

J William Carey

List of Publications by Year in descending order

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95
papers

5,878
citations

81900

39
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74163

75
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112
all docs

112
docs citations

112
times ranked

5016
citing authors

#	ARTICLE	IF	CITATIONS
1	Shale gas and non-aqueous fracturing fluids: Opportunities and challenges for supercritical CO ₂ . Applied Energy, 2015, 147, 500-509.	10.1	622
2	Analysis and performance of oil well cement with 30 years of CO ₂ exposure from the SACROC Unit, West Texas, USA. International Journal of Greenhouse Gas Control, 2007, 1, 75-85.	4.6	376
3	The Environmental Costs and Benefits of Fracking. Annual Review of Environment and Resources, 2014, 39, 327-362.	13.4	350
4	Magnesium sulphate salts and the history of water on Mars. Nature, 2004, 431, 663-665.	27.8	272
5	Wellbore integrity analysis of a natural CO ₂ producer. International Journal of Greenhouse Gas Control, 2010, 4, 186-197.	4.6	213
6	Geochemical effects of CO ₂ sequestration in sandstones under simulated in situ conditions of deep saline aquifers. Applied Geochemistry, 2008, 23, 2735-2745.	3.0	212
7	Recent advances in risk assessment and risk management of geologic CO ₂ storage. International Journal of Greenhouse Gas Control, 2015, 40, 292-311.	4.6	159
8	Experimental investigation of wellbore integrity and CO ₂ brine flow along the casing-cement microannulus. International Journal of Greenhouse Gas Control, 2010, 4, 272-282.	4.6	153
9	Review: Role of chemistry, mechanics, and transport on well integrity in CO ₂ storage environments. International Journal of Greenhouse Gas Control, 2016, 49, 149-160.	4.6	141
10	Development of a Hybrid Process and System Model for the Assessment of Wellbore Leakage at a Geologic CO ₂ Sequestration Site. Environmental Science & Technology, 2008, 42, 7280-7286.	10.0	137
11	The cross-scale science of CO ₂ capture and storage: from pore scale to regional scale. Energy and Environmental Science, 2012, 5, 7328.	30.8	132
12	Geochemical effects of CO ₂ sequestration on fractured wellbore cement at the cement/caprock interface. Chemical Geology, 2009, 265, 122-133.	3.3	128
13	Stability of hydrous minerals on the martian surface. Icarus, 2003, 164, 96-103.	2.5	123
14	Fracture-permeability behavior of shale. Journal of Unconventional Oil and Gas Resources, 2015, 11, 27-43.	3.5	117
15	Effectiveness of supercritical-CO ₂ and N ₂ huff-and-puff methods of enhanced oil recovery in shale fracture networks using microfluidic experiments. Applied Energy, 2018, 230, 160-174.	10.1	116
16	Geochemistry of Wellbore Integrity in CO ₂ Sequestration: Portland Cement-Steel-Brine-CO ₂ Interactions. Reviews in Mineralogy and Geochemistry, 2013, 77, 505-539.	4.8	112
17	Multicomponent interparticle-potential lattice Boltzmann model for fluids with large viscosity ratios. Physical Review E, 2012, 86, 036701.	2.1	102
18	Experimental Evaluation of Wellbore Integrity Along the Cement-rock Boundary. Environmental Science & Technology, 2013, 47, 276-282.	10.0	93

