Henrik Thunman

List of Publications by Year in descending order

101 papers	4,265 citations	101543 36 h-index	118850 62 g-index
103 all docs	103 docs citations	103 times ranked	2989 citing authors

#	Article	IF	Citations
1	Characterization and prediction of biomass pyrolysis products. Progress in Energy and Combustion Science, 2011, 37, 611-630.	31.2	609
2	Composition of Volatile Gases and Thermochemical Properties of Wood for Modeling of Fixed or Fluidized Beds. Energy & Fuels, 2001, 15, 1488-1497.	5.1	179
3	Combustion of wood particlesâ€"a particle model for eulerian calculations. Combustion and Flame, 2002, 129, 30-46.	5.2	138
4	Advanced biofuel production via gasification â€“ lessons learned from 200 manâ€years of research activity with Chalmersâ€™ research gasifier and the GoBiGas demonstration plant. Energy Science and Engineering, 2018, 6, 6-34.	4.0	134
5	Models for gaseous radiative heat transfer applied to oxy-fuel conditions in boilers. International Journal of Heat and Mass Transfer, 2010, 53, 220-230.	4.8	118
6	Using an oxygen-carrier as bed material for combustion of biomass in a 12-MWth circulating fluidized-bed boiler. Fuel, 2013, 113, 300-309.	6.4	108
7	Evaluation of Performance of Industrial-Scale Dual Fluidized Bed Gasifiers Using the Chalmers 2â€“4-MW_{th} Gasifier. Energy & Fuels, 2013, 27, 6665-6680.	5.1	104
8	Characteristics of olivine as a bed material in an indirect biomass gasifier. Chemical Engineering Journal, 2015, 279, 555-566.	12.7	92
9	Ash Properties of Ilmenite Used as Bed Material for Combustion of Biomass in a Circulating Fluidized Bed Boiler. Energy & Fuels, 2014, 28, 7672-7679.	5.1	82
10	Ignition and propagation of a reaction front in cross-current bed combustion of wet biofuels. Fuel, 2001, 80, 473-481.	6.4	77
11	Steam gasification of biomass â€“ Typical gas quality and operational strategies derived from industrial-scale plants. Fuel Processing Technology, 2021, 212, 106609.	7.2	77
12	Comparing Active Bed Materials in a Dual Fluidized Bed Biomass Gasifier: Olivine, Bauxite, Quartz-Sand, and Ilmenite. Energy & Fuels, 2016, 30, 4848-4857.	5.1	76
13	Performance of large-scale biomass gasifiers in a biorefinery, a state-of-the-art reference. International Journal of Energy Research, 2017, 41, 2001-2019.	4.5	76
14	Continuous Catalytic Tar Reforming of Biomass Derived Raw Gas with Simultaneous Catalyst Regeneration. Industrial & Engineering Chemistry Research, 2011, 50, 11553-11562.	3.7	75
15	Thermal conductivity of woodâ€"models for different stages of combustion. Biomass and Bioenergy, 2002, 23, 47-54.	5.7	72
16	Co-current and counter-current fixed bed combustion of biofuelâ€"a comparisonâ˜†. Fuel, 2003, 82, 275-283.	6.4	72
17	Estimation of Solids Mixing in a Fluidized-Bed Combustor. Industrial & Engineering Chemistry Research, 2002, 41, 4663-4673.	3.7	70
18	CFD modelling of bed shrinkage and channelling in fixed-bed combustion. Combustion and Flame, 2011, 158, 988-999.	5.2	70

