Paul S Fennell

List of Publications by Citations

129 papers	11,746 citations	44 h-index	108 g-index
138 ext. papers	14,039 ext. citations	8.8 avg, IF	6.44 L-index

#	Paper	IF	Citations
129	Carbon capture and storage update. *Energy and Environmental Science*, **2014**, 7, 130-189	35.4	1404
128	Carbon capture and storage (CCS): the way forward. *Energy and Environmental Science*, **2018**, 11, 1062-1176	35.4	1368
127	An overview of CO2 capture technologies. *Energy and Environmental Science*, **2010**, 3, 1645	35.4	1183
126	The calcium looping cycle for large-scale CO2 capture. *Progress in Energy and Combustion Science*, **2010**, 36, 260-279	33.6	742
125	Net-zero emissions energy systems. *Science*, **2018**, 360,	33.3	606
124	An overview of advances in biomass gasification. *Energy and Environmental Science*, **2016**, 9, 2939-2977	35.4	602
123	The role of CO2 capture and utilization in mitigating climate change. *Nature Climate Change*, **2017**, 7, 243-249	21.4	436
122	Progress in biofuel production from gasification. *Progress in Energy and Combustion Science*, **2017**, 61, 189-248	33.6	349
121	The calcium looping cycle for CO2 capture from power generation, cement manufacture and hydrogen production. *Chemical Engineering Research and Design*, **2011**, 89, 836-855	5.5	265
120	Biomass-based chemical looping technologies: the good, the bad and the future. *Energy and Environmental Science*, **2017**, 10, 1885-1910	35.4	248
119	An economically viable ionic liquid for the fractionation of lignocellulosic biomass. *Green Chemistry*, **2017**, 19, 3078-3102	10	225
118	The Effects of Repeated Cycles of Calcination and Carbonation on a Variety of Different Limestones, as Measured in a Hot Fluidized Bed of Sand. *Energy & Fuels*, **2007**, 21, 2072-2081	4.1	223
117	A Techno-economic analysis and systematic review of carbon capture and storage (CCS) applied to the iron and steel, cement, oil refining and pulp and paper industries, as well as other high purity sources. *International Journal of Greenhouse Gas Control*, **2017**, 61, 71-84	4.2	217
116	Influence of high-temperature steam on the reactivity of CaO sorbent for CO2 capture. *Environmental Science & Technology*, **2012**, 46, 1262-9	10.3	170
115	Technologies and policies to decarbonize global industry: Review and assessment of mitigation drivers through 2070. *Applied Energy*, **2020**, 266, 114848	10.7	156
114	Influence of calcination conditions on carrying capacity of CaO-based sorbent in CO2 looping cycles. *Fuel*, **2009**, 88, 1893-1900	7.1	148
113	A review of the technologies, economics and policy instruments for decarbonising energy-intensive manufacturing industries. *Renewable and Sustainable Energy Reviews*, **2014**, 30, 616-640	16.2	138

