

Peyman Mostaghimi

List of Publications by Year in descending order

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119
papers

5,864
citations

81743

39
h-index

79541

73
g-index

119
all docs

119
docs citations

119
times ranked

3306
citing authors

#	ARTICLE	IF	CITATIONS
1	Pore-scale imaging and modelling. <i>Advances in Water Resources</i> , 2013, 51, 197-216.	1.7	1,407
2	Computations of Absolute Permeability on Micro-CT Images. <i>Mathematical Geosciences</i> , 2013, 45, 103-125.	1.4	338
3	Signature of Non-Fickian Solute Transport in Complex Heterogeneous Porous Media. <i>Physical Review Letters</i> , 2011, 107, 204502.	2.9	199
4	Predictions of non-Fickian solute transport in different classes of porous media using direct simulation on pore-scale images. <i>Physical Review E</i> , 2013, 87, 013011.	0.8	199
5	Porosity and permeability characterization of coal: a micro-computed tomography study. <i>International Journal of Coal Geology</i> , 2016, 154-155, 57-68.	1.9	182
6	Cleat-scale characterisation of coal: An overview. <i>Journal of Natural Gas Science and Engineering</i> , 2017, 39, 143-160.	2.1	131
7	Insights into non-Fickian solute transport in carbonates. <i>Water Resources Research</i> , 2013, 49, 2714-2728.	1.7	126
8	Coal cleat reconstruction using micro-computed tomography imaging. <i>Fuel</i> , 2016, 181, 286-299.	3.4	109
9	Simulation of Flow and Dispersion on Pore-Space Images. <i>SPE Journal</i> , 2012, 17, 1131-1141.	1.7	96
10	Deep learning in pore scale imaging and modeling. <i>Earth-Science Reviews</i> , 2021, 215, 103555.	4.0	90
11	Rough-walled discrete fracture network modelling for coal characterisation. <i>Fuel</i> , 2017, 191, 442-453.	3.4	88
12	Machine learning for predicting properties of porous media from 2d X-ray images. <i>Journal of Petroleum Science and Engineering</i> , 2020, 184, 106514.	2.1	83
13	High-resolution pore-scale simulation of dissolution in porous media. <i>Chemical Engineering Science</i> , 2017, 161, 360-369.	1.9	73
14	Impact of mineralogical heterogeneity on reactive transport modelling. <i>Computers and Geosciences</i> , 2017, 104, 12-19.	2.0	72
15	Enhancing Resolution of Digital Rock Images with Super Resolution Convolutional Neural Networks. <i>Journal of Petroleum Science and Engineering</i> , 2019, 182, 106261.	2.1	71
16	A microfluidic framework for studying relative permeability in coal. <i>International Journal of Coal Geology</i> , 2016, 159, 183-193.	1.9	70
17	Numerical Simulation of Reactive Transport on Micro-CT Images. <i>Mathematical Geosciences</i> , 2016, 48, 963-983.	1.4	67
18	Digital rock analysis for accurate prediction of fractured media permeability. <i>Journal of Hydrology</i> , 2017, 554, 817-826.	2.3	66

