Sally M Benson

List of Publications by Year
in descending order

79 papers	5,950 citations	101543 36 h-index	82547 72 g-index
81 all docs	81 docs citations	81 times ranked	5600 citing authors

#	Article	IF	Citations
1	Net-zero emissions energy systems. Science, 2018, 360, .	12.6	1,165
2	Relative permeability and trapping of CO₂ and water in sandstone rocks at reservoir conditions. Water Resources Research, 2012, 48, .	4.2	444
3	Capillary trapping for geologic carbon dioxide storage â€“ From pore scale physics to field scale implications. International Journal of Greenhouse Gas Control, 2015, 40, 221-237.	4.6	329
4	An Experimental Study on the Influence of Sub-Core Scale Heterogeneities on CO2 Distribution in Reservoir Rocks. Transport in Porous Media, 2010, 82, 93-109.	2.6	296
5	Hydrogen or batteries for grid storage? A net energy analysis. Energy and Environmental Science, 2015, 8, 1938-1952.	30.8	278
6	Capillary pressure and heterogeneity for the CO2/water system in sandstone rocks at reservoir conditions. Advances in Water Resources, 2012, 38, 48-59.	3.8	248
7	On the importance of reducing the energetic and material demands of electrical energy storage. Energy and Environmental Science, 2013, 6, 1083.	30.8	212
8	Capillary heterogeneity trapping of CO₂ in a sandstone rock at reservoir conditions. Geophysical Research Letters, 2011, 38, .	4.0	204
9	Carbon Dioxide Capture and Storage: Issues and Prospects. Annual Review of Environment and Resources, 2014, 39, 243-270.	13.4	157
10	A shallow subsurface controlled release facility in Bozeman, Montana, USA, for testing near surface CO2 detection techniques and transport models. Environmental Earth Sciences, 2010, 60, 227-239.	2.7	146
11	Simultaneous determination of capillary pressure and relative permeability curves from core-flooding experiments with various fluid pairs. Water Resources Research, 2013, 49, 3516-3530.	4.2	145
12	The energetic implications of curtailing versus storing solar- and wind-generated electricity. Energy and Environmental Science, 2013, 6, 2804.	30.8	143
13	Core-scale experimental study of relative permeability properties of CO2 and brine in reservoir rocks. Energy Procedia, 2009, 1, 3515-3522.	1.8	135
14	Microtomography and Pore-Scale Modeling of Two-Phase Fluid Distribution. Transport in Porous Media, 2011, 86, 495-515.	2.6	103
15	Micromodel investigations of CO2 exsolution from carbonated water in sedimentary rocks. Advances in Water Resources, 2013, 53, 188-197.	3.8	89
16	Influence of small-scale heterogeneity on upward CO2Âplume migration in storage aquifers. Advances in Water Resources, 2015, 83, 389-404.	3.8	89
17	An Experimental Study of CO2 Exsolution and Relative Permeability Measurements During CO2 Saturated Water Depressurization. Transport in Porous Media, 2012, 91, 459-478.	2.6	82
18	Geospatial analysis of near-term potential for carbon-negative bioenergy in the United States. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 3290-3295.	7.1	82

