Robert C Brown

List of Publications by Year
in descending order

100 papers	8,686 citations	57758 44 h-index	45317 90 g-index
106 all docs	106 docs citations	106 times ranked	6749 citing authors

#	Article	IF	Citations
1	Influence of inorganic salts on the primary pyrolysis products of cellulose. Bioresource Technology, 2010, 101, 4646-4655.	9.6	668
2	Techno-economic analysis of biomass fast pyrolysis to transportation fuels. Fuel, 2010, 89, S2-S10.	6.4	579
3	Review of the pyrolysis platform for coproducing bioâ€oil and biochar. Biofuels, Bioproducts and Biorefining, 2009, 3, 547-562.	3.7	554
4	Product distribution from fast pyrolysis of glucose-based carbohydrates. Journal of Analytical and Applied Pyrolysis, 2009, 86, 323-330.	5.5	400
5	Understanding the Fast Pyrolysis of Lignin. ChemSusChem, 2011, 4, 1629-1636.	6.8	399
6	Techno-economic comparison of biomass-to-transportation fuels via pyrolysis, gasification, and biochemical pathways. Fuel, 2010, 89, S29-S35.	6.4	395
7	Product Distribution from the Fast Pyrolysis of Hemicellulose. ChemSusChem, 2011, 4, 636-643.	6.8	370
8	Techno-economic analysis of biomass-to-liquids production based on gasification. Fuel, 2010, 89, S11-S19.	6.4	328
9	Distinguishing primary and secondary reactions of cellulose pyrolysis. Bioresource Technology, 2011, 102, 5265-5269.	9.6	295
10	Estimating profitability of two biochar production scenarios: slow pyrolysis <i>vs</i> fast pyrolysis. Biofuels, Bioproducts and Biorefining, 2011, 5, 54-68.	3.7	230
11	Formation of phenolic oligomers during fast pyrolysis of lignin. Fuel, 2014, 128, 170-179.	6.4	199
12	Enthalpy for Pyrolysis for Several Types of Biomass. Energy & Fuels, 2003, 17, 934-939.	5.1	190
13	The deleterious effect of inorganic salts on hydrocarbon yields from catalytic pyrolysis of lignocellulosic biomass and its mitigation. Applied Energy, 2015, 148, 115-120.	10.1	186
14	Techno-economic analysis of biomass to transportation fuels and electricity via fast pyrolysis and hydroprocessing. Fuel, 2013, 106, 463-469.	6.4	166
15	Pyrolytic Sugars from Cellulosic Biomass. ChemSusChem, 2012, 5, 2228-2236.	6.8	155
16	A review of cellulosic biofuel commercialâ€scale projects in the United States. Biofuels, Bioproducts and Biorefining, 2013, 7, 235-245.	3.7	145
17	Quantification of total phenols in bio-oil using the Folinâ€"Ciocalteu method. Journal of Analytical and Applied Pyrolysis, 2013, 104, 366-371.	5.5	113
18	Continuous production of sugars from pyrolysis of acid-infused lignocellulosic biomass. Green Chemistry, 2014, 16, 4144-4155.	9.0	106

