Dawei Wang

List of Publications by Citations

119 papers	5,184 citations	44 h-index	69 g-index
124 ext. papers	5,990 ext. citations	7.3 avg, IF	5.95 L-index

#	Paper	IF	Citations
119	Chemical looping processes for CO2 capture and carbonaceous fuel conversion prospect and opportunity. *Energy and Environmental Science*, **2012**, 5, 7254	35.4	263
118	Biomass-based chemical looping technologies: the good, the bad and the future. *Energy and Environmental Science*, **2017**, 10, 1885-1910	35.4	248
117	Clean coal conversion processes progress and challenges. *Energy and Environmental Science*, **2008**, 1, 248	35.4	208
116	Fundamentals of gas-liquid-solid fluidization. *AICHE Journal*, **1985**, 31, 1-34	3.6	202
115	Metal oxide redox chemistry for chemical looping processes. *Nature Reviews Chemistry*, **2018**, 2, 349-364	34.6	188
114	Maximum stable bubble size and gas holdup in high-pressure slurry bubble columns. *AICHE Journal*, **1999**, 45, 665-680	3.6	172
113	Chemical Looping Technology and Its Fossil Energy Conversion Applications. *Industrial & Engineering Chemistry Research*, **2010**, 49, 10200-10211	3.9	148
112	Syngas Redox (SGR) Process to Produce Hydrogen from Coal Derived Syngas. *Energy & Fuels*, **2007**, 21, 2900-2908	4.1	148
111	Chemical-looping technology platform. *AICHE Journal*, **2015**, 61, 2-22	3.6	141
110	Electrical Capacitance Volume Tomography. *IEEE Sensors Journal*, **2007**, 7, 525-535	4	130
109	Shale gas-to-syngas chemical looping process for stable shale gas conversion to high purity syngas with a H2 : CO ratio of 2 : 1. *Energy and Environmental Science*, **2014**, 7, 4104-4117	35.4	119
108	Electrical capacitance volume tomography: design and applications. *Sensors*, **2010**, 10, 1890-917	3.8	116
107	Gas and solids mixing in a turbulent fluidized bed. *AICHE Journal*, **2002**, 48, 1896-1909	3.6	110
106	Ionic diffusion in the oxidation of iron effect of support and its implications to chemical looping applications. *Energy and Environmental Science*, **2011**, 4, 876	35.4	106
105	Role of metal oxide support in redox reactions of iron oxide for chemical looping applications: experiments and density functional theory calculations. *Energy and Environmental Science*, **2011**, 4, 3661	35.4	105
104	Syngas chemical looping gasification process: Bench-scale studies and reactor simulations. *AICHE Journal*, **2010**, 56, 2186-2199	3.6	103
103	Activation Strategies for Calcium-Based Sorbents for CO2 Capture: A Perspective. *Industrial & Engineering Chemistry Research*, **2012**, 51, 2133-2142	3.9	99