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19	Hysteretic trapping and relative permeability of CO2 in sandstone at reservoir conditions. International Journal of Greenhouse Gas Control, 2014, 27, 15-27.	4.6	80
20	Can we afford storage? A dynamic net energy analysis of renewable electricity generation supported by energy storage. Energy and Environmental Science, 2014, 7, 1538.	30.8	69
21	A Procedure for the Accurate Determination of Sub-Core Scale Permeability Distributions with Error Quantification. Transport in Porous Media, 2013, 98, 565-588.	2.6	67
22	A better currency for investing in a sustainable future. Nature Climate Change, 2014, 4, 524-527.	18.8	63
23	Pore-scale capillary pressure analysis using multi-scale X-ray micromotography. Advances in Water Resources, 2017, 104, 223-241.	3.8	63
24	Tracking emissions in the US electricity system. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 25497-25502.	7.1	63
25	Accurate determination of characteristic relative permeability curves. Advances in Water Resources, 2015, 83, 376-388.	3.8	59
26	Experimental Investigation of Stress-Dependency of Relative Permeability in Rock Fractures. Transport in Porous Media, 2016, 113, 567-590.	2.6	59
27	Predicting CO2 residual trapping ability based on experimental petrophysical properties for different sandstone types. International Journal of Greenhouse Gas Control, 2019, 86, 158-176.	4.6	59
28	Numerical and analytical study of effects of small scale heterogeneity on CO2/brine multiphase flow system in horizontal corefloods. Advances in Water Resources, 2015, 79, 1-17.	3.8	57
29	Capillary pressure heterogeneity and hysteresis for the supercritical CO2/water system in a sandstone. Advances in Water Resources, 2017, 108, 277-292.	3.8	49
30	Heletz experimental site overview, characterization and data analysis for CO 2 injection and geological storage. International Journal of Greenhouse Gas Control, 2016, 48, 3-23.	4.6	47
31	Well blowout rates and consequences in California Oil and Gas District 4 from 1991 to 2005: implications for geological storage of carbon dioxide. Environmental Geology, 2009, 57, 1103-1123.	1.2	45
32	Towards a predictor for CO2 plume migration using deep neural networks. International Journal of Greenhouse Gas Control, 2021, 105, 103223.	4.6	44
33	Characterization and scaling of mesoscale heterogeneities in sandstones. Geophysical Research Letters, 2013, 40, 3903-3908.	4.0	43
34	Pore-scale modelling of Ostwald ripening. Journal of Fluid Mechanics, 2018, 835, 363-392.	3.4	43
35	A Model of Buoyancy-Driven Two-Phase Countercurrent Fluid Flow. Transport in Porous Media, 2009, 76, 449-469.	2.6	40
36	Macro-Energy Systems: Toward a New Discipline. Joule, 2019, 3, 2282-2286.	24.0	40

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37	Processâ€dependent residual trapping of CO₂ in sandstone. Geophysical Research Letters, 2014, 41, 2820-2826.	4.0	34
38	Measuring, imaging and modelling solute transport in a microporous limestone. Chemical Engineering Science, 2019, 196, 366-383.	3.8	34
39	City-scale decarbonization experiments with integrated energy systems. Energy and Environmental Science, 2019, 12, 1695-1707.	30.8	32
40	Quantifying solute spreading and mixing in reservoir rocks using 3-D PET imaging. Journal of Fluid Mechanics, 2016, 796, 558-587.	3.4	31
41	Characterization of heterogeneity in the Heletz sandstone from core to pore scale and quantification of its impact on multi-phase flow. International Journal of Greenhouse Gas Control, 2016, 48, 69-83.	4.6	31
42	Micro-positron emission tomography for measuring sub-core scale single and multiphase transport parameters in porous media. Advances in Water Resources, 2018, 115, 1-16.	3.8	31
43	Why 100% Renewable Energy Is Not Enough. Joule, 2019, 3, 1389-1393.	24.0	30
44	What is different about different net-zero carbon electricity systems?. Energy and Climate Change, 2021, 2, 100046.	4.4	28
45	Analytical Study of Effects of Flow Rate, Capillarity, and Gravity on CO2/Brine Multiphase-Flow System in Horizontal Corefloods. SPE Journal, 2013, 18, 708-720.	3.1	27
46	X-ray CT and multiphase flow characterization of a â€˜bio-groutedâ€™ sandstone core: The effect of dissolution on seal longevity. International Journal of Greenhouse Gas Control, 2017, 64, 152-162.	4.6	26
47	Identifying diagnostics for reservoir structure and CO2plume migration from multilevel pressure measurements. Water Resources Research, 2013, 49, 3462-3475.	4.2	24
48	Positron emission tomography in water resources and subsurface energy resources engineering research. Advances in Water Resources, 2019, 127, 39-52.	3.8	24
49	Evaluation of hydraulic controls for leakage intervention in carbon storage reservoirs. International Journal of Greenhouse Gas Control, 2016, 47, 86-100.	4.6	21
50	A continuum-scale representation of Ostwald ripening in heterogeneous porous media. Journal of Fluid Mechanics, 2020, 889, .	3.4	21
51	Extraction of pore-morphology and capillary pressure curves of porous media from synchrotron-based tomography data. Scientific Reports, 2015, 5, 10635.	3.3	20
52	Registration of the rotation axis in X-ray tomography. Journal of Synchrotron Radiation, 2015, 22, 452-457.	2.4	19
53	Seismic Wave Attenuation and Dispersion Due to Partial Fluid Saturation: Direct Measurements and Numerical Simulations Based on Xâ€Ray CT. Journal of Geophysical Research: Solid Earth, 2021, 126, e2021JB021643.	3.4	19
54	Spatial and Temporal Quantification of Spontaneous Imbibition. Geophysical Research Letters, 2019, 46, 11972-11982.	4.0	18