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19	Influence of intraparticle gradients in modeling of fixed bed combustion. Combustion and Flame, 2007, 149, 49-62.	5.2	68
20	Influence of size and density of fuel on combustion in a packed bed. Proceedings of the Combustion Institute, 2005, 30, 2939-2946.	3.9	65
21	Assessment of the Solid-Phase Adsorption Method for Sampling Biomass-Derived Tar in Industrial Environments. Energy & Fuels, 2013, 27, 7569-7578.	5.1	65
22	CFD simulations of biofuel bed conversion: A submodel for the drying and devolatilization of thermally thick wood particles. Combustion and Flame, 2013, 160, 417-431.	5.2	64
23	Experience of more than 1000 h of operation with oxygen carriers and solid biomass at large scale. Applied Energy, 2017, 190, 1174-1183.	10.1	64
24	Well-to-wheel analysis of bio-methane via gasification, in heavy duty engines within the transport sector of the European Union. Applied Energy, 2016, 170, 445-454.	10.1	63
25	Ilmenite and Nickel as Catalysts for Upgrading of Raw Gas Derived from Biomass Gasification. Energy & Fuels, 2013, 27, 997-1007.	5.1	61
26	Using Ilmenite To Reduce the Tar Yield in a Dual Fluidized Bed Gasification System. Energy & Fuels, 2014, 28, 2632-2644.	5.1	60
27	Mechanism for Migration and Layer Growth of Biomass Ash on Ilmenite Used for Oxygen Carrier Aided Combustion. Energy & Fuels, 2018, 32, 8845-8856.	5.1	54
28	Investigation of Natural and Synthetic Bed Materials for Their Utilization in Chemical Looping Reforming for Tar Elimination in Biomass-Derived Gasification Gas. Energy & Fuels, 2014, 28, 3833-3840.	5.1	53
29	Transformation and Release of Potassium, Chlorine, and Sulfur from Wheat Straw under Conditions Relevant to Dual Fluidized Bed Gasification. Energy & Fuels, 2013, 27, 7510-7520.	5.1	52
30	Improved syngas processing for enhanced Bio-SNG production: A techno-economic assessment. Energy, 2016, 101, 380-389.	8.8	50
31	Economic assessment of advanced biofuel production via gasification using cost data from the GoBiGas plant. Energy Science and Engineering, 2019, 7, 217-229.	4.0	48
32	Highly efficient electricity generation from biomass by integration and hybridization with combined cycle gas turbine (CCGT) plants for natural gas. Energy, 2010, 35, 4042-4052.	8.8	45
33	Diversity of chemical composition and combustion reactivity of various biomass fuels. Fuel, 2015, 147, 161-169.	6.4	43
34	Design of an integrated dryer and conveyor belt for woody biofuels. Biomass and Bioenergy, 2015, 77, 92-109.	5.7	41
35	Sensitivity Analysis of a Fixed Bed Combustion Model. Energy & Fuels, 2007, 21, 1493-1503.	5.1	40
36	Separation of drying and devolatilization during conversion of solid fuels. Combustion and Flame, 2004, 137, 242-250.	5.2	38

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37	Bed material as a catalyst for char gasification: The case of ash-coated olivine activated by K and S addition. Fuel, 2018, 224, 85-93.	6.4	38
38	Magnetic separation of ilmenite used as oxygen carrier during combustion of biomass and the effect of ash layer buildup on its activity and mechanical strength. Fuel, 2020, 269, 117470.	6.4	36
39	Use of Nickel Oxide as a Catalyst for Tar Elimination in a Chemical-Looping Reforming Reactor Operated with Biomass Producer Gas. Industrial & Engineering Chemistry Research, 2012, 51, 16610-16616.	3.7	35
40	Extending existing combined heat and power plants for synthetic natural gas production. International Journal of Energy Research, 2012, 36, 670-681.	4.5	35
41	A computationally efficient particle submodel for CFD-simulations of fixed-bed conversion. Applied Energy, 2013, 112, 808-817.	10.1	35
42	Use of alkali-feldspar as bed material for upgrading a biomass-derived producer gas from a gasifier. Chemical Engineering Journal, 2016, 295, 80-91.	12.7	35
43	Circular use of plastics-transformation of existing petrochemical clusters into thermochemical recycling plants with 100% plastics recovery. Sustainable Materials and Technologies, 2019, 22, e00124.	3.3	34
44	Influence of surrounding conditions and fuel size on the gasification rate of biomass char in a fluidized bed. Fuel Processing Technology, 2016, 144, 323-333.	7.2	33
45	Comparing the structural development of sand and rock ilmenite during long-term exposure in a biomass fired 12 MWth CFB-boiler. Fuel Processing Technology, 2018, 171, 39-44.	7.2	31
46	Online Measurement of Elemental Yields, Oxygen Transport, Condensable Compounds, and Heating Values in Gasification Systems. Energy & Fuels, 2014, 28, 5892-5901.	5.1	27
47	Manganese oxide as catalyst for tar cleaning of biomass-derived gas. Biomass Conversion and Biorefinery, 2012, 2, 133-140.	4.6	26
48	Validation of the oxygen buffering ability of bed materials used for OCAC in a large scale CFB boiler. Powder Technology, 2017, 316, 462-468.	4.2	26
49	Influence of In-Bed Catalysis by Ash-Coated Olivine on Tar Formation in Steam Gasification of Biomass. Energy & Fuels, 2018, 32, 9592-9604.	5.1	26
50	On-line monitoring of fuel moisture-content in biomass-fired furnaces by measuring relative humidity of the flue gases. Chemical Engineering Research and Design, 2011, 89, 2470-2476.	5.6	25
51	Efficiency Comparison of Largeâ€Scale Standalone, Centralized, and Distributed Thermochemical Biorefineries. Energy Technology, 2017, 5, 1435-1448.	3.8	25
52	A fast-solving particle model for thermochemical conversion of biomass. Combustion and Flame, 2020, 213, 117-131.	5.2	25
53	Exergy-based comparison of indirect and direct biomass gasification technologies within the framework of bio-SNG production. Biomass Conversion and Biorefinery, 2013, 3, 337-352.	4.6	24
54	Bark as feedstock for dual fluidized bed gasifiers-Operability, efficiency, and economics. International Journal of Energy Research, 2019, 43, 1171-1190.	4.5	23