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19	Hybrid thermochemical processing: fermentation of pyrolysis-derived bio-oil. Applied Microbiology and Biotechnology, 2011, 91, 1519-1523.	3.6	101
20	Techno-economic analysis of monosaccharide production via fast pyrolysis of lignocellulose. Bioresource Technology, 2013, 127, 358-365.	9.6	101
21	Sustainable Biocement Production via Microbially Induced Calcium Carbonate Precipitation: Use of Limestone and Acetic Acid Derived from Pyrolysis of Lignocellulosic Biomass. ACS Sustainable Chemistry and Engineering, 2017, 5, 5183-5190.	6.7	101
22	The impacts of biomass properties on pyrolysis yields, economic and environmental performance of the pyrolysis-bioenergy-biochar platform to carbon negative energy. Bioresource Technology, 2017, 241, 959-968.	9.6	88
23	Production of Clean Pyrolytic Sugars for Fermentation. ChemSusChem, 2014, 7, 1662-1668.	6.8	83
24	The use of calcium hydroxide pretreatment to overcome agglomeration of technical lignin during fast pyrolysis. Green Chemistry, 2015, 17, 4748-4759.	9.0	80
25	Functionality and molecular weight distribution of red oak lignin before and after pyrolysis and hydrogenation. Green Chemistry, 2017, 19, 1378-1389.	9.0	80
26	Secondary reactions of levoglucosan and char in the fast pyrolysis of cellulose. Environmental Progress and Sustainable Energy, 2012, 31, 256-260.	2.3	79
27	The effect of pyrolysis temperature on recovery of bio-oil as distinctive stage fractions. Journal of Analytical and Applied Pyrolysis, 2014, 105, 262-268.	5.5	79
28	Detailed characterization of red oak-derived pyrolysis oil: Integrated use of GC, HPLC, IC, GPC and Karl-Fischer. Journal of Analytical and Applied Pyrolysis, 2014, 110, 147-154.	5.5	78
29	Overliming detoxification of pyrolytic sugar syrup for direct fermentation of levoglucosan to ethanol. Bioresource Technology, 2013, 150, 220-227.	9.6	77
30	Thermochemical wastewater valorization<i>via</i>enhanced microbial toxicity tolerance. Energy and Environmental Science, 2018, 11, 1625-1638.	30.8	77
31	Role of levoglucosan physiochemistry in cellulose pyrolysis. Journal of Analytical and Applied Pyrolysis, 2013, 99, 58-65.	5.5	73
32	Total water-soluble sugars quantification in bio-oil using the phenolâ€“sulfuric acid assay. Journal of Analytical and Applied Pyrolysis, 2013, 104, 194-201.	5.5	72
33	Process intensification of biomass fast pyrolysis through autothermal operation of a fluidized bed reactor. Applied Energy, 2019, 249, 276-285.	10.1	70
34	Hydrogen-Donor-Assisted Solvent Liquefaction of Lignin to Short-Chain Alkylphenols Using a Micro Reactor/Gas Chromatography System. Energy & Fuels, 2014, 28, 6429-6437.	5.1	67
35	The influence of alkali and alkaline earth metals on char and volatile aromatics from fast pyrolysis of lignin. Journal of Analytical and Applied Pyrolysis, 2017, 127, 385-393.	5.5	63
36	Pyrolysis mechanisms of methoxy substituted Î±-O-4 lignin dimeric model compounds and detection of free radicals using electron paramagnetic resonance analysis. Journal of Analytical and Applied Pyrolysis, 2014, 110, 254-263.	5.5	61

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37	The effect of low-concentration oxygen in sweep gas during pyrolysis of red oak using a fluidized bed reactor. Fuel, 2014, 124, 49-56.	6.4	60
38	Production and purification of crystallized levoglucosan from pyrolysis of lignocellulosic biomass. Green Chemistry, 2019, 21, 5980-5989.	9.0	59
39	Comparative techno-economic analysis of advanced biofuels, biochemicals, and hydrocarbon chemicals via the fast pyrolysis platform. Biofuels, 2016, 7, 57-67.	2.4	57
40	An experimental study of the competing processes of evaporation and polymerization of levoglucosan in cellulose pyrolysis. Journal of Analytical and Applied Pyrolysis, 2013, 99, 130-136.	5.5	56
41	Quantitative Investigation of Free Radicals in Bioâ€Oil and their Potential Role in Condensedâ€Phase Polymerization. ChemSusChem, 2015, 8, 894-900.	6.8	56
42	Heat and Mass Transfer Effects in a Furnaceâ€Based Micropyrolyzer. Energy Technology, 2017, 5, 189-195.	3.8	53
43	Competing reactions limit levoglucosan yield during fast pyrolysis of cellulose. Green Chemistry, 2019, 21, 178-186.	9.0	51
44	Producing energy while sequestering carbon? The relationship between biochar and agricultural productivity. Biomass and Bioenergy, 2014, 63, 167-176.	5.7	45
45	Production of solubilized carbohydrate from cellulose using non-catalytic, supercritical depolymerization in polar aprotic solvents. Green Chemistry, 2016, 18, 1023-1031.	9.0	45
46	Techno-Economic Analysis of the Stabilization of Bio-Oil Fractions for Insertion into Petroleum Refineries. ACS Sustainable Chemistry and Engineering, 2017, 5, 1528-1537.	6.7	45
47	Biochar as an Additive in Anaerobic Digestion of Municipal Sludge: Biochar Properties and Their Effects on the Digestion Performance. ACS Sustainable Chemistry and Engineering, 2020, 8, 6391-6401.	6.7	45
48	Stabilization of bio-oils using low temperature, low pressure hydrogenation. Fuel, 2015, 153, 224-230.	6.4	44
49	Conventional and autothermal pyrolysis of corn stover: Overcoming the processing challenges of high-ash agricultural residues. Journal of Analytical and Applied Pyrolysis, 2019, 143, 104679.	5.5	44
50	Pretreatment Processes to Increase Pyrolytic Yield of Levoglucosan from Herbaceous Feedstocks. ACS Symposium Series, 2001, , 123-132.	0.5	42
51	Separation of sugars and phenolics from the heavy fraction of bio-oil using polymeric resin adsorbents. Separation and Purification Technology, 2018, 194, 170-180.	7.9	40
52	Pretreatments for the continuous production of pyrolytic sugar from lignocellulosic biomass. Chemical Engineering Journal, 2020, 385, 123889.	12.7	40
53	Anaerobic digestion of aqueous phase from pyrolysis of biomass: Reducing toxicity and improving microbial tolerance. Bioresource Technology, 2019, 292, 121976.	9.6	39
54	Improving Lignin Homogeneity and Functionality via Ethanolysis for Production of Antioxidants. ACS Sustainable Chemistry and Engineering, 2019, 7, 3520-3526.	6.7	37