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55	Negative-emissions insurance. Science, 2014, 344, 1431-1431.	12.6	13
56	Commemorating Dr. Gudmundur â€œBoâ€•Bodvarsson (1951â€“2006), a Leader of the Deep Unsaturated Flow and Transport Investigations. Water (Switzerland), 2018, 10, 18.	2.7	13
57	Calculating Trajectories Associated With Solute Transport in a Heterogeneous Medium. Water Resources Research, 2018, 54, 6890-6908.	4.2	13
58	Using Unsupervised Machine Learning to Characterize Capillary Flow and Residual Trapping. Water Resources Research, 2020, 56, e2020WR027473.	4.2	12
59	An Experimental Investigation of Stress-Dependent Permeability and Permeability Hysteresis Behavior in Rock Fractures. Geophysical Monograph Series, 0, , 99-114.	0.1	9
60	Subcore Scale Fluid Flow Behavior in a Sandstone With Cataclastic Deformation Bands. Water Resources Research, 2020, 56, e2019WR026715.	4.2	9
61	Preferential Solute Transport in Low Permeability Zones During Spontaneous Imbibition in Heterogeneous Porous Media. Water Resources Research, 2022, 58, .	4.2	9
62	Threeâ€Đimensional Permeability Inversion Using Convolutional Neural Networks and Positron Emission Tomography. Water Resources Research, 2022, 58, .	4.2	9
63	The energetic implications of introducing lithium-ion batteries into distributed photovoltaic systems. Sustainable Energy and Fuels, 2019, 3, 1182-1190.	4.9	7
64	Carbon dioxide capture and sequestration. , 0, , 90-104.		6
65	Description of Chemical Transport in Laboratory Rock Cores Using the Continuous Random Walk Formalism. Water Resources Research, 2020, 56, e2020WR027511.	4.2	6
66	Reliability of Relative Permeability Measurements for Heterogeneous Rocks Using Horizontal Core Flood Experiments. Sustainability, 2021, 13, 2744.	3.2	6
67	Long-Term Redistribution of Residual Gas Due to Non-convective Transport in the Aqueous Phase. Transport in Porous Media, 2022, 141, 231-253.	2.6	6
68	Quantifying the Flow of Exergy and Carbon through the Natural and Human Systems. Materials Research Society Symposia Proceedings, 2009, 1170, 1.	0.1	4
69	Extreme capillary heterogeneities and in situ fluid compartmentalization due to clusters of deformation bands in sandstones. International Journal of Greenhouse Gas Control, 2021, 106, 103280.	4.6	4
70	Rightsizing expectations for bioenergy with carbon capture and storage toward ambitious climate goals. , 2019, , 63-84.		3
71	A physics-informed data reconciliation framework for real-time electricity and emissions tracking. Applied Energy, 2021, 304, 117761.	10.1	3
72	Coreflooding data on nine sandstone cores to measure CO2 residual trapping. Data in Brief, 2019, 25, 104249.	1.0	2

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73	Mass transfer between fluids as a mechanism for seismic wave attenuation: experimental evidence from waterâ€“CO2 saturated sandstones. Geophysical Journal International, 2022, 230, 216-234.	2.4	2
74	Sustainability and energy conversions. , 0, , 36-47.		1
75	Effect of Capillary Induced Flow on CO2 Residual Trapping. SSRN Electronic Journal, 0, , .	0.4	1
76	Multiâ€phase flow of CO 2 and brine in saline aquifers. , 2008, , .		1
77	Distributional health impacts of electricity imports in the United States. Environmental Research Letters, 2022, 17, 064011.	5.2	1
78	The Global Climate and Energy Project at Stanford University: Fundamental Research Towards Future Energy Technologies. Journal of Groundwater Hydrology, 2010, 52, 235-246.	0.1	0
79	Quantifying Hydrogeological Heterogeneity of Rocks using Core-Floods. World Scientific Series in Nanoscience and Nanotechnology, 2015, , 243-261.	0.1	0