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19	Understanding hydraulic fracturing: a multi-scale problem. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150426.	3.4	92
20	Pre-site Characterization Risk Analysis for Commercial-Scale Carbon Sequestration. Environmental Science & Technology, 2014, 48, 3908-3915.	10.0	90
21	Geo-material microfluidics at reservoir conditions for subsurface energy resource applications. Lab on A Chip, 2015, 15, 4044-4053.	6.0	87
22	Effect of bicarbonate on corrosion of carbon steel in CO ₂ saturated brines. International Journal of Greenhouse Gas Control, 2011, 5, 1680-1683.	4.6	82
23	Thermodynamics of Cationic Surfactant Sorption onto Natural Clinoptilolite. Journal of Colloid and Interface Science, 1998, 206, 369-380.	9.4	78
24	Thermal Behavior of Natural Zeolites. Reviews in Mineralogy and Geochemistry, 2001, 45, 403-452.	4.8	77
25	Effect of sodium chloride on corrosion of mild steel in CO ₂ -saturated brines. Journal of Applied Electrochemistry, 2011, 41, 741-749.	2.9	71
26	Exploring capillary trapping efficiency as a function of interfacial tension, viscosity, and flow rate. Energy Procedia, 2011, 4, 4945-4952.	1.8	67
27	Hydrated states of MgSO ₄ at equatorial latitudes on Mars. Geophysical Research Letters, 2004, 31, .	4.0	65
28	From Fluid Flow to Coupled Processes in Fractured Rock: Recent Advances and New Frontiers. Reviews of Geophysics, 2022, 60, e2021RG000744.	23.0	61
29	CO ₂ leakage impacts on shallow groundwater: Field-scale reactive-transport simulations informed by observations at a natural analog site. Applied Geochemistry, 2013, 30, 136-147.	3.0	60
30	Equilibrium in the clinoptilolite-H ₂ O system. American Mineralogist, 1996, 81, 952-962.	1.9	53
31	Simulation of Fracture Coalescence in Granite via the Combined Finite-Discrete Element Method. Rock Mechanics and Rock Engineering, 2019, 52, 3213-3227.	5.4	53
32	CO ₂ /Brine Transport into Shallow Aquifers along Fault Zones. Environmental Science & Technology, 2013, 47, 290-297.	10.0	52
33	High-stress triaxial direct-shear fracturing of Utica shale and in situ X-ray microtomography with permeability measurement. Journal of Geophysical Research: Solid Earth, 2016, 121, 5493-5508.	3.4	51
34	A response surface model to predict CO ₂ and brine leakage along cemented wellbores. International Journal of Greenhouse Gas Control, 2015, 33, 27-39.	4.6	47
35	Toward better hydraulic fracturing fluids and their application in energy production: A review of sustainable technologies and reduction of potential environmental impacts. Journal of Petroleum Science and Engineering, 2019, 173, 793-803.	4.2	47
36	Cordierite-Spinel Troctolite, a New Magnesium-Rich Lithology from the Lunar Highlands. Science, 1989, 243, 925-928.	12.6	45

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37	Hydration state of zeolites, clays, and hydrated salts under present-day martian surface conditions: Can hydrous minerals account for Mars Odyssey observations of near-equatorial water-equivalent hydrogen?. <i>Icarus</i> , 2005, 178, 74-83.	2.5	45
38	Reduced order models of transient CO ₂ and brine leakage along abandoned wellbores from geologic carbon sequestration reservoirs. <i>International Journal of Greenhouse Gas Control</i> , 2016, 45, 150-162.	4.6	43
39	Pore-scale observations of supercritical CO ₂ drainage in Bentheimer sandstone by synchrotron x-ray imaging. <i>International Journal of Greenhouse Gas Control</i> , 2014, 25, 93-101.	4.6	42
40	Potential CO ₂ and brine leakage through wellbore pathways for geologic CO ₂ sequestration using the National Risk Assessment Partnership tools: Application to the Big Sky Regional Partnership. <i>International Journal of Greenhouse Gas Control</i> , 2019, 81, 44-65.	4.6	39
41	A GIS-based hillslope erosion and sediment delivery model and its application in the Cerro Grande burn area. <i>Hydrological Processes</i> , 2001, 15, 2995-3010.	2.6	38
42	Mixing in a three-phase system: Enhanced production of oil-wet reservoirs by CO ₂ injection. <i>Geophysical Research Letters</i> , 2016, 43, 196-205.	4.0	38
43	Incorporating solid solutions in reactive transport equations using a kinetic discrete-composition approach. <i>Geochimica Et Cosmochimica Acta</i> , 2006, 70, 1356-1378.	3.9	37
44	Wellbore integrity and CO ₂ -brine flow along the casing-cement microannulus. <i>Energy Procedia</i> , 2009, 1, 3609-3615.	1.8	33
45	A coupled electrochemical-geochemical model of corrosion for mild steel in high-pressure CO ₂ -saline environments. <i>International Journal of Greenhouse Gas Control</i> , 2011, 5, 777-787.	4.6	33
46	A thermodynamic formulation of hydrous cordierite. <i>Contributions To Mineralogy and Petrology</i> , 1995, 119, 155-165.	3.1	32
47	The challenge of predicting groundwater quality impacts in a CO ₂ leakage scenario: Results from field, laboratory, and modeling studies at a natural analog site in New Mexico, USA. <i>Energy Procedia</i> , 2011, 4, 3239-3245.	1.8	31
48	Caprock integrity susceptibility to permeable fracture creation. <i>International Journal of Greenhouse Gas Control</i> , 2017, 64, 60-72.	4.6	31
49	Hydration-dehydration behavior and thermodynamics of chabazite. <i>Geochimica Et Cosmochimica Acta</i> , 2005, 69, 2293-2308.	3.9	30
50	A continuous process for manufacture of magnesite and silica from olivine, CO ₂ and H ₂ O. <i>Energy Procedia</i> , 2009, 1, 4891-4898.	1.8	30
51	Relative stability and significance of dawsonite and aluminum minerals in geologic carbon sequestration. <i>Geophysical Research Letters</i> , 2011, 38, n/a-n/a.	4.0	30
52	Calorimetric Measurement of the Enthalpy of Hydration of Clinoptilolite. <i>Clays and Clay Minerals</i> , 1997, 45, 826-833.	1.3	29
53	Multiphysics Lattice Discrete Particle Modeling (M-LDPM) for the Simulation of Shale Fracture Permeability. <i>Rock Mechanics and Rock Engineering</i> , 2018, 51, 3963-3981.	5.4	28
54	Jumpstarting commercial-scale CO ₂ capture and storage with ethylene production and enhanced oil recovery in the US Gulf. , 2015, 5, 241-253.		27