112	Effect of wind direction and speed on the dispersion of nucleation and accumulation mode particles in an urban street canyon. *Science of the Total Environment*, **2008**, 402, 82-94	10.2	108
111	Regeneration of sintered limestone sorbents for the sequestration of CO2 from combustion and other systems. *Journal of the Energy Institute*, **2007**, 80, 116-119	5.7	108
110	Investigation into potential synergy between power generation, cement manufacture and CO2 abatement using the calcium looping cycle. *Energy and Environmental Science*, **2011**, 4, 2050	35.4	98
109	Synthetic CaO-Based Sorbent for CO2 Capture from Large-Point Sources. *Energy & Fuels*, **2010**, 24, 4598-4604	4.1	95
108	Pseudo-simultaneous measurements for the vertical variation of coarse, fine and ultrafine particles in an urban street canyon. *Atmospheric Environment*, **2008**, 42, 4304-4319	5.3	91
107	Screening and techno-economic assessment of biomass-based power generation with CCS technologies to meet 2050 CO2 targets. *Applied Energy*, **2017**, 190, 481-489	10.7	90
106	Quantitative glucose release from softwood after pretreatment with low-cost ionic liquids. *Green Chemistry*, **2019**, 21, 692-703	10	82
105	A novel calcium looping absorbent incorporated with polymorphic spacers for hydrogen production and CO2 capture. *Energy and Environmental Science*, **2014**, 7, 3291-3295	35.4	80
104	Measurements of particles in the 5-1000 nm range close to road level in an urban street canyon. *Science of the Total Environment*, **2008**, 390, 437-47	10.2	79
103	Solubility of carbon dioxide in aqueous solution of monoethanolamine or 2-amino-2-methyl-1-propanol: Experimental measurements and modelling. *International Journal of Greenhouse Gas Control*, **2012**, 6, 37-47	4.2	78
102	Enhanced hydrogen production from thermochemical processes. *Energy and Environmental Science*, **2018**, 11, 2647-2672	35.4	72
101	Treatment of losses of ultrafine aerosol particles in long sampling tubes during ambient measurements. *Atmospheric Environment*, **2008**, 42, 8819-8826	5.3	71
100	Energy and exergy analysis of chemical looping combustion technology and comparison with pre-combustion and oxy-fuel combustion technologies for CO2 capture. *Journal of Environmental Chemical Engineering*, **2015**, 3, 2104-2114	6.8	69
99	Real-time measurement of bubbling phenomena in a three-dimensional gas-fluidized bed using ultrafast magnetic resonance imaging. *Physical Review Letters*, **2006**, 96, 154504	7.4	67
98	Mechanism of Particle Breakage during Reactivation of CaO-Based Sorbents for CO2 Capture. *Energy & Fuels*, **2010**, 24, 4605-4616	4.1	63
97	Impact of Flue Gas Compounds on Microalgae and Mechanisms for Carbon Assimilation and Utilization. *ChemSusChem*, **2018**, 11, 334-355	8.3	63
96	Carbon Capture in the Cement Industry: Technologies, Progress, and Retrofitting. *Environmental Science & Technology*, **2016**, 50, 368-77	10.3	61
95	Inhibiting the interaction between FeO and Al2O3 during chemical looping production of hydrogen. *RSC Advances*, **2015**, 5, 1759-1771	3.7	59

94	The nature of the flow just above the perforated plate distributor of a gas-fluidised bed, as imaged using magnetic resonance. *Chemical Engineering Science*, **2006**, 61, 6002-6015	4.4	59
93	On steam hydration of CaO-based sorbent cycled for CO2 capture. *Fuel*, **2015**, 150, 269-277	7.1	58
92	Morphological Changes of Limestone Sorbent Particles during Carbonation/Calcination Looping Cycles in a Thermogravimetric Analyzer (TGA) and Reactivation with Steam. *Energy & Fuels*, **2010**, 24, 2768-2776	4.1	52
91	Comparison of the behaviour of manufactured and other airborne nanoparticles and the consequences for prioritising research and regulation activities. *Journal of Nanoparticle Research*, **2010**, 12, 1523-1530	2.3	49
90	Improvement of Limestone-Based CO2 Sorbents for Ca Looping by HBr and Other Mineral Acids. *Industrial & Engineering Chemistry Research*, **2013**, 52, 1426-1433	3.9	48
89	Reactivation of CaO-Based Sorbents for CO2 Capture: Mechanism for the Carbonation of Ca(OH)2. *Industrial & Engineering Chemistry Research*, **2011**, 50, 10329-10334	3.9	46
88	Synthetic CaO-based sorbent for CO2 capture. *Energy Procedia*, **2011**, 4, 830-838	2.3	46
87	Effects of Different Dopants and Doping Procedures on the Reactivity of CaO-based Sorbents for CO2 Capture. *Energy & Fuels*, **2012**, 26, 6584-6594	4.1	45
86	Steam-Enhanced Calcium Looping Cycles with Calcium Aluminate Pellets Doped with Bromides. *Industrial & Engineering Chemistry Research*, **2013**, 52, 7677-7683	3.9	44
85	A shrinking core model for steam hydration of CaO-based sorbents cycled for CO2 capture. *Chemical Engineering Journal*, **2016**, 291, 298-305	14.7	43
84	Pretreatment of South African sugarcane bagasse using a low-cost protic ionic liquid: a comparison of whole, depithed, fibrous and pith bagasse fractions. *Biotechnology for Biofuels*, **2018**, 11, 247	7.8	42
83	Street Versus Rooftop Level Concentrations of Fine Particles in a Cambridge Street Canyon. *Boundary-Layer Meteorology*, **2009**, 131, 3-18	3.4	40
82	The rate of gasification by CO2 of chars from waste. *Proceedings of the Combustion Institute*, **2005**, 30, 2151-2159	5.9	40
81	Tar Formation and Destruction in a Fixed-Bed Reactor Simulating Downdraft Gasification: Equipment Development and Characterization of Tar-Cracking Products. *Energy & Fuels*, **2010**, 24, 4560-4570	4.1	38
80	A parametric study of CO 2 capture from gas-fired power plants using monoethanolamine (MEA). *International Journal of Greenhouse Gas Control*, **2017**, 63, 321-328	4.2	37
79	Statistical analysis of the carbonation rate of concrete. *Cement and Concrete Research*, **2015**, 72, 98-107	10.3	36
78	Density and Viscosity of Partially Carbonated Aqueous Tertiary Alkanolamine Solutions at Temperatures between (298.15 and 353.15) K. *Journal of Chemical & Engineering Data*, **2015**, 60, 2392-2399	2.8	36
77	Solubility of carbon dioxide in aqueous blends of 2-amino-2-methyl-1-propanol and piperazine. *Chemical Engineering Science*, **2013**, 101, 851-864	4.4	36