102	Coal-Direct Chemical Looping Gasification for Hydrogen Production: Reactor Modeling and Process Simulation. *Energy & Fuels*, **2012**, 26, 3680-3690	4.1	97
101	Bed nonhomogeneity in turbulent gas-solid fluidization. *AICHE Journal*, **2003**, 49, 1109-1126	3.6	80
100	CO2 mineralization and utilization by alkaline solid wastes for potential carbon reduction. *Nature Sustainability*, **2020**, 3, 399-405	22.1	66
99	Modulating Lattice Oxygen in Dual-Functional Mo-V-O Mixed Oxides for Chemical Looping Oxidative Dehydrogenation. *Journal of the American Chemical Society*, **2019**, 141, 18653-18657	16.4	65
98	Discrete simulation of gas-liquid bubble columns and gas-liquid-solid fluidized beds. *AICHE Journal*, **2004**, 50, 288-301	3.6	64
97	Influence of Surface Modifiers on the Structure of Precipitated Calcium Carbonate. *Industrial & Engineering Chemistry Research*, **1999**, 38, 2283-2291	3.9	62
96	Calcium Looping Process (CLP) for Enhanced Noncatalytic Hydrogen Production with Integrated Carbon Dioxide Capture. *Energy & Fuels*, **2010**, 24, 4408-4418	4.1	60
95	Oxygen vacancy promoted methane partial oxidation over iron oxide oxygen carriers in the chemical looping process. *Physical Chemistry Chemical Physics*, **2016**, 18, 32418-32428	3.6	58
94	Utilization of CO2 as a partial substitute for methane feedstock in chemical looping methane□steam redox processes for syngas production. *Energy and Environmental Science*, **2017**, 10, 1345-1349	35.4	56
93	Chemically and physically robust, commercially-viable iron-based composite oxygen carriers sustainable over 3000 redox cycles at high temperatures for chemical looping applications. *Energy and Environmental Science*, **2017**, 10, 2318-2323	35.4	56
92	Kinetics and Structural Characterization of Calcium-Based Sorbents Calcined under Subatmospheric Conditions for the High-Temperature CO2Capture Process. *Industrial & Engineering Chemistry Research*, **2007**, 46, 35-42	3.9	55
91	Nanostructure formation mechanism and ion diffusion in iron□titanium composite materials with chemical looping redox reactions. *Journal of Materials Chemistry A*, **2015**, 3, 11302-11312	13	54
90	Characteristics of draft tube gas-liquid-solid fluidized-bed bioreactor with immobilized living cells for phenol degradation. *Biotechnology and Bioengineering*, **1987**, 30, 498-504	4.9	54
89	A Multimodal Tomography System Based on ECT Sensors. *IEEE Sensors Journal*, **2007**, 7, 426-433	4	53
88	Characteristics of slugging regime and transition to turbulent regime for fluidized beds of large coarse particles. *AICHE Journal*, **1985**, 31, 1554-1562	3.6	51
87	Application of the Moving-Bed Chemical Looping Process for High Methane Conversion. *Energy & Fuels*, **2013**, 27, 4119-4128	4.1	50
86	Investigation of High-Reactivity Calcium Carbonate Sorbent for Enhanced SO2 Capture. *Industrial & Engineering Chemistry Research*, **1996**, 35, 598-606	3.9	50
85	Impact of 1% Lanthanum Dopant on Carbonaceous Fuel Redox Reactions with an Iron-Based Oxygen Carrier in Chemical Looping Processes. *ACS Energy Letters*, **2017**, 2, 70-74	20.1	49

84	Near 100% CO selectivity in nanoscaled iron-based oxygen carriers for chemical looping methane partial oxidation. *Nature Communications*, **2019**, 10, 5503	17.4	48
83	C2 Selectivity Enhancement in Chemical Looping Oxidative Coupling of Methane over a MgMn Composite Oxygen Carrier by Li-Doping-Induced Oxygen Vacancies. *ACS Energy Letters*, **2018**, 3, 1730-1736	20.1	48
82	Biological phenol degradation in a gas-liquid-solid fluidized bed reactor. *Biotechnology and Bioengineering*, **1989**, 33, 1029-38	4.9	47
81	Direct numerical simulation of low-Reynolds-number flow past arrays of rotating spheres. *Journal of Fluid Mechanics*, **2015**, 765, 396-423	3.7	45
80	Evolution of nanoscale morphology in single and binary metal oxide microparticles during reduction and oxidation processes. *Journal of Materials Chemistry A*, **2014**, 2, 17511-17520	13	45
79	Electrical capacitance volume tomography for imaging of pulsating flows in a trickle bed. *Chemical Engineering Science*, **2014**, 119, 77-87	4.4	45
78	Adaptive Electrical Capacitance Volume Tomography. *IEEE Sensors Journal*, **2014**, 14, 1253-1259	4	45
77	Pore-structure optimization of calcium carbonate for enhanced sulfation. *AICHE Journal*, **1997**, 43, 2323-2335	3.6	45
76	Nonlinear forward problem solution for electrical capacitance tomography using feed-forward neural network. *IEEE Sensors Journal*, **2006**, 6, 441-449	4	45
75	Hydrodynamic behavior of circulating fluidized bed with polymeric particles. *AICHE Journal*, **1994**, 40, 193-206	3.6	42
74	Hydrodynamics of cocurrent gas-liquid-solid semifluidization with a liquid as the continuous phase. *AICHE Journal*, **1984**, 30, 288-294	3.6	42
73	ECT studies of the choking phenomenon in a gas–solid circulating fluidized bed. *AICHE Journal*, **2004**, 50, 1386-1406	3.6	39
72	Hydrodynamic characteristics of a gas-liquid-solid fluidized bed containing a binary mixture of particles. *AICHE Journal*, **1985**, 31, 1801-1810	3.6	35
71	Gas–Solid Fluidization in Mini- and Micro-channels. *Industrial & Engineering Chemistry Research*, **2011**, 50, 4741-4751	3.9	32
70	Modularization strategy for syngas generation in chemical looping methane reforming systems with CO2 as feedstock. *AICHE Journal*, **2017**, 63, 3343-3360	3.6	30
69	Pressure fluctuation measurements and flow regime transitions in gas-liquid-solid fluidized beds. *AICHE Journal*, **1986**, 32, 338-340	3.6	30
68	Improved cyclic redox reactivity of lanthanum modified iron-based oxygen carriers in carbon monoxide chemical looping combustion. *Journal of Materials Chemistry A*, **2017**, 5, 20153-20160	13	29
67	Kinetic Study of High-Pressure Carbonation Reaction of Calcium-Based Sorbents in the Calcium Looping Process (CLP). *Industrial & Engineering Chemistry Research*, **2011**, 50, 11528-11536	3.9	28

