	0.1	0
191	Infiltration of DNAPL into heterogeneous water-saturated soil with different connectivity properties. Developments in Water Science, 2004, 55, 313-324.	0.1	0
192	A new concept for the numerical simulation and parameter identification of multiphase flow and transport processes in cohesive soils. , 2005, , 173-188.		0
193	Analysis of the Influence of Boundaries. , 2005, , 357-374.		0
194	ViPLab - A Virtual Programming Laboratory for Mathematics and Engineering. , 2011, , .		0
195	Efficient Modeling of Flow and Transport in Porous Media Using Multi-physics and Multi-scale Approaches. , 2013, , 1-43.		0
196	Editorial: Deformation and transport phenomena in porous media. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2014, 94, 559-559.	1.6	0
197	Numerical modelling of evaporation in a ceramic layer in the tape casting process. AIP Conference Proceedings, 2016, , .	0.4	0
198	Development of a Parallel FVM Based Groundwater Flow Model. Lecture Notes in Computational Science and Engineering, 2002, , 29-36.	0.3	0

#	Article	IF	Citations
199	Modeling of Heterogeneities for Twophase Flow in the Subsurface. Lecture Notes in Applied and Computational Mechanics, 2003, , 295-300.	2.2	0
200	Effective Two-Phase Flow Models Including Trapping Effects at the Micro Scale. Mathematics in Industry, 2008, , 333-339.	0.3	0
201	Transfer of Modelling Concepts for Flow and Transport Processes in Porous Media From Subsurface Systems to Biological Tissues. , 2008, , .		0
202	A Locally-Refined Locally-Conservative Quadtree Finite-Volume Staggered-Grid Scheme. Fluid Mechanics and Its Applications, 2020, , 149-159.	0.2	0
203	Upscaling of Coupled Free-Flow and Porous-Medium-Flow Processes. Fluid Mechanics and Its Applications, 2020, , 139-148.	0.2	0
204	Celebration of Professor Bernhard Weigand on his 60th birthday. International Journal of Heat and Mass Transfer, 2022, 188, 122626.	4.8	0