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19	In-situ hydrogen wettability characterisation for underground hydrogen storage. International Journal of Hydrogen Energy, 2022, 47, 13062-13075.	3.8	66
20	Reservoir Modeling for Flow Simulation by Use of Surfaces, Adaptive Unstructured Meshes, and an Overlapping-Control-Volume Finite-Element Method. SPE Reservoir Evaluation and Engineering, 2015, 18, 115-132.	1.1	64
21	Automated lithology classification from drill core images using convolutional neural networks. Journal of Petroleum Science and Engineering, 2021, 197, 107933.	2.1	62
22	Pore-scale simulation of dissolution-induced variations in rock mechanical properties. International Journal of Heat and Mass Transfer, 2017, 111, 842-851.	2.5	59
23	Characterisation of reactive transport in pore-scale correlated porous media. Chemical Engineering Science, 2017, 173, 121-130.	1.9	57
24	Boosting Resolution and Recovering Texture of 2D and 3D Micro-CT Images with Deep Learning. Water Resources Research, 2020, 56, e2019WR026052.	1.7	57
25	Deep neural networks for improving physical accuracy of 2D and 3D multi-mineral segmentation of rock micro-CT images. Applied Soft Computing Journal, 2021, 104, 107185.	4.1	57
26	Digital coal: Generation of fractured cores with microscale features. Fuel, 2017, 207, 93-101.	3.4	55
27	Digital Rock Segmentation for Petrophysical Analysis With Reduced User Bias Using Convolutional Neural Networks. Water Resources Research, 2020, 56, e2019WR026597.	1.7	55
28	Pore Scale Visualization of Low Salinity Water Flooding as an Enhanced Oil Recovery Method. Energy & Fuels, 2017, 31, 13133-13143.	2.5	51
29	Flow regimes during surfactant flooding: The influence of phase behaviour. Fuel, 2019, 236, 851-860.	3.4	51
30	Micro-CT image calibration to improve fracture aperture measurement. Case Studies in Nondestructive Testing and Evaluation, 2016, 6, 4-13.	1.7	50
31	Characterization of wetting using topological principles. Journal of Colloid and Interface Science, 2020, 578, 106-115.	5.0	45
32	Stochastic modeling of coal fracture network by direct use of micro-computed tomography images. International Journal of Coal Geology, 2017, 179, 153-163.	1.9	44
33	Coal permeability: Gas slippage linked to permeability rebound. Fuel, 2018, 215, 844-852.	3.4	44
34	Computations of permeability of large rock images by dual grid domain decomposition. Advances in Water Resources, 2019, 126, 1-14.	1.7	44
35	Microfluidics for Porous Systems: Fabrication, Microscopy and Applications. Transport in Porous Media, 2019, 130, 277-304.	1.2	43
36	Predictions of permeability, surface area and average dissolution rate during reactive transport in multi-mineral rocks. Journal of Petroleum Science and Engineering, 2018, 170, 130-138.	2.1	42

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37	Multiscale Characterization of Wettability in Porous Media. <i>Transport in Porous Media</i> , 2021, 140, 215-240.	1.2	42
38	Probing Effective Wetting in Subsurface Systems. <i>Geophysical Research Letters</i> , 2020, 47, no.	1.5	41
39	Functionalisation of Polydimethylsiloxane (PDMS)- Microfluidic Devices coated with Rock Minerals. <i>Scientific Reports</i> , 2018, 8, 15518.	1.6	40
40	Approximating Permeability of Microcomputed-Tomography Images Using Elliptic Flow Equations. <i>SPE Journal</i> , 2019, 24, 1154-1163.	1.7	40
41	Anisotropic Mesh Adaptivity and Control Volume Finite Element Methods for Numerical Simulation of Multiphase Flow in Porous Media. <i>Mathematical Geosciences</i> , 2015, 47, 417-440.	1.4	39
42	Linking continuum-scale state of wetting to pore-scale contact angles in porous media. <i>Journal of Colloid and Interface Science</i> , 2020, 561, 173-180.	5.0	37
43	Application of microfluidics in chemical enhanced oil recovery: A review. <i>Fuel</i> , 2022, 315, 123225.	3.4	37
44	An Innovative Application of Generative Adversarial Networks for Physically Accurate Rock Images With an Unprecedented Field of View. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL089029.	1.5	36
45	Local diffusion coefficient measurements in shale using dynamic micro-computed tomography. <i>Fuel</i> , 2017, 207, 312-322.	3.4	35
46	Impact of dissolution of syngenetic and epigenetic minerals on coal permeability. <i>Chemical Geology</i> , 2018, 486, 31-39.	1.4	35
47	Deep Learning Convolutional Neural Networks to Predict Porous Media Properties. , 2018, , .		34
48	Pore network extraction using geometrical domain decomposition. <i>Advances in Water Resources</i> , 2019, 123, 70-83.	1.7	33
49	Topological Characterization of Fractured Coal. <i>Journal of Geophysical Research: Solid Earth</i> , 2017, 122, 9849-9861.	1.4	32
50	The dynamic behaviour of coal relative permeability curves. <i>Fuel</i> , 2019, 253, 293-304.	3.4	31
51	Accelerated Computation of Relative Permeability by Coupled Morphological and Direct Multiphase Flow Simulation. <i>Journal of Computational Physics</i> , 2020, 401, 108966.	1.9	31
52	ML-LBM: Predicting and Accelerating Steady State Flow Simulation in Porous Media with Convolutional Neural Networks. <i>Transport in Porous Media</i> , 2021, 138, 49-75.	1.2	31
53	A Quantitative and Qualitative Comparison of Coarse-Grid-Generation Techniques for Modeling Fluid Displacement in Heterogeneous Porous Media. <i>SPE Reservoir Evaluation and Engineering</i> , 2010, 13, 24-36.	1.1	29
54	A control volume finite element method for adaptive mesh simulation of flow in heap leaching. <i>Journal of Engineering Mathematics</i> , 2014, 87, 111-121.	0.6	29