66	Chemical looping processes particle characterization, ionic diffusion-reaction mechanism and reactor engineering. *Reviews in Chemical Engineering*, **2012**, 28, 1-42	5	28
65	On the measurements of regime transition in high-pressure bubble columns. *Canadian Journal of Chemical Engineering*, **1999**, 77, 370-374	2.3	28
64	Kinetics of high-pressure removal of hydrogen sulfide using calcium oxide powder. *AICHE Journal*, **2000**, 46, 1157-1167	3.6	27
63	Electrostatic Characteristics of Hydrated Lime Powder during Transport. *Industrial & Engineering Chemistry Research*, **1996**, 35, 2748-2755	3.9	27
62	Simulation of particulate removal in gas-solid fluidized beds. *AICHE Journal*, **1982**, 28, 39-49	3.6	27
61	Chemical looping technology for energy and chemical production. *Wiley Interdisciplinary Reviews: Energy and Environment*, **2016**, 5, 216-241	4.7	27
60	3D-ECT Velocimetry for Flow Structure Quantification of Gas-Liquid-Solid Fluidized Beds. *Canadian Journal of Chemical Engineering*, **2008**, 81, 875-884	2.3	25
59	Electrical Capacitance Volume Tomography Imaging of Three-Dimensional Flow Structures and Solids Concentration Distributions in a Riser and a Bend of a GasSolid Circulating Fluidized Bed. *Industrial & Engineering Chemistry Research*, **2012**, 51, 10968-10976	3.9	23
58	Direct simulation of the buoyant rise of bubbles in infinite liquid using level set method. *Canadian Journal of Chemical Engineering*, **2008**, 86, 267-275	2.3	23
57	On the particle terminal velocity in a gas-liquid medium with liquid as the continuous phase. *Canadian Journal of Chemical Engineering*, **1987**, 65, 881-886	2.3	23
56	Characteristics of Choking Behavior in Circulating Fluidized Beds for Group B Particles. *Industrial & Engineering Chemistry Research*, **2004**, 43, 5507-5520	3.9	22
55	Dual imaging modality of granular flow based on ECT sensors. *Granular Matter*, **2008**, 10, 75-80	2.6	21
54	Synthesis of High-Surface-Area SiC through a Modified SolGel Route:Control of the Pore Structure. *Industrial & Engineering Chemistry Research*, **2004**, 43, 4732-4739	3.9	21
53	ECVT imaging and model analysis of the liquid distribution inside a horizontally installed passive cyclonic gasLiquid separator. *Chemical Engineering Science*, **2016**, 141, 231-239	4.4	20
52	Chemical Looping Gasification for Producing High Purity, H2-Rich Syngas in a Cocurrent Moving Bed Reducer with Coal and Methane Cofeeds. *Industrial & Engineering Chemistry Research*, **2018**, 57, 2461-2475	3.9	19
51	Slurry bubble column measurements using advanced electrical capacitance volume tomography sensors. *Powder Technology*, **2019**, 355, 474-480	5.2	18
50	Calcium Looping Process for Enhanced Catalytic Hydrogen Production with Integrated Carbon Dioxide and Sulfur Capture. *Industrial & Engineering Chemistry Research*, **2011**, 50, 1716-1729	3.9	18
49	Electrical Capacitance Volume Tomography for Characterization of GasSolid Slugging Fluidization with Geldart Group D Particles under High Temperatures. *Industrial & Engineering Chemistry Research*, **2018**, 57, 2687-2697	3.9	17