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55	Wellbore integrity analysis of a natural CO2 producer. Energy Procedia, 2009, 1, 3561-3569.	1.8	23
56	Pre-injection Baseline Data Collection to Establish Existing Wellbore Leakage Properties. Energy Procedia, 2013, 37, 5661-5672.	1.8	23
57	Well Integrity Assessment of a 68 year old Well at a CO2 Injection Project. Energy Procedia, 2014, 63, 5691-5706.	1.8	22
58	Scalable En Echelon Shear Fracture Aperture Roughness Mechanism: Theory, Validation, and Implications. Journal of Geophysical Research: Solid Earth, 2019, 124, 957-977.	3.4	22
59	Crustal fingering facilitates free-gas methane migration through the hydrate stability zone. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 31660-31664.	7.1	22
60	Homogenization of Dissolution and Enhanced Precipitation Induced by Bubbles in Multiphase Flow Systems. Geophysical Research Letters, 2020, 47, e2020GL087163.	4.0	21
61	Stress-dependent fracture permeability measurements and implications for shale gas production. Fuel, 2021, 290, 119984.	6.4	21
62	A thermodynamic and kinetic model for paste aggregate interactions and the alkali-silica reaction. Cement and Concrete Research, 2015, 76, 107-120.	11.0	19
63	Shear strength and permeability of the cement-casing interface. International Journal of Greenhouse Gas Control, 2020, 95, 102977.	4.6	19
64	Scale Bridging in Three-Dimensional Fracture Networks: Characterizing the Effects of Variable Fracture Apertures on Network Scale Flow Channelization. Geophysical Research Letters, 2021, 48, e2021GL094400.	4.0	18
65	Computational Studies of Two-Phase Cement/CO2/Brine Interaction in Wellbore Environments. SPE Journal, 2011, 16, 940-948.	3.1	17
66	Wellbore Cement Porosity Evolution in Response to Mineral Alteration during CO2 Flooding. Environmental Science & Technology, 2017, 51, 692-698.	10.0	17
67	Hydrogen-bonded water in laumontite II: Experimental determination of site-specific thermodynamic properties of hydration of the W1 and W5 sites. American Mineralogist, 2003, 88, 1060-1072.	1.9	15
68	Engineering Prediction of Axial Wellbore Shear Failure Caused by Reservoir Uplift and Subsidence. SPE Journal, 2018, 23, 1039-1066.	3.1	15
69	The mechanisms, dynamics, and implications of self-sealing and CO2 resistance in wellbore cements. International Journal of Greenhouse Gas Control, 2018, 75, 162-179.	4.6	15
70	Patterns in complex hydraulic fractures observed by true-triaxial experiments and implications for proppant placement and stimulated reservoir volumes. Journal of Petroleum Exploration and Production, 2019, 9, 2781-2792.	2.4	14
71	Rapid Mineral Precipitation During Shear Fracturing of Carbonate-Rich Shales. Journal of Geophysical Research: Solid Earth, 2020, 125, e2019JB018864.	3.4	13
72	Discontinuities in effective permeability due to fracture percolation. Mechanics of Materials, 2018, 119, 25-33.	3.2	11