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55	On Representative Elementary Volumes of Grayscale Micro-CT Images of Porous Media. Geophysical Research Letters, 2020, 47, e2020GL088594.	1.5	28
56	A hybrid fracture-micropore network model for multiphysics gas flow in coal. Fuel, 2020, 281, 118687.	3.4	28
57	Flow-Based Characterization of Digital Rock Images Using Deep Learning. SPE Journal, 2021, 26, 1800-1811.	1.7	27
58	Coal-on-a-Chip: Visualizing Flow in Coal Fractures. Energy & Fuels, 2017, 31, 10393-10403.	2.5	27
59	Pore-scale modelling of CO ₂ storage in fractured coal. International Journal of Greenhouse Gas Control, 2017, 66, 246-253.	2.3	26
60	Oil mobilization and solubilization in porous media by in situ emulsification. Journal of Colloid and Interface Science, 2019, 554, 554-564.	5.0	26
61	Multiphase flow simulation through porous media with explicitly resolved fractures. Geofluids, 2015, 15, 592-607.	0.3	24
62	Time-Lapsed Visualization and Characterization of Shale Diffusion Properties Using 4D X-ray Microcomputed Tomography. Energy & Fuels, 2018, 32, 2889-2900.	2.5	23
63	Numerical simulation of fluid-fluid-solid reactions in porous media. International Journal of Heat and Mass Transfer, 2018, 120, 194-201.	2.5	23
64	Impact of Mineralization on Digital Coal Properties. Energy & Fuels, 2017, 31, 11558-11568.	2.5	22
65	High-pressure X-ray imaging to interpret coal permeability. Fuel, 2018, 226, 573-582.	3.4	22
66	Image-based fracture pipe network modelling for prediction of coal permeability. Fuel, 2020, 270, 117447.	3.4	22
67	Determination of Local Diffusion Coefficients and Their Directional Anisotropy in Shale, and Relations to Local Mineralogy and Organic Matter Content, From Dynamic Micro-CT Imaging and Microscopy. , 2017, , .		20
68	Rock Characterization Using Gray-Level Co-Occurrence Matrix: An Objective Perspective of Digital Rock Statistics. Water Resources Research, 2019, 55, 1912-1927.	1.7	20
69	Universal description of wetting on multiscale surfaces using integral geometry. Journal of Colloid and Interface Science, 2022, 608, 2330-2338.	5.0	20
70	Reservoir Modeling for Flow Simulation Using Surfaces, Adaptive Unstructured Meshes and Control-Volume-Finite-Element Methods. , 2013, , .		19
71	Adaptive Mesh Optimization for Simulation of Immiscible Viscous Fingering. SPE Journal, 2016, 21, 2250-2259.	1.7	19
72	Coupling of transient matrix diffusion and pore network models for gas flow in coal. Journal of Natural Gas Science and Engineering, 2021, 88, 103741.	2.1	19