48	ECVT imaging of 3D spiral bubble plume structures in gas-liquid bubble columns. *Canadian Journal of Chemical Engineering*, **2014**, 92, 2078-2087	2.3	17
47	Clean coal technologies: OSCAR and CARBONOX commercial demonstrations. *AICHE Journal*, **2002**, 48, 2115-2123	3.6	17
46	A Semianalytical Expression for the Drag Force of an Interactive Particle Due to Wake Effect. *Industrial & Engineering Chemistry Research*, **2002**, 41, 5094-5097	3.9	16
45	Concentration multiplicity in a draft tube fluidized-bed bioreactor involving two limiting substrates. *Biotechnology and Bioengineering*, **1988**, 31, 24-34	4.9	15
44	EXPERIMENTAL OBSERVATION OF NONHOMOGENEITY IN A LIQUID-SOLID FLUIDIZED BED OF SMALL PARTICLES. *Chemical Engineering Communications*, **1985**, 37, 141-157	2.2	15
43	Design and Operations of a 15 kWth Subpilot Unit for the Methane-to-Syngas Chemical Looping Process with CO2 Utilization. *Industrial & Engineering Chemistry Research*, **2020**, 59, 6886-6899	3.9	15
42	Bulk coarse particle arching phenomena in a moving bed with fine particle presence. *AICHE Journal*, **2014**, 60, 881-892	3.6	13
41	Mechanism of selenium sorption by activated carbon. *Canadian Journal of Chemical Engineering*, **2000**, 78, 168-174	2.3	13
40	Recurrent neural network based detection of faults caused byparticle attrition in chemical looping systems. *Powder Technology*, **2020**, 367, 266-276	5.2	13
39	Heterogeneous structure in gas□olid riser flows. *AICHE Journal*, **2008**, 54, 1459-1469	3.6	12
38	Enhancing Nitrogen Electroreduction to Ammonia by Doping Chlorine on Reduced Graphene Oxide. *ACS Catalysis*, **2020**, 10, 14928-14935	13.1	12
37	Operating Strategy of Chemical Looping Systems with Varied Reducer and Combustor Pressures. *Industrial & Engineering Chemistry Research*, **2019**, 58, 5228-5235	3.9	11
36	Three-dimensional direct numerical simulation for film-boiling contact of moving particle and liquid droplet. *Physics of Fluids*, **2006**, 18, 117104	4.4	11
35	Flow Characteristics of Coal Ash in a Circulating Fluidized Bed. *Industrial & Engineering Chemistry Research*, **1998**, 37, 1499-1509	3.9	11
34	High-Pressure Reaction Kinetics of Hydrogen Sulfide and Uncalcined Limestone Powder. *Industrial & Engineering Chemistry Research*, **1999**, 38, 3802-3811	3.9	11
33	Thermodynamic and Process Analyses of Syngas Production Using Chemical Looping Reforming Assisted by Flexible Dicalcium Ferrite-Based Oxygen Carrier Regeneration. *Energy & Fuels*, **2020**, 34, 6490-6500	4.1	11
32	High-Pressure Chemical Looping Reforming Processes: System Analysis for Syngas Generation from Natural Gas and Reducing Tail Gases. *Energy & Fuels*, **2018**, 32, 10408-10420	4.1	11
31	Syngas chemical looping process: Dynamic modeling of a moving-bed reducer. *AICHE Journal*, **2013**, 59, 3432-3443	3.6	10