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73	A geostatistical modeling study of the effect of heterogeneity on radionuclide transport in the unsaturated zone, Yucca Mountain. <i>Journal of Contaminant Hydrology</i> , 2003, 62-63, 319-336.	3.3	10
74	Hydro-Mechanical Measurements of Sheared Crystalline Rock Fractures With Applications for EGS Collab Experiments 1 and 2. <i>Journal of Geophysical Research: Solid Earth</i> , 2022, 127, .	3.4	10
75	Extracting Hydrocarbon From Shale: An Investigation of the Factors That Influence the Decline and the Tail of the Production Curve. <i>Water Resources Research</i> , 2018, 54, 3748-3757.	4.2	9
76	Experimental validation of self-sealing in wellbore cement fractures exposed to high-pressure, CO ₂ -saturated solutions. <i>International Journal of Greenhouse Gas Control</i> , 2020, 100, 103112.	4.6	9
77	Fracture Caging to Limit Induced Seismicity. <i>Geophysical Research Letters</i> , 2021, 48, .	4.0	9
78	3D particle transport in multichannel microfluidic networks with rough surfaces. <i>Scientific Reports</i> , 2020, 10, 13848.	3.3	8
79	Localized CO ₂ corrosion propagation at moderate FeCO ₃ supersaturation initiated by mechanical removal of corrosion scale. <i>Journal of Applied Electrochemistry</i> , 2011, 41, 1367-1371.	2.9	7
80	Geomechanical Behavior of Caprock and Cement: Plasticity in Hydrodynamic Seals. <i>Energy Procedia</i> , 2014, 63, 5671-5679.	1.8	7
81	Brittle-ductile Behavior and Caprock Integrity. <i>Energy Procedia</i> , 2017, 114, 3132-3139.	1.8	7
82	Effect of Shear Displacement and Stress Changes on Fracture Hydraulic Aperture and Flow Anisotropy. <i>Transport in Porous Media</i> , 2022, 141, 17-47.	2.6	7
83	A Vadose Zone Flow and Transport Model for Los Alamos Canyon, Los Alamos, New Mexico. <i>Vadose Zone Journal</i> , 2005, 4, 729-743.	2.2	6
84	Integrity of Pre-existing Wellbores in Geological Sequestration of CO ₂ Assessment Using a Coupled Geomechanics-fluid Flow Model. <i>Energy Procedia</i> , 2014, 63, 5737-5748.	1.8	6
85	Baseline integrity property measurement of legacy oil and gas wells for carbon storage projects. , 2017, 7, 866-890.		6
86	Computational Studies of Two-Phase Cement-CO ₂ -Brine Interaction in Wellbore Environments. , 2009, , .		4
87	Geomechanical Behavior of Wells in Geologic Sequestration. <i>Energy Procedia</i> , 2013, 37, 5642-5652.	1.8	4
88	Injection Parameters That Promote Branching of Hydraulic Cracks. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL093321.	4.0	4
89	Steam blowouts in California Oil and Gas District 4: Comparison of the roles of initial defects versus well aging and implications for well blowouts in geologic carbon storage projects. <i>International Journal of Greenhouse Gas Control</i> , 2016, 51, 36-47.	4.6	3
90	Experimental Measurement of Fracture Permeability at Reservoir Conditions in Utica and Marcellus Shale. , 2017, , .		3

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91	Computational Analysis of the Fracture-Permeability Behavior of Shale. , 2017, , .		2
92	Effectiveness of a Smart Hydrogel in Well Leakage Remediation. , 2020, , .		2
93	Mesoscopic study of the formation of pseudomorphs with presence of chemical fluids. Geosciences Journal, 2014, 18, 469-475.	1.2	1
94	Rapid Measurement of Biot's Effective Stress Coefficient for Oil Well Cements with Application to Well Integrity. Rock Mechanics and Rock Engineering, 2023, 56, 7115-7127.	5.4	1
95	Using Discovery Science To Increase Efficiency of Hydraulic Fracturing While Reducing Water Usage. ACS Symposium Series, 2015, , 71-88.	0.5	0