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73	Review of Data Science Trends and Issues in Porous Media Research With a Focus on Image-Based Techniques. <i>Water Resources Research</i> , 2021, 57, e2020WR029472.	1.7	19
74	Coal ash content estimation using fuzzy curves and ensemble neural networks for well log analysis. <i>International Journal of Coal Geology</i> , 2017, 181, 11-22.	1.9	18
75	DigiCoal: A computational package for characterisation of coal cores. <i>Journal of Petroleum Science and Engineering</i> , 2019, 176, 775-791.	2.1	18
76	Viscous fingering in yield stress fluids: a numerical study. <i>Journal of Engineering Mathematics</i> , 2016, 97, 161-176.	0.6	17
77	Reactive transport modelling in dual porosity media. <i>Chemical Engineering Science</i> , 2018, 190, 436-442.	1.9	17
78	Voxel agglomeration for accelerated estimation of permeability from micro-CT images. <i>Journal of Petroleum Science and Engineering</i> , 2020, 184, 106577.	2.1	17
79	Analysis of gas diffusivity in coal using micro-computed tomography. <i>Fuel</i> , 2020, 261, 116384.	3.4	16
80	On the challenges of greyscale-based quantifications using X-ray computed microtomography. <i>Journal of Microscopy</i> , 2019, 275, 82-96.	0.8	15
81	Deep learning for full-feature X-ray microcomputed tomography segmentation of proton electron membrane fuel cells. <i>Computers and Chemical Engineering</i> , 2022, 161, 107768.	2.0	15
82	Automated Rock Quality Designation Using Convolutional Neural Networks. <i>Rock Mechanics and Rock Engineering</i> , 2022, 55, 3719-3734.	2.6	14
83	Deep Learning of Multiresolution X-Ray Micro-Computed-Tomography Images for Multiscale Modeling. <i>Physical Review Applied</i> , 2022, 17, .	1.5	14
84	Microscale insights into gas recovery from bright and dull bands in coal. <i>Journal of Petroleum Science and Engineering</i> , 2019, 172, 373-382.	2.1	13
85	CNN-PFVS: Integrating Neural Network and Finite Volume Models to Accelerate Flow Simulation on Pore Space Images. <i>Transport in Porous Media</i> , 2020, 135, 25-37.	1.2	13
86	Alkaline Surfactant Polymer Flooding: What Happens at the Pore Scale?. , 2017, , .		12
87	Generalizable Framework of Unpaired Domain Transfer and Deep Learning for the Processing of Real-Time Synchrotron-Based X-Ray Microcomputed Tomography Images of Complex Structures. <i>Physical Review Applied</i> , 2022, 17, .	1.5	12
88	Fast direct flow simulation in porous media by coupling with pore network and Laplace models. <i>Advances in Water Resources</i> , 2021, 150, 103883.	1.7	11
89	Geometrical-Based Generative Adversarial Network to Enhance Digital Rock Image Quality. <i>Physical Review Applied</i> , 2021, 15, .	1.5	11
90	Geochemical Modeling and Microfluidic Experiments To Analyze Impact of Clay Type and Cations on Low-Salinity Water Flooding. <i>Energy & Fuels</i> , 2019, 33, 2888-2896.	2.5	10