76	Calcium looping for CO2 capture: sorbent enhancement through doping. *Energy Procedia*, **2011**, 4, 402-409	2.3	36
75	The measurement of the rate of burning of different coal chars in an electrically heated fluidised bed of sand. *Chemical Engineering Science*, **2007**, 62, 608-618	4.4	36
74	Reactivation of a CaO-based sorbent for CO2 capture from stationary sources. *Proceedings of the Combustion Institute*, **2011**, 33, 2673-2681	5.9	35
73	Comparison of Different Natural Sorbents for Removing CO2 from Combustion Gases, as Studied in a Bench-Scale Fluidized Bed. *Energy & Fuels*, **2008**, 22, 3852-3857	4.1	35
72	Oscillations in gas-fluidized beds: Ultra-fast magnetic resonance imaging and pressure sensor measurements. *Powder Technology*, **2007**, 177, 87-98	5.2	34
71	Optimisation and evaluation of flexible operation strategies for coal- and gas-CCS power stations with a multi-period design approach. *International Journal of Greenhouse Gas Control*, **2017**, 59, 24-39	4.2	32
70	Rise velocities of bubbles and slugs in gas-fluidised beds: Ultra-fast magnetic resonance imaging. *Chemical Engineering Science*, **2007**, 62, 82-93	4.4	32
69	A study of the mixing of solids in gas-fluidized beds, using ultra-fast MRI. *Chemical Engineering Science*, **2005**, 60, 2085-2088	4.4	32
68	Pilot testing of enhanced sorbents for calcium looping with cement production. *Applied Energy*, **2018**, 225, 392-401	10.7	31
67	A systematic investigation of the performance of copper-, cobalt-, iron-, manganese- and nickel-based oxygen carriers for chemical looping combustion technology through simulation models. *Chemical Engineering Science*, **2015**, 130, 79-91	4.4	30
66	Additive effects of steam addition and HBr doping for CaO-based sorbents for CO2 capture. *Chemical Engineering and Processing: Process Intensification*, **2016**, 103, 21-26	3.7	30
65	Comparative Assessment of Gasification Based Coal Power Plants with Various CO Capture Technologies Producing Electricity and Hydrogen. *Energy & Fuels*, **2014**, 28, 1028-1040	4.1	30
64	The order with respect to oxygen and the activation energy for the burning of an anthracitic char in O2 in a fluidised bed, as measured using a rapid analyser for CO and CO2. *Proceedings of the Combustion Institute*, **2009**, 32, 2051-2058	5.9	30
63	Tar Formation and Destruction in a Fixed Bed Reactor Simulating Downdraft Gasification: Effect of Reaction Conditions on Tar Cracking Products. *Energy & Fuels*, **2014**, 28, 1970-1982	4.1	29
62	Pressurized calcium looping in the presence of steam in a spout-fluidized-bed reactor with DFT analysis. *Fuel Processing Technology*, **2018**, 169, 24-41	7.2	28
61	CO2 capture by calcium aluminate pellets in a small fluidized bed. *Fuel Processing Technology*, **2016**, 142, 100-106	7.2	24
60	CO2 capture and storage (CCS) cost reduction via infrastructure right-sizing. *Chemical Engineering Research and Design*, **2017**, 119, 130-139	5.5	23
59	Decarbonising the cement sector: A bottom-up model for optimising carbon capture application in the UK. *Journal of Cleaner Production*, **2016**, 139, 1351-1361	10.3	23