30	Thermodynamic Investigation of Process Enhancement in Chemical Looping Reforming of Methane through Modified Ca□e Oxygen Carrier Utilization. *Industrial & Engineering Chemistry Research* , **2020**, 59, 15531-15541	3.9	10
29	Characteristics of high-pressure liquid□olid fluidization. *AICHE Journal*, **1997**, 43, 45-57	3.6	9
28	Experimental Studies of Liquid Weeping and Bubbling Phenomena at Submerged Orifices. *Industrial & Engineering Chemistry Research*, **2002**, 41, 1666-1677	3.9	9
27	Cyclic redox scheme towards shale gas reforming: a review and perspectives. *Reaction Chemistry and Engineering*, **2020**, 5, 2204-2220	4.9	9
26	Hydrogen Production from Natural Gas Using an Iron-Based Chemical Looping Technology: Process Modeling, Heat Integration, and Exergy Analysis. *Energy Technology*, **2020**, 8, 1900377	3.5	9
25	Liquid Entrainment in High-Pressure Bubble Columns. *Industrial & Engineering Chemistry Research*, **2005**, 44, 3776-3782	3.9	8
24	Acetic Acid Production Using Calcium Ferrite-Assisted Chemical Looping Gasification of Petroleum Coke With In Situ Sulfur Capture. *Energy & Fuels*, **2020**, 34, 16560-16571	4.1	8
23	Solid oxide fuel cells fueled with reduced Fe/Ti oxide. *Journal of Materials Chemistry A*, **2015**, 3, 2242-2250	10	7
22	Ionic transfer mechanism of COS reaction with CaO: Inert marker experiment and density functional theory (DFT) calculation. *AICHE Journal*, **2012**, 58, 2617-2620	3.6	6
21	EFFECT OF STATIC LIQUID HEIGHT ON GAS-LIQUID MASS TRANSFER IN A DRAFT-TUBE BUBBLE COLUMN AND THREE-PHASE FLUIDIZED BED. *Chemical Engineering Communications*, **1991**, 108, 347-364	2.2	6
20	Codoping Mg-Mn Based Oxygen Carrier with Lithium and Tungsten for Enhanced C2 Yield in a Chemical Looping Oxidative Coupling of Methane System. *ACS Sustainable Chemistry and Engineering*, **2021**, 9, 2651-2660	8.3	6
19	SBA-16-Mediated Nanoparticles Enabling Accelerated Kinetics in Cyclic Methane Conversion to Syngas at Low Temperatures. *ACS Applied Energy Materials*, **2020**, 3, 9833-9840	6.1	4
18	Noncatalytic gas-solid reactions in a vertical pneumatic transport reactor. *AICHE Journal*, **1984**, 30, 21-29	3.6	3
17	Mechanistic Insight into Hydrogen-Assisted Carbon Dioxide Reduction with Ilmenite. *Energy & Fuels*, **2020**, 34, 15370-15378	4.1	3
16	Driving Towards Highly Selective and Coking-Resistant Natural Gas Reforming Through a Hybrid Oxygen Carrier Design. *ChemCatChem*, **2021**, 13, 617-626	5.2	3
15	A machine learning-based interaction force model for non-spherical and irregular particles in low Reynolds number incompressible flows. *Powder Technology*, **2021**, 392, 632-638	5.2	3
14	CHEMICAL LOOPING TECHNOLOGY FOR FOSSIL FUEL CONVERSION WITH IN SITU CO2 CONTROL **2017**, 377-404		2
13	Coal-Direct Chemical Looping Process with In Situ Sulfur Capture for Energy Generation Using Ca□u Oxygen Carriers. *Industrial & Engineering Chemistry Research*, **2021**, 60, 11231-11240	3.9	2

12	Enhanced methane conversion using Ni-doped calcium ferrite oxygen carriers in chemical looping partial oxidation systems with CO2 utilization. *Reaction Chemistry and Engineering*, **2021**, 6, 1928-1939	4.9	2
11	Process Analysis of Chemical Looping Systems for Dimethyl Ether Synthesis from Coal **2020**, 5, 17-26		1
10	Particle Technology **2019**, 1-51		1
9	Three-dimensional dynamic characterization of square-nosed slugging phenomena in a fluidized bed. *Particuology*, **2021**, 67, 35-35	2.8	1
8	Simulation of a moving bed chemical looping system for electricity production from coal via chemical looping water splitting. *Canadian Journal of Chemical Engineering*, **2021**, 99, 1520-1534	2.3	1
7	Mo-Doped FeS Mediated H2 Production from H2S via an In Situ Cyclic Sulfur Looping Scheme. *ACS Sustainable Chemistry and Engineering*, **2021**, 9, 11204-11211	8.3	1
6	State of Scale-Up Development in Chemical Looping Technology for Biomass Conversions: A Review and Perspectives. *Waste and Biomass Valorization*,1	3.2	1
5	A machine learning-based particle-particle collision model for non-spherical particles with arbitrary shape. *Chemical Engineering Science*, **2022**, 251, 117439	4.4	0
4	External Electric Field Induced Reaction Chemistry: A Review and Perspectives. *ACS Symposium Series*, **2020**, 207-227	0.4	
3	The Moving Bed Fuel Reactor Process **2018**, 1-40		
2	The Role of Chemical Looping in Industrial Gas Separation **2022**, 199-237		
1	Applications of electrical capacitance tomography in industrial systems **2022**, 799-821		