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91	Automatic fracture detection and characterization from unwrapped drill-core images using mask R� CNN. Journal of Petroleum Science and Engineering, 2022, 208, 109471.	2.1	10
92	Super-Resolved Segmentation of X-ray Images of Carbonate Rocks Using Deep Learning. Transport in Porous Media, 2022, 143, 497-525.	1.2	10
93	Deep convolutional neural network for 3D mineral identification and liberation analysis. Minerals Engineering, 2022, 183, 107592.	1.8	10
94	A Dynamic Mesh Approach for Simulation of Immiscible Viscous Fingering. , 2015, , .		9
95	Simulation of Flow and Dispersion on Pore-Space Images. , 2010, , .		8
96	X-Ray Micro-Computed Tomography Imaging for Coal Characterization. , 2015, , .		8
97	Multiscale characterization of shale diffusivity using time-lapsed X-ray computed tomography and pore-level simulations. Journal of Petroleum Science and Engineering, 2019, 182, 106271.	2.1	8
98	Enzyme Enhanced Oil Recovery EEOR: A Microfluidics Approach. , 2019, , .		7
99	Unsteady-State Coreflooding Monitored by Positron Emission Tomography and X-ray Computed Tomography. SPE Journal, 2020, 25, 242-252.	1.7	7
100	Coupling of pore network modelling and volume of fluid methods for multiphase flow in fractured media. Fuel, 2022, 319, 123563.	3.4	7
101	Hydrodynamics of fingering instability in the presence of a magnetic field. Fluid Dynamics Research, 2016, 48, 055504.	0.6	6
102	Pore Scale Characterisation of Coal: An Unconventional Challenge. , 2016, , .		6
103	Segmentation of X-Ray Images of Rocks Using Deep Learning. , 2020, , .		5
104	Correspondence of max-flow to the absolute permeability of porous systems. Physical Review Fluids, 2021, 6, .	1.0	5
105	Coupling of pipe network modelling and domain decomposition for flow in mineralised coal cores. International Journal of Coal Geology, 2021, 245, 103819.	1.9	5
106	Use of mesh adaptivity in simulation of flow in packed beds �� A case study. Minerals Engineering, 2014, 63, 157-163.	1.8	4
107	Automatic Fracture Identification using X-ray Images. ASEG Extended Abstracts, 2018, 2018, 1-2.	0.1	4
108	Real-time synchrotron-based X-ray computed microtomography during in situ emulsification. Journal of Petroleum Science and Engineering, 2020, 195, 107885.	2.1	4

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109	Computer vision and unsupervised machine learning for pore-scale structural analysis of fractured porous media. <i>Advances in Water Resources</i> , 2021, 147, 103801.	1.7	4
110	Prediction of local diffusion coefficient based on images of fractured coal cores. <i>Journal of Natural Gas Science and Engineering</i> , 2022, 100, 104427.	2.1	4
111	Minimising the impact of sub-resolution features on fluid flow simulation in porous media. <i>Journal of Petroleum Science and Engineering</i> , 2021, 207, 109055.	2.1	3
112	Investigating rock micro-structure of sandstones by pattern recognition on their X-ray images. <i>ASEG Extended Abstracts</i> , 2019, 2019, 1-3.	0.1	2
113	Dynamic X-ray micotomography of microfibrinous cellulose liquid foams using deep learning. <i>Chemical Engineering Science</i> , 2022, 248, 117173.	1.9	2
114	Inclusion of Microporosity in Numerical Simulation of Relative Permeability Curves. , 2022, , .		2
115	DigiCoal: A Numerical Toolbox for Fractured Coal Characterisation. , 2017, , .		1
116	Insights, Trends and Challenges Associated with Measuring Coal Relative Permeability. <i>E3S Web of Conferences</i> , 2019, 89, 01004.	0.2	1
117	Analysis of Diffusion Coefficient and Fracture Aperture in Coal using Micro-Computed Tomography Imaging. , 2018, , .		0
118	Deterministic Pipe Network Modelling for Fractured Rocks. , 2019, , .		0
119	Synchrotron-Based X-ray Micro-Computed Tomography for Real Time Investigation of Alkaline Surfactant Flooding. , 2019, , .		0