Dawei Wang

List of Publications by Year
in descending order

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118 papers	6,937 citations	50170 46 h-index	62479 80 g-index
124 all docs	124 docs citations	124 times ranked	4110 citing authors

#	Article	IF	Citations
1	Biomass-based chemical looping technologies: the good, the bad and the future. Energy and Environmental Science, 2017, 10, 1885-1910.	15.6	382
2	Metal oxide redox chemistry for chemical looping processes. Nature Reviews Chemistry, 2018, 2, 349-364.	13.8	352
3	Chemical looping processes for CO2 capture and carbonaceous fuel conversion â€“ prospect and opportunity. Energy and Environmental Science, 2012, 5, 7254.	15.6	319
4	Fundamentals of gas-liquid-solid fluidization. AICHE Journal, 1985, 31, 1-34.	1.8	239
5	Clean coal conversion processes â€“ progress and challenges. Energy and Environmental Science, 2008, 1, 248.	15.6	236
6	Maximum stable bubble size and gas holdup in high-pressure slurry bubble columns. AICHE Journal, 1999, 45, 665-680.	1.8	196
7	Electrical Capacitance Volume Tomography. IEEE Sensors Journal, 2007, 7, 525-535.	2.4	188
8	CO2 mineralization and utilization by alkaline solid wastes for potential carbon reduction. Nature Sustainability, 2020, 3, 399-405.	11.5	182
9	Chemical Looping Technology and Its Fossil Energy Conversion Applications. Industrial & Engineering Chemistry Research, 2010, 49, 10200-10211.	1.8	181
10	Chemicalâ€looping technology platform. AICHE Journal, 2015, 61, 2-22.	1.8	173
11	Syngas Redox (SGR) Process to Produce Hydrogen from Coal Derived Syngas. Energy & Fuels, 2007, 21, 2900-2908.	2.5	163
12	Electrical Capacitance Volume Tomography: Design and Applications. Sensors, 2010, 10, 1890-1917.	2.1	161
13	Shale gas-to-syngas chemical looping process for stable shale gas conversion to high purity syngas with a H₂â€‰:â€‰CO ratio of 2â€‰:â€‰1. Energy and Environmental Science, 2014, 7, 4104-4117.	15.6	145
14	Ionic diffusion in the oxidation of ironâ€”effect of support and its implications to chemical looping applications. Energy and Environmental Science, 2011, 4, 876.	15.6	140
15	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.	15.6	138
16	Modulating Lattice Oxygen in Dual-Functional Moâ€“Vâ€“O Mixed Oxides for Chemical Looping Oxidative Dehydrogenation. Journal of the American Chemical Society, 2019, 141, 18653-18657.	6.6	133
17	Syngas chemical looping gasification process: Benchâ€scale studies and reactor simulations. AICHE Journal, 2010, 56, 2186-2199.	1.8	128
18	Gas and solids mixing in a turbulent fluidized bed. AICHE Journal, 2002, 48, 1896-1909.	1.8	122

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19	Activation Strategies for Calcium-Based Sorbents for CO₂ Capture: A Perspective. Industrial & Engineering Chemistry Research, 2012, 51, 2133-2142.	1.8	117
20	Coal-Direct Chemical Looping Gasification for Hydrogen Production: Reactor Modeling and Process Simulation. Energy & Fuels, 2012, 26, 3680-3690.	2.5	114
21	Near 100% CO selectivity in nanoscaled iron-based oxygen carriers for chemical looping methane partial oxidation. Nature Communications, 2019, 10, 5503.	5.8	98
22	Bed nonhomogeneity in turbulent gas-solid fluidization. AICHE Journal, 2003, 49, 1109-1126.	1.8	91
23	Oxygen vacancy promoted methane partial oxidation over iron oxide oxygen carriers in the chemical looping process. Physical Chemistry Chemical Physics, 2016, 18, 32418-32428.	1.3	88
24	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.	15.6	88
25	Utilization of CO₂ as a partial substitute for methane feedstock in chemical looping methaneâ€“steam redox processes for syngas production. Energy and Environmental Science, 2017, 10, 1345-1349.	15.6	79
26	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.	8.8	77
27	C₂ Selectivity Enhancement in Chemical Looping Oxidative Coupling of Methane over a Mgâ€“Mn Composite Oxygen Carrier by Li-Doping-Induced Oxygen Vacancies. ACS Energy Letters, 2018, 3, 1730-1736.	8.8	75
28	A Multimodal Tomography System Based on ECT Sensors. IEEE Sensors Journal, 2007, 7, 426-433.	2.4	72
29	Discrete simulation of gas-liquid bubble columns and gas-liquid-solid fluidized beds. AICHE Journal, 2004, 50, 288-301.	1.8	70
30	Adaptive Electrical Capacitance Volume Tomography. IEEE Sensors Journal, 2014, 14, 1253-1259.	2.4	69
31	Nanostructure formation mechanism and ion diffusion in ironâ€“titanium composite materials with chemical looping redox reactions. Journal of Materials Chemistry A, 2015, 3, 11302-11312.	5.2	68
32	Characteristics of draft tube gas-liquid-solid fluidized-bed bioreactor with immobilized living cells for phenol degradation. Biotechnology and Bioengineering, 1987, 30, 498-504.	1.7	67
33	Influence of Surface Modifiers on the Structure of Precipitated Calcium Carbonate. Industrial & Engineering Chemistry Research, 1999, 38, 2283-2291.	1.8	67
34	Calcium Looping Process (CLP) for Enhanced Noncatalytic Hydrogen Production with Integrated Carbon Dioxide Capture. Energy & Fuels, 2010, 24, 4408-4418.	2.5	67
35	Nonlinear forward problem solution for electrical capacitance tomography using feed-forward neural network. IEEE Sensors Journal, 2006, 6, 441-449.	2.4	64
36	Application of the Moving-Bed Chemical Looping Process for High Methane Conversion. Energy & Fuels, 2013, 27, 4119-4128.	2.5	62