58	Production and applications of electric-arc-furnace slag as solid waste in environmental technologies: a review. *Environmental Technology Reviews*, **2016**, 5, 1-11	7.7	23
57	Efficient Fractionation of Lignin- and Ash-Rich Agricultural Residues Following Treatment With a Low-Cost Protic Ionic Liquid. *Frontiers in Chemistry*, **2019**, 7, 246	5	22
56	Fractionation by Sequential Antisolvent Precipitation of Grass, Softwood, and Hardwood Lignins Isolated Using Low-Cost Ionic Liquids and Water. *ACS Sustainable Chemistry and Engineering*, **2020**, 8, 3751-3761	8.3	22
55	LEILAC: Low Cost CO2 Capture for the Cement and Lime Industries. *Energy Procedia*, **2017**, 114, 6166-6170	2.3	20
54	Degradation study of a novel polymorphic sorbent under realistic post-combustion conditions. *Fuel*, **2016**, 186, 708-713	7.1	19
53	Simple pyrolysis experiments for the preliminary assessment of biomass feedstocks and low-cost tar cracking catalysts for downdraft gasification applications. *Biomass and Bioenergy*, **2018**, 108, 398-414	5.3	17
52	Integrating Calcium Looping CO2 Capture with the Manufacture of Cement. *Energy Procedia*, **2013**, 37, 7078-7090	2.3	16
51	The kinetics of the reduction of NO to N2 by reaction with particles of Fe. *Proceedings of the Combustion Institute*, **2002**, 29, 2179-2185	5.9	16
50	Towards an environmentally and economically sustainable biorefinery: heavy metal contaminated waste wood as a low-cost feedstock in a low-cost ionic liquid process. *Green Chemistry*, **2020**, 22, 5032-5041	10	15
49	Spouted bed reactor for kinetic measurements of reduction of Fe2O3 in a CO2/CO atmosphere Part I: Atmospheric pressure measurements and equipment commissioning. *Chemical Engineering Research and Design*, **2016**, 114, 307-320	5.5	15
48	Development and techno-economic analyses of a novel hydrogen production process via chemical looping. *International Journal of Hydrogen Energy*, **2019**, 44, 21251-21263	6.7	15
47	Investigations into the effects of volatile biomass tar on the performance of Fe-based CLC oxygen carrier materials. *Environmental Research Letters*, **2016**, 11, 115001	6.2	15
46	Hydrogen Production by Sorption Enhanced Steam Reforming (SESR) of Biomass in a Fluidised-Bed Reactor Using Combined Multifunctional Particles. *Materials*, **2018**, 11,	3.5	13
45	Evaluation of cooling requirements of post-combustion CO 2 capture applied to coal-fired power plants. *Chemical Engineering Research and Design*, **2017**, 122, 1-10	5.5	12
44	Combustion of polymer pellets in a bubbling fluidised bed. *Combustion and Flame*, **2011**, 158, 1638-1645	5.3	12
43	The Zero Emission Carbon Concept (ZECA): Extents of Reaction with Different Coals in Steam/Hydrogen, Tar Formation and Residual Char Reactivity. *Energy & Fuels*, **2008**, 22, 2504-2511	4.1	12
42	Phase evolution, characterisation, and performance of cement prepared in an oxy-fuel atmosphere. *Faraday Discussions*, **2016**, 192, 113-124	3.6	12
41	Pressurised chemical-looping combustion of an iron-based oxygen carrier: Reduction kinetic measurements and modelling. *Fuel Processing Technology*, **2018**, 171, 205-214	7.2	11