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55	Modeling the physiochemistry of levoglucosan during cellulose pyrolysis. Journal of Analytical and Applied Pyrolysis, 2014, 105, 363-368.	5.5	35
56	Enhancing Biochar as Scaffolding for Slow Release of Nitrogen Fertilizer. ACS Sustainable Chemistry and Engineering, 2021, 9, 8222-8231.	6.7	34
57	Techno-economics of advanced biofuels pathways. RSC Advances, 2013, 3, 5758.	3.6	33
58	Partial oxidative pyrolysis of acid infused red oak using a fluidized bed reactor to produce sugar rich bio-oil. Fuel, 2014, 130, 135-141.	6.4	33
59	Ultra-Low Carbon Emissions from Coal-Fired Power Plants through Bio-Oil Co-Firing and Biochar Sequestration. Environmental Science & Technology, 2015, 49, 14688-14695.	10.0	33
60	Kinetic understanding of the effect of Na and Mg on pyrolytic behavior of lignin using a distributed activation energy model and density functional theory modeling. Green Chemistry, 2019, 21, 1099-1107.	9.0	33
61	Oxidation kinetics of biochar from woody and herbaceous biomass. Chemical Engineering Journal, 2020, 401, 126043.	12.7	33
62	Capture and Release of Orthophosphate by Fe-Modified Biochars: Mechanisms and Environmental Applications. ACS Sustainable Chemistry and Engineering, 2021, 9, 658-668.	6.7	33
63	The Role of Pyrolysis and Gasification in a Carbon Negative Economy. Processes, 2021, 9, 882.	2.8	32
64	Quantitation of Sugar Content in Pyrolysis Liquids after Acid Hydrolysis Using High-Performance Liquid Chromatography without Neutralization. Journal of Agricultural and Food Chemistry, 2014, 62, 8129-8133.	5.2	30
65	Effect of biomass heating time on bio-oil yields in a free fall fast pyrolysis reactor. Fuel, 2016, 166, 361-366.	6.4	30
66	The Influence of Alkali and Alkaline Earth Metals and the Role of Acid Pretreatments in Production of Sugars from Switchgrass Based on Solvent Liquefaction. Energy & Fuels, 2014, 28, 1111-1120.	5.1	26
67	Continuous solvent liquefaction of biomass in a hydrocarbon solvent. Fuel, 2018, 211, 291-300.	6.4	25
68	Process Intensification through Directly Coupled Autothermal Operation of Chemical Reactors. Joule, 2020, 4, 2268-2289.	24.0	25
69	Regional technoâ€economic and lifeâ€cycle analysis of the pyrolysisâ€bioenergyâ€biochar platform for carbonâ€negative energy. Biofuels, Bioproducts and Biorefining, 2019, 13, 1428-1438.	3.7	23
70	Low temperature aqueous phase hydrogenation of the light oxygenate fraction of bio-oil over supported ruthenium catalysts. Green Chemistry, 2017, 19, 3252-3262.	9.0	22
71	Comparison of direct and indirect contact heat exchange to improve recovery of bio-oil. Applied Energy, 2019, 251, 113346.	10.1	21
72	Non-catalytic oxidative depolymerization of lignin in perfluorodecalin to produce phenolic monomers. Green Chemistry, 2020, 22, 6567-6578.	9.0	21

