Liang-Shih Fan

List of Publications by Year
in descending order

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78	4,977	117625	102487
papers	citations	34 h-index	66 g-index

83	83	83	2617
all docs	docs citations	times ranked	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.	30.8	382
2	Metal oxide redox chemistry for chemical looping processes. Nature Reviews Chemistry, 2018, 2, 349-364.	30.2	352
3	Chemical looping processes for CO2 capture and carbonaceous fuel conversion â€“ prospect and opportunity. Energy and Environmental Science, 2012, 5, 7254.	30.8	319
4	Chemicalâ€looping technology platform. AICHE Journal, 2015, 61, 2-22.	3.6	173
5	Iron-based syngas chemical looping process and coal-direct chemical looping process development at Ohio State University. Applied Energy, 2014, 113, 1836-1845.	10.1	167
6	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.	30.8	145
7	Hydrogen production from natural gas using an iron-based chemical looping technology: Thermodynamic simulations and process system analysis. Applied Energy, 2016, 165, 183-201.	10.1	141
8	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.	13.7	133
9	Continuous high purity hydrogen generation from a syngas chemical looping 25kWth sub-pilot unit with 100% carbon capture. Fuel, 2013, 103, 495-505.	6.4	132
10	Biomass direct chemical looping process: Process simulation. Fuel, 2010, 89, 3773-3784.	6.4	131
11	Coal-Direct Chemical Looping Gasification for Hydrogen Production: Reactor Modeling and Process Simulation. Energy & Fuels, 2012, 26, 3680-3690.	5.1	114
12	Enhanced methane conversion in chemical looping partial oxidation systems using a copper doping modification. Applied Catalysis B: Environmental, 2018, 235, 143-149.	20.2	103
13	Iron-Based Coal Direct Chemical Looping Combustion Process: 200-h Continuous Operation of a 25-kW_{th} Subpilot Unit. Energy & Fuels, 2013, 27, 1347-1356.	5.1	99
14	Near 100% CO selectivity in nanoscaled iron-based oxygen carriers for chemical looping methane partial oxidation. Nature Communications, 2019, 10, 5503.	12.8	98
15	Syngas Chemical Looping Process: Design and Construction of a 25 kW_{th} Subpilot Unit. Energy & Fuels, 2012, 26, 2292-2302.	5.1	88
16	Oxygen vacancy promoted methane partial oxidation over iron oxide oxygen carriers in the chemical looping process. Physical Chemistry Chemical Physics, 2016, 18, 32418-32428.	2.8	88
17	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.	30.8	88
18	Chemical Looping Technology: Oxygen Carrier Characteristics. Annual Review of Chemical and Biomolecular Engineering, 2015, 6, 53-75.	6.8	86

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19	Methane adsorption and dissociation on iron oxide oxygen carriers: the role of oxygen vacancies. Physical Chemistry Chemical Physics, 2016, 18, 16423-16435.	2.8	84
20	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.	30.8	79
21	New Insight into the Development of Oxygen Carrier Materials for Chemical Looping Systems. Engineering, 2018, 4, 343-351.	6.7	79
22	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.	17.4	77
23	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.	17.4	75
24	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.	10.3	68
25	250â€¯kWth high pressure pilot demonstration of the syngas chemical looping system for high purity H2 production with CO2 capture. Applied Energy, 2018, 230, 1660-1672.	10.1	68
26	Biomass direct chemical looping process: A perspective. Biomass and Bioenergy, 2011, 35, 1252-1262.	5.7	67
27	Parametric and dynamic studies of an iron-based 25-kWth coal direct chemical looping unit using sub-bituminous coal. Applied Energy, 2015, 145, 354-363.	10.1	58
28	A novel chemical looping partial oxidation process for thermochemical conversion of biomass to syngas. Applied Energy, 2018, 222, 119-131.	10.1	58
29	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.	10.3	56
30	Conversion of metallurgical coke and coal using a Coal Direct Chemical Looping (CDCL) moving bed reactor. Applied Energy, 2014, 118, 300-308.	10.1	52
31	Highly Selective Production of Syngas from Chemical Looping Reforming of Methane with CO2 Utilization on MgO-supported Calcium Ferrite Redox Materials. Applied Energy, 2021, 282, 116111.	10.1	52
32	Catalytic Oxygen Carriers and Process Systems for Oxidative Coupling of Methane Using the Chemical Looping Technology. Industrial & Engineering Chemistry Research, 2016, 55, 12750-12764.	3.7	50
33	Chemical looping-A perspective on the next-gen technology for efficient fossil fuel utilization. Advances in Applied Energy, 2021, 3, 100044.	13.2	48
34	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.	10.3	38
35	Cobalt doping modification for enhanced methane conversion at low temperature in chemical looping reforming systems. Catalysis Today, 2020, 350, 156-164.	4.4	34
36	Biogas to H2 conversion with CO2 capture using chemical looping technology: Process simulation and comparison to conventional reforming processes. Fuel, 2020, 279, 118479.	6.4	34