40	Co-firing of Single, Binary, and Ternary Fuel Blends: Comparing Synergies within Trace Element Partitioning Arrived at by Thermodynamic Equilibrium Modeling and Experimental Measurements. *Energy & Fuels*, **2010**, 24, 2918-2923	4.1	11
39	On the drift-flux analysis of flotation and foam fractionation processes. *Canadian Journal of Chemical Engineering*, **2008**, 86, 635-642	2.3	11
38	Decarbonizing cement production. *Joule*, **2021**, 5, 1305-1311	27.8	11
37	Two-Phase Fluidized Bed Model for Pressurized Carbonation Kinetics of Calcium Oxide. *Energy & Fuels*, **2017**, 31, 11181-11193	4.1	10
36	The sampling of nanoparticles of MgO formed when doping an oxygen-rich flame with magnesium: The measurement of the concentrations and size-distributions of these nanoparticles. *Combustion and Flame*, **2007**, 151, 560-572	5.3	10
35	Comparison of the structural motifs and packing arrangements of six novel derivatives and one polymorph of 2-(1-phenyl-1H-1,2,3-triazol-4-yl)pyridine. *Acta Crystallographica Section B: Structural Science, Crystal Engineering and Materials*, **2014**, 70, 379-89	1.8	9
34	CCS from industrial sources. *Sustainable Technologies Systems & Policies*, **2012**, 17		9
33	Latter Stages of the Reduction of NO to N2on Particles of Fe while Simultaneously Oxidizing Fe to Its Oxides. *Energy & Fuels*, **2011**, 25, 1510-1520	4.1	9
32	High CO2 absorption in new amine based-transition-temperature mixtures (deep eutectic analogues) and reporting thermal stability, viscosity and surface tension: Response surface methodology (RSM). *Journal of Molecular Liquids*, **2020**, 316, 113863	6	9
31	Density and Viscosity of Partially Carbonated Aqueous Solutions Containing a Tertiary Alkanolamine and Piperazine at Temperatures between 298.15 and 353.15 K. *Journal of Chemical & Engineering Data*, **2017**, 62, 2075-2083	2.8	8
30	A Techno-economic Analysis and Systematic Review of Carbon Capture and Storage (CCS) Applied to the Iron and Steel, Cement, Oil Refining and Pulp and Paper Industries. *Energy Procedia*, **2017**, 114, 6297-6302	2.3	8
29	End use and disposal of CO - storage or utilisation?: general discussion. *Faraday Discussions*, **2016**, 192, 561-579	3.6	8
28	Iron-based chemical-looping technology for decarbonising iron and steel production. *International Journal of Greenhouse Gas Control*, **2019**, 91, 102766	4.2	8
27	Demetallization of Sewage Sludge Using Low-Cost Ionic Liquids. *Environmental Science & Technology*, **2021**, 55, 5291-5300	10.3	7
26	The feasibility of char and bio-oil production from pyrolysis of pit latrine sludge. *Environmental Science: Water Research and Technology*, **2018**, 4, 253-264	4.2	7
25	Rhododendron and Japanese Knotweed: invasive species as innovative crops for second generation biofuels for the ionoSolv process.. *RSC Advances*, **2021**, 11, 18395-18403	3.7	6
24	Simultaneous design of separation sequences and whole process energy integration. *Chemical Engineering Research and Design*, **2017**, 125, 166-180	5.5	5
23	The size distributions of nanoparticles of the oxides of Mg, Ba and Al in flames: Their measurement and dependence on the concentrations of free radicals in the flame. *Proceedings of the Combustion Institute*, **2007**, 31, 1939-1945	5.9	5