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73	Heterodoxy in Fast Pyrolysis of Biomass. Energy & Fuels, 2021, 35, 987-1010.	5.1	21
74	Promoting microbial utilization of phenolic substrates from bio-oil. Journal of Industrial Microbiology and Biotechnology, 2019, 46, 1531-1545.	3.0	18
75	Detoxification of Corn Stover and Corn Starch Pyrolysis Liquors by Ligninolytic Enzymes of Phanerochaete chrysosporium. Journal of Agricultural and Food Chemistry, 2005, 53, 2969-2977.	5.2	17
76	Solubilized Carbohydrate Production by Acidâ€Catalyzed Depolymerization of Cellulose in Polar Aprotic Solvents. ChemistrySelect, 2018, 3, 4777-4785.	1.5	17
77	Impacts of Anisotropic Porosity on Heat Transfer and Off-Gassing during Biomass Pyrolysis. Energy & Fuels, 2021, 35, 20131-20141.	5.1	17
78	Damage to the microbial cell membrane during pyrolytic sugar utilization and strategies for increasing resistance. Journal of Industrial Microbiology and Biotechnology, 2017, 44, 1279-1292.	3.0	16
79	Visualization of physicochemical phenomena during biomass pyrolysis in an optically accessible reactor. Journal of Analytical and Applied Pyrolysis, 2019, 143, 104667.	5.5	16
80	Oxidation of phenolic compounds during autothermal pyrolysis of lignocellulose. Journal of Analytical and Applied Pyrolysis, 2020, 149, 104853.	5.5	16
81	Comparison of product distribution, content and fermentability of biomass in a hybrid thermochemical/biological processing platform. Biomass and Bioenergy, 2019, 120, 107-116.	5.7	15
82	Thermal Stability of Fractionated Bio-Oil from Fast Pyrolysis. Energy & Fuels, 2016, 30, 9419-9426.	5.1	14
83	Transformation of char carbon during bubbling fluidized bed gasification of biomass. Fuel, 2019, 242, 837-845.	6.4	14
84	Biomass pyrolysis devolatilization kinetics of herbaceous and woody feedstocks. Fuel Processing Technology, 2022, 226, 107068.	7.2	14
85	CFDâ€"DEM modeling of autothermal pyrolysis of corn stover with a coupled particle- and reactor-scale framework. Chemical Engineering Journal, 2022, 446, 136920.	12.7	14
86	Comparison of Fast Pyrolysis Behavior of Cornstover Lignins Isolated by Different Methods. ACS Sustainable Chemistry and Engineering, 2017, 5, 5657-5661.	6.7	13
87	Factors Influencing Cellulosic Sugar Production during Acid-Catalyzed Solvent Liquefaction in 1,4-Dioxane. ACS Sustainable Chemistry and Engineering, 2019, 7, 18076-18084.	6.7	13
88	Optimization of Phenolic Monomer Production from Solvent Liquefaction of Lignin. ACS Sustainable Chemistry and Engineering, 2018, 6, 12675-12683.	6.7	12
89	Machine Learning Reduced Order Model for Cost and Emission Assessment of a Pyrolysis System. Energy & Fuels, 2021, 35, 9950-9960.	5.1	12
90	The role of catalytic iron in enhancing volumetric sugar productivity during autothermal pyrolysis of woody biomass. Chemical Engineering Journal, 2022, 427, 131882.	12.7	12

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91	The role of biochar in the degradation of sugars during fast pyrolysis of biomass. Journal of Analytical and Applied Pyrolysis, 2022, 161, 105416.	5.5	11
92	Premethylation of Lignin Hydroxyl Functionality for Improving Storage Stability of Oil from Solvent Liquefaction. Energy & Fuels, 2019, 33, 1248-1255.	5.1	10
93	Application of Hydroprocessing, Fermentation, and Anaerobic Digestion in a Carbon-Negative Pyrolysis Refinery. ACS Sustainable Chemistry and Engineering, 2020, 8, 16413-16421.	6.7	10
94	The effect of moisture on hydrocarbon-based solvent liquefaction of pine, cellulose and lignin. Journal of Analytical and Applied Pyrolysis, 2020, 146, 104758.	5.5	7
95	A novel semi-batch autoclave reactor to overcome thermal dwell time in solvent liquefaction experiments. Chemical Engineering Journal, 2021, 417, 128074.	12.7	4
96	Global Gas-Phase Oxidation Rates of Select Products from the Fast Pyrolysis of Lignocellulose. Energy & Fuels, 0, , .	5.1	4
97	Investigating the Impacts of Feedstock Variability on a Carbon-