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55	Conversion of Condensable Hydrocarbons in a Dual Fluidized Bed Biomass Gasifier. Energy & Fuels, 2015, 29, 6465-6475.	5.1	22
56	Achieving Adequate Circulation in Chemical Looping Combustionâ”€Design Proposal for a 200 MW_{th} Chemical Looping Combustion Circulating Fluidized Bed Boiler. Energy & Fuels, 2022, 36, 9588-9615.	5.1	22
57	Fate of Polycyclic Aromatic Hydrocarbons during Tertiary Tar Formation in Steam Gasification of Biomass. Energy & Fuels, 2018, 32, 3499-3509.	5.1	21
58	Influence of Fuel Ash Characteristics on the Release of Potassium, Chlorine, and Sulfur from Biomass Fuels under Steam-Fluidized Bed Gasification Conditions. Energy & Fuels, 2016, 30, 10435-10442.	5.1	20
59	Process analysis of an oxygen lean oxy-fuel power plant with co-production of synthesis gas. Energy Conversion and Management, 2009, 50, 279-286.	9.2	19
60	Process Simulation of Dual Fluidized Bed Gasifiers Using Experimental Data. Energy & Fuels, 2016, 30, 4017-4033.	5.1	19
61	Effect of ash circulation on the performance of a dual fluidized bed gasification system. Biomass and Bioenergy, 2018, 115, 45-55.	5.7	19
62	Shedding light on the governing mechanisms for insufficient CO and H2 burnout in the presence of potassium, chlorine and sulfur. Fuel, 2020, 273, 117762.	6.4	19
63	Reactor residence time analysis with CFD. Progress in Computational Fluid Dynamics, 2006, 6, 241.	0.2	18
64	Estimation of gas phase mixing in packed beds. Combustion and Flame, 2008, 153, 137-148.	5.2	18
65	Effects of Steam on the Release of Potassium, Chlorine, and Sulfur during Char Conversion, Investigated under Dual-Fluidized-Bed Gasification Conditions. Energy & Fuels, 2014, 28, 6953-6965.	5.1	18
66	Experimental Investigation of Volatilesâ€“Bed Contact in a 2â€“4 MW_{th} Bubbling Bed Reactor of a Dual Fluidized Bed Gasifier. Energy & Fuels, 2015, 29, 6456-6464.	5.1	17
67	Volatile gases from biomass pyrolysis under conditions relevant for fluidized bed gasifiers. Journal of Analytical and Applied Pyrolysis, 2017, 127, 57-67.	5.5	17
68	The role of fuel mixing on char conversion in a fluidized bed. Powder Technology, 2017, 316, 677-686.	4.2	17
69	Modeling of the combustion front in a countercurrent fuel converter. Proceedings of the Combustion Institute, 2002, 29, 511-518.	3.9	16
70	Impact of Biomass Ashâ€“Bauxite Bed Interactions on an Indirect Biomass Gasifier. Energy & Fuels, 2016, 30, 4044-4052.	5.1	15
71	Mass transfer under segregation conditions in fluidized beds. Fuel, 2017, 195, 105-112.	6.4	14
72	Valorization of Automobile Shredder Residue Using Indirect Gasification. Energy & Fuels, 2018, 32, 12795-12804.	5.1	13