22	Co-precipitated Cu-Mn mixed metal oxides as oxygen carriers for chemical looping processes. *Chemical Engineering Journal*, **2021**, 407, 127093	14.7	5
21	CCS - A technology for now: general discussion. *Faraday Discussions*, **2016**, 192, 125-151	3.6	4
20	Simulation of a 100-MW solar-powered thermo-chemical air separation system combined with an oxy-fuel power plant for bio-energy with carbon capture and storage (BECCS). *Mitigation and Adaptation Strategies for Global Change*, **2020**, 25, 539-557	3.9	4
19	Flexible Operation Strategies for Coal- and gas-CCS Power Stations under the UK and USA Markets. *Energy Procedia*, **2017**, 114, 6543-6551	2.3	3
18	A Review of Recent Research on Catalytic Biomass Pyrolysis and Low-Pressure Hydropyrolysis. *Energy & Fuels*,	4.1	3
17	Enhancement of CaO-based sorbent for CO2 capture through doping with seawater **2020**, 10, 878-883		3
16	Process intensification of the ionoSolv pretreatment: effects of biomass loading, particle size and scale-up from 10 mL to 1 L. *Scientific Reports*, **2021**, 11, 15383	4.9	3
15	Comparative Energy Analysis of Renewable Electricity and Carbon Capture and Storage. *Joule*, **2019**, 3, 1406-1408	27.8	2
14	Kinetics Modeling, Development, and Comparison for the Reaction of Calcium Oxide with Steam. *Energy & Fuels*, **2019**, 33, 5505-5517	4.1	2
13	Pressurized In Situ CO2 Capture from Biomass Combustion via the Calcium Looping Process in a Spout-Fluidized-Bed Reactor. *Industrial & Engineering Chemistry Research*, **2020**, 59, 8571-8580	3.9	2
12	CCS - A technology for the future: general discussion. *Faraday Discussions*, **2016**, 192, 303-335	3.6	2
11	Potassium carbonate-based ternary transition temperature mixture (deep eutectic analogues) for CO2 absorption: Characterizations and DFT analysis. *Frontiers of Environmental Science and Engineering*, **2022**, 16, 1	5.8	2
10	A Comparative Study of Different Sorbents in the Context of Direct Air Capture (DAC): Evaluation of Key Performance Indicators and Comparisons. *Applied Sciences (Switzerland)*, **2022**, 12, 2618	2.6	2
9	Assessing the economic viability of wetland remediation of wastewater, and the potential for parallel biomass valorisation. *Environmental Science: Water Research and Technology*, **2020**, 6, 2103-2121	4.2	1
8	Process Integration of Chemical Looping Water Splitting with a Sintering Plant for Iron Making. *Industrial & Engineering Chemistry Research*, **2020**, 59, 7021-7032	3.9	1
7	OxyCAP UK: Oxyfuel Combustion - academic Programme for the UK. *Energy Procedia*, **2014**, 63, 504-510	2.3	1
6	Production of nanoparticles of MgO, BAO, and A12O3 in a premixed flame and its relation to the flame structure. *Combustion, Explosion and Shock Waves*, **2006**, 42, 642-648	1	1
5	Design and techno-economic analysis of a fluidized bed-based CaO/Ca(OH)2 thermochemical energy combined storage/discharge plant with concentrated solar power **2020**,		1

List of Publications

4	Combining phytoremediation and biorefinery: Metal extraction from lead contaminated Miscanthus during pretreatment using the ionoSolv process. *Industrial Crops and Products*, **2022**, 176, 114259	5.9	0
3	Techno-economic assessment for a pumped thermal energy storage integrated with open cycle gas turbine and chemical looping technology. *Energy Conversion and Management*, **2022**, 255, 115332	10.6	0
2	Solubility of CO2 in aqueous amine solutions: A study to select solvents for carbon capture from natural-gas power plant **2015**, 1-10		
1	Techno-economics of Biomass-based Power Generation with CCS Technologies for Deployment in 2050 **2018**, 93-113		