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37	Direct numerical simulation of low-Reynolds-number flow past arrays of rotating spheres. Journal of Fluid Mechanics, 2015, 765, 396-423.	1.4	62
38	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.	1.8	60
39	Electrical capacitance volume tomography for imaging of pulsating flows in a trickle bed. Chemical Engineering Science, 2014, 119, 77-87.	1.9	58
40	Investigation of High-Reactivity Calcium Carbonate Sorbent for Enhanced SO2Capture. Industrial & Engineering Chemistry Research, 1996, 35, 598-606.	1.8	57
41	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.	5.2	56
42	Characteristics of slugging regime and transition to turbulent regime for fluidized beds of large coarse particles. AIChE Journal, 1985, 31, 1554-1562.	1.8	55
43	Biological phenol degradation in a gas-liquid-solid fluidized bed reactor. Biotechnology and Bioengineering, 1989, 33, 1029-1038.	1.7	51
44	Pore-structure optimization of calcium carbonate for enhanced sulfation. AIChE Journal, 1997, 43, 2323-2335.	1.8	50
45	Hydrodynamic behavior of circulating fluidized bed with polymeric particles. AIChE Journal, 1994, 40, 193-206.	1.8	49
46	Hydrodynamics of cocurrent gas-liquid-solid semifluidization with a liquid as the continuous phase. AIChE Journal, 1984, 30, 288-294.	1.8	48
47	Gasâ^'Solid Fluidization in Mini- and Micro-channels. Industrial & Engineering Chemistry Research, 2011, 50, 4741-4751.	1.8	46
48	Hydrodynamic characteristics of a gas-liquid-solid fluidized bed containing a binary mixture of particles. AIChE Journal, 1985, 31, 1801-1810.	1.8	44
49	ECT studies of the choking phenomenon in a gas-solid circulating fluidized bed. AIChE Journal, 2004, 50, 1386-1406.	1.8	44
50	Chemical looping processes â€" particle characterization, ionic diffusion-reaction mechanism and reactor engineering. Reviews in Chemical Engineering, 2012, 28, 1-42.	2.3	38
51	Modularization strategy for syngas generation in chemical looping methane reforming systems with CO₂ as feedstock. AIChE Journal, 2017, 63, 3343-3360.	1.8	38
52	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.	5.2	38
53	Kinetics of high-pressure removal of hydrogen sulfide using calcium oxide powder. AIChE Journal, 2000, 46, 1157-1167.	1.8	35
54	Enhancing Nitrogen Electroreduction to Ammonia by Doping Chlorine on Reduced Graphene Oxide. ACS Catalysis, 2020, 10, 14928-14935.	5.5	34

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55	Pressure fluctuation measurements and flow regime transitions in gas-liquid-solid fluidized beds. AICHE Journal, 1986, 32, 338-340.	1.8	33
56	3Dâ€ECT Velocimetry for Flow Structure Quantification of Gasâ€Liquidâ€Solid Fluidized Beds. Canadian Journal of Chemical Engineering, 2003, 81, 875-884.	0.9	33
57	Chemical looping technology for energy and chemical production. Wiley Interdisciplinary Reviews: Energy and Environment, 2016, 5, 216-241.	1.9	32
58	Simulation of particulate removal in gas-solid fluidized beds. AICHE Journal, 1982, 28, 39-49.	1.8	31
59	On the measurements of regime transition in highâ€pressure bubble columns. Canadian Journal of Chemical Engineering, 1999, 77, 370-374.	0.9	31
60	Dual imaging modality of granular flow based on ECT sensors. Granular Matter, 2008, 10, 75-80.	1.1	30
61	Electrical Capacitance Volume Tomography Imaging of Three-Dimensional Flow Structures and Solids Concentration Distributions in a Riser and a Bend of a Gasâ€“Solid Circulating Fluidized Bed. Industrial & Engineering Chemistry Research, 2012, 51, 10968-10976.	1.8	30
62	On the particle terminal velocity in a gasâ€liquid medium with liquid as the continuous phase. Canadian Journal of Chemical Engineering, 1987, 65, 881-886.	0.9	29
63	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.	1.8	29
64	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.	1.8	29
65	Electrostatic Characteristics of Hydrated Lime Powder during Transport. Industrial & Engineering Chemistry Research, 1996, 35, 2748-2755.	1.8	28
66	Slurry bubble column measurements using advanced electrical capacitance volume tomography sensors. Powder Technology, 2019, 355, 474-480.	2.1	26
67	Design and Operations of a 15 kW_{th} Subpilot Unit for the Methane-to-Syngas Chemical Looping Process with CO₂ Utilization. Industrial & Engineering Chemistry Research, 2020, 59, 6886-6899.	1.8	26
68	Direct simulation of the buoyant rise of bubbles in infinite liquid using level set method. Canadian Journal of Chemical Engineering, 2008, 86, 267-275.	0.9	25
69	ECVT imaging and model analysis of the liquid distribution inside a horizontally installed passive cyclonic gasâ€“liquid separator. Chemical Engineering Science, 2016, 141, 231-239.	1.9	24
70	Electrical Capacitance Volume Tomography for Characterization of Gasâ€“Solid Slugging Fluidization with Geldart Group D Particles under High Temperatures. Industrial & Engineering Chemistry Research, 2018, 57, 2687-2697.	1.8	24
71	Hydrogen Production from Natural Gas Using an Ironâ€Based Chemical Looping Technology: Process Modeling, Heat Integration, and Exergy Analysis. Energy Technology, 2020, 8, 1900377.	1.8	24
72	Synthesis of High-Surface-Area SiC through a Modified Solâ^'Gel Route:Â Control of the Pore Structure. Industrial & Engineering Chemistry Research, 2004, 43, 4732-4739.	1.8	22

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73	Characteristics of Choking Behavior in Circulating Fluidized Beds for Group B Particles. Industrial & Engineering Chemistry Research, 2004, 43, 5507-5520.	1.8	22
74	ECVT imaging of 3D spiral bubble plume structures in gasâ€liquid bubble columns. Canadian Journal of Chemical Engineering, 2014, 92, 2078-2087.	0.9	22
75	Recurrent neural network based detection of faults caused byparticle attrition in chemical looping systems. Powder Technology, 2020, 367, 266-276.	2.1	22
76	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.	2.5	22
77	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.	3.2	22
78	Calcium Looping Process for Enhanced Catalytic Hydrogen Production with Integrated Carbon Dioxide and Sulfur Capture. Industrial & Engineering Chemistry Research, 2011, 50, 1716-1729.	1.8	20
79	Acetic Acid Production Using Calcium Ferrite-Assisted Chemical Looping Gasification of Petroleum Coke With In Situ Sulfur Capture. Energy & Fuels, 2020, 34, 16560-16571.	2.5	20
80	EXPERIMENTAL OBSERVATION OF NONHOMOGENEITY IN A LIQUID-SOLID FLUIDIZED BED OF SMALL PARTICLES. Chemical Engineering Communications, 1985, 37, 141-157.	1.5	18
81	A Semianalytical Expression for the Drag Force of an Interactive Particle Due to Wake Effect. Industrial & Engineering Chemistry Research, 2002, 41, 5094-5097.	1.8	18
82	Clean coal technologies: OSCAR and CARBONOX commercial demonstrations. AICHE Journal, 2002, 48, 2115-2123.	1.8	18
83	Bulk coarse particle arching phenomena in a moving bed with fine particle presence. AICHE Journal, 2014, 60, 881-892.	1.8	17
84	Cyclic redox scheme towards shale gas reforming: a review and perspectives. Reaction Chemistry and Engineering, 2020, 5, 2204-2220.	1.9	17
85	Concentration multiplicity in a draft tube fluidized-bed bioreactor involving two limiting substrates. Biotechnology and Bioengineering, 1988, 31, 24-34.	1.7	16
86	Thermodynamic Investigation of Process Enhancement in Chemical Looping Reforming of Methane through Modified Caâ€“Fe Oxygen Carrier Utilization. Industrial & Engineering Chemistry Research, 2020, 59, 15531-15541.	1.8	15
87	Mechanism of selenium sorption by activated carbon. Canadian Journal of Chemical Engineering, 2000, 78, 168-174.	0.9	14
88	Heterogeneous structure in gasâ€“solid riser flows. AICHE Journal, 2008, 54, 1459-1469.	1.8	14
89	Syngas chemical looping process: Dynamic modeling of a movingâ€bed reducer. AICHE Journal, 2013, 59, 3432-3443.	1.8	14
90	Operating Strategy of Chemical Looping Systems with Varied Reducer and Combustor Pressures. Industrial & Engineering Chemistry Research, 2019, 58, 5228-5235.	1.8	14

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91	High-Pressure Chemical Looping Reforming Processes: System Analysis for Syngas Generation from Natural Gas and Reducing Tail Gases. Energy & Fuels, 2018, 32, 10408-10420.	2.5	13
92	State of Scale-Up Development in Chemical Looping Technology for Biomass Conversions: A Review and Perspectives. Waste and Biomass Valorization, 2022, 13, 1363-1383.	1.8	13
93	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.	2.1	13
94	Flow Characteristics of Coal Ash in a Circulating Fluidized Bed. Industrial & Engineering Chemistry Research, 1998, 37, 1499-1509.	1.8	12
95	High-Pressure Reaction Kinetics of Hydrogen Sulfide and Uncalcined Limestone Powder. Industrial & Engineering Chemistry Research, 1999, 38, 3802-3811.	1.8	12
96	SBA-16-Mediated Nanoparticles Enabling Accelerated Kinetics in Cyclic Methane Conversion to Syngas at Low Temperatures. ACS Applied Energy Materials, 2020, 3, 9833-9840.	2.5	12
97	Three-dimensional direct numerical simulation for film-boiling contact of moving particle and liquid droplet. Physics of Fluids, 2006, 18, 117104.	1.6	11
98	Coal-Direct Chemical Looping Process with In Situ Sulfur Capture for Energy Generation Using Caâ€“Cu Oxygen Carriers. Industrial & Engineering Chemistry Research, 2021, 60, 11231-11240.	1.8	11
99	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.	3.2	11
100	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.	1.9	11
101	Liquid Entrainment in High-Pressure Bubble Columns. Industrial & Engineering Chemistry Research, 2005, 44, 3776-3782.	1.8	10
102	Characteristics of high-pressure liquidâ€“solid fluidization. AICHE Journal, 1997, 43, 45-57.	1.8	9
103	Experimental Studies of Liquid Weeping and Bubbling Phenomena at Submerged Orifices. Industrial & Engineering Chemistry Research, 2002, 41, 1666-1677.	1.8	9
104	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.	1.5	7
105	Ionic transfer mechanism of COS reaction with CaO: Inert marker experiment and density functional theory (DFT) calculation. AICHE Journal, 2012, 58, 2617-2620.	1.8	7
106	Solid oxide fuel cells fueled with reduced Fe/Ti oxide. Journal of Materials Chemistry A, 2015, 3, 2242-2250.	5.2	7
107	Mechanistic Insight into Hydrogen-Assisted Carbon Dioxide Reduction with Ilmenite. Energy & Fuels, 2020, 34, 15370-15378.	2.5	7
108	Driving Towards Highly Selective and Cokingâ€Resistant Natural Gas Reforming Through a Hybrid Oxygen Carrier Design. ChemCatChem, 2021, 13, 617-626.	1.8	7

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109	A machine learning-based particle-particle collision model for non-spherical particles with arbitrary shape. Chemical Engineering Science, 2022, 251, 117439.	1.9	6
110	Three-dimensional dynamic characterization of square-nosed slugging phenomena in a fluidized bed. Particuology, 2022, 67, 35-46.	2.0	5
111	Holey reduced graphene oxide-assisted oxide-derived Bi for efficient nitrogen electroreduction. Journal of Materials Chemistry A, 2022, 10, 8245-8251.	5.2	4
112	Noncatalytic gas-solid reactions in a vertical pneumatic transport reactor. AICHE Journal, 1984, 30, 21-29.	1.8	3
113	Characteristics of Gasâ€“Solid Mixture Flows through a Packed Moving Bed of Coarse Particles. Industrial & Engineering Chemistry Research, 2022, 61, 2615-2622.	1.8	3
114	Velocity Profiling of a Gasâ€“Solid Fluidized Bed Using Electrical Capacitance Volume Tomography. IEEE Transactions on Instrumentation and Measurement, 2022, 71, 1-16.	2.4	3
115	Process Analysis of Chemical Looping Systems for Dimethyl Ether Synthesis from Coal. , 2020, 5, 17-26.		2
116	External Electric Field Induced Reaction Chemistry: A Review and Perspectives. ACS Symposium Series, 2020, , 207-227.	0.5	2
117	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.	0.9	1
118	Applications of electrical capacitance tomography in industrial systems. , 2022, , 799-821.		0