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37	Enhancing Nitrogen Electroreduction to Ammonia by Doping Chlorine on Reduced Graphene Oxide. ACS Catalysis, 2020, 10, 14928-14935.	11.2	34
38	Morphology evolution and nanostructure of chemical looping transition metal oxide materials upon redox processes. Acta Materialia, 2017, 124, 568-578.	7.9	32
39	Fate of sulfur in coal-direct chemical looping systems. Applied Energy, 2017, 208, 678-690.	10.1	31
40	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.	3.7	29
41	Some remarks on direct solid fuel combustion using chemical looping processes. Current Opinion in Chemical Engineering, 2012, 1, 290-295.	7.8	26
42	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.	3.7	26
43	Hydrogen Production from Natural Gas Using an Ironâ€Based Chemical Looping Technology: Process Modeling, Heat Integration, and Exergy Analysis. Energy Technology, 2020, 8, 1900377.	3.8	24
44	Coal direct chemical looping process: 250ÂkW pilot-scale testing for power generation and carbon capture. Applied Energy, 2021, 282, 116065.	10.1	24
45	Autothermal Operation Strategies of Chemical Looping Processes for Hydrogen Generation: Process Simulation, Parametric Studies, and Exergy Analysis. Industrial & Engineering Chemistry Research, 2020, 59, 5877-5890.	3.7	22
46	Recurrent neural network based detection of faults caused byparticle attrition in chemical looping systems. Powder Technology, 2020, 367, 266-276.	4.2	22
47	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.	5.1	22
48	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.	6.7	22
49	Enhanced Light Absorption and Radiative Forcing by Black Carbon Agglomerates. Environmental Science & Technology, 2022, 56, 8610-8618.	10.0	21
50	Conversion of Woody Biomass Materials by Chemical Looping Processâ€"Kinetics, Light Tar Cracking, and Moving Bed Reactor Behavior. Industrial & Engineering Chemistry Research, 2013, 52, 14116-14124.	3.7	20
51	Acetic Acid Production Using Calcium Ferrite-Assisted Chemical Looping Gasification of Petroleum Coke With In Situ Sulfur Capture. Energy & Fuels, 2020, 34, 16560-16571.	5.1	20
52	Predictive screening and validation on chemical looping oxygen carrier activation by tuning electronic structures via transition metal dopants. Chemical Engineering Journal, 2021, 406, 126729.	12.7	20
53	Bulk coarse particle arching phenomena in a moving bed with fine particle presence. AICHE Journal, 2014, 60, 881-892.	3.6	17
54	Cyclic redox scheme towards shale gas reforming: a review and perspectives. Reaction Chemistry and Engineering, 2020, 5, 2204-2220.	3.7	17

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55	Coal Refining Chemical Looping Systems with CO₂ as a Co-Feedstock for Chemical Syntheses. Energy & Fuels, 2018, 32, 1139-1154.	5.1	15
56	Oxidation kinetic modelling of Fe-based oxygen carriers for chemical looping applications: Impact of the topochemical effect. Applied Energy, 2020, 279, 115701.	10.1	15
57	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.	3.7	15
58	Operating Strategy of Chemical Looping Systems with Varied Reducer and Combustor Pressures. Industrial & Engineering Chemistry Research, 2019, 58, 5228-5235.	3.7	14
59	High-Pressure Chemical Looping Reforming Processes: System Analysis for Syngas Generation from Natural Gas and Reducing Tail Gases. Energy & Fuels, 2018, 32, 10408-10420.	5.1	13
60	State of Scale-Up Development in Chemical Looping Technology for Biomass Conversions: A Review and Perspectives. Waste and Biomass Valorization, 2022, 13, 1363-1383.	3.4	13
61	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.	4.2	13
62	Synergistic decomposition of H2S into H2 by Ni3S2 over ZrO2 support via a sulfur looping scheme with CO2 enabled carrier regeneration. Chemical Engineering Journal, 2021, 426, 131815.	12.7	13
63	L-Valve Behavior in Circulating Fluidized Beds at High Temperatures for Group D Particles. Industrial & Engineering Chemistry Research, 2015, 54, 4468-4473.	3.7	12
64	SBA-16-Mediated Nanoparticles Enabling Accelerated Kinetics in Cyclic Methane Conversion to Syngas at Low Temperatures. ACS Applied Energy Materials, 2020, 3, 9833-9840.	5.1	12
65	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.	3.7	11
66	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.	6.7	11
67	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.	3.7	11
68	Coulomb criterion - bounding crustal stress limit and intact rock failure: Perspectives. Powder Technology, 2020, 374, 106-110.	4.2	8
69	Mechanistic Insight into Hydrogen-Assisted Carbon Dioxide Reduction with Ilmenite. Energy & Fuels, 2020, 34, 15370-15378.	5.1	7
70	Driving Towards Highly Selective and Cokingâ€Resistant Natural Gas Reforming Through a Hybrid Oxygen Carrier Design. ChemCatChem, 2021, 13, 617-626.	3.7	7
71	Perspectives on reactive separation and removal of hydrogen sulfide. Chemical Engineering Science: X, 2021, 11, 100105.	1.5	6
72	A general methodology and the correlation for the prediction of the solids flow rates through the L-valves. Powder Technology, 2020, 360, 278-288.	4.2	4

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73	Holey reduced graphene oxide-assisted oxide-derived Bi for efficient nitrogen electroreduction. Journal of Materials Chemistry A, 2022, 10, 8245-8251.	10.3	4
74	Characteristics of Gasâ€“Solid Mixture Flows through a Packed Moving Bed of Coarse Particles. Industrial & Engineering Chemistry Research, 2022, 61, 2615-2622.	3.7	3
75	Velocity Profiling of a Gasâ€“Solid Fluidized Bed Using Electrical Capacitance Volume Tomography. IEEE Transactions on Instrumentation and Measurement, 2022, 71, 1-16.	4.7	3
76	Experimental Investigation on Transport Characteristics of Fluidized Geldart A/B Particles in a Geldart D Packed Bed. Industrial & Engineering Chemistry Research, 2016, 55, 6866-6874.	3.7	2
77	Process Analysis of Chemical Looping Systems for Dimethyl Ether Synthesis from Coal. , 2020, 5, 17-26.		2
78	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.	1.7	1