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73	Importance of Decomposition Reactions for Catalytic Conversion of Tar and Light Hydrocarbons: An Application with an Ilmenite Catalyst. Industrial & Engineering Chemistry Research, 2016, 55, 11900-11909.	3.7	12
74	Thermochemical Recycling of Automotive Shredder Residue by Chemical-Looping Gasification Using the Generated Ash as Oxygen Carrier. Energy & Fuels, 2019, 33, 11552-11566.	5.1	12
75	Thermochemical conversion of polyethylene in a fluidized bed: Impact of transition metal-induced oxygen transport on product distribution. Journal of Analytical and Applied Pyrolysis, 2022, 163, 105476.	5.5	12
76	Terahertz Spectroscopy for Real-Time Monitoring of Water Vapor and CO Levels in the Producer Gas From an Industrial Biomass Gasifier. IEEE Transactions on Terahertz Science and Technology, 2014, 4, 722-733.	3.1	10
77	Selfâ€Cleaning Surfaces for Heat Recovery During Industrial Hydrocarbonâ€Rich Gas Cooling: An Experimental and Numerical Study. AICHE Journal, 2019, 65, 317-325.	3.6	10
78	Development of Oxygen Transport Properties by Olivine and Feldspar in Industrial-Scale Dual Fluidized Bed Gasification of Woody Biomass. Energy & Fuels, 2021, 35, 9424-9436.	5.1	9
79	Experimental and numerical investigation of the dynamics of loop seals in a largeâ€scale DFB system under hot conditions. AICHE Journal, 2015, 61, 3580-3593.	3.6	8
80	Mechanism and Kinetic Modeling of Catalytic Upgrading of a Biomass-Derived Raw Gas: An Application with Ilmenite as Catalyst. Industrial & Engineering Chemistry Research, 2016, 55, 5843-5853.	3.7	8
81	Upscaling Effects on Char Conversion in Dual Fluidized Bed Gasification. Energy & Fuels, 2018, 32, 5933-5943.	5.1	8
82	Dual Fluidized Bed Gasification Configurations for Carbon Recovery from Biomass. Energy & Fuels, 2020, 34, 16187-16200.	5.1	8
83	Producer gas cleaning in a dual fluidized bed reformerâ€"a comparative study of performance with ilmenite and a manganese oxide as catalysts. Biomass Conversion and Biorefinery, 2012, 2, 245-252.	4.6	7
84	Method for online measurement of the CHON composition of raw gas from biomass gasifier. Applied Energy, 2014, 113, 932-945.	10.1	7
85	Industrial-Scale Benzene Adsorption: Assessment of a Baseline One-Dimensional Temperature Swing Model against Online Industrial Data. Industrial & Engineering Chemistry Research, 2020, 59, 12239-12249.	3.7	7
86	Measures to Reduce Grate Material Wear in Fixed-Bed Combustion. Energy & Fuels, 2011, 25, 1387-1395.	5.1	6
87	Methane synthesis. , 2019, , 221-243.		6
88	Challenges and Opportunities in the Eulerian Approach to Numerical Simulations of Fixed-bed Combustion of Biomass. Procedia Engineering, 2015, 102, 1573-1582.	1.2	5
89	Gasification Reaction Pathways of Condensable Hydrocarbons. Energy & Fuels, 2016, 30, 4951-4959.	5.1	5
90	Applicability of a kinetic model for catalytic conversion of tar and light hydrocarbons using process-activated ilmenite. Fuel, 2018, 231, 8-17.	6.4	5

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91	Impacts of Bed Material Activation and Fuel Moisture Content on the Gasification Rate of Biomass Char in a Fluidized Bed. Industrial & Engineering Chemistry Research, 2019, 58, 4802-4809.	3.7	5
92	Production of Negative-Emissions Steel Using a Reducing Gas Derived from DFB Gasification. Energies, 2021, 14, 4835.	3.1	5
93	Unraveling the hydrocracking capabilities of fluidized bed systems operated with natural ores as bed materials. Journal of Analytical and Applied Pyrolysis, 2022, 166, 105603.	5.5	5
94	Production of Activated Carbon within the Dual Fluidized Bed Gasification Process. Industrial & Engineering Chemistry Research, 2015, 54, 3761-3766.	3.7	4
95	Effects of bed aging on temperature signals from fixed-bed adsorbers during industrial operation. Results in Engineering, 2020, 8, 100156.	5.1	4
96	Using a manganese ore as catalyst for upgrading biomass derived gas. Biomass Conversion and Biorefinery, 2015, 5, 75.	4.6	3
97	A conversion-class model for describing fuel conversion in large-scale fluidized bed units. Fuel, 2017, 197, 42-50.	6.4	3
98	Control of the solids retention time by multi-staging a fluidized bed reactor. Fuel Processing Technology, 2017, 167, 171-182.	7.2	3
99	The GoBiGas plant. , 2019, , 455-474.		3
100	Mapping the Effects of Potassium on Fuel Conversion in Industrial-Scale Fluidized Bed Gasifiers and Combustors. Catalysts, 2021, 11, 1380.	3.5	2
101	Fluidized bed steam cracking of rapeseed oil: exploring the direct production of the molecular building blocks for the plastics industry. Biomass Conversion and Biorefinery, 2023, 13, 14511-14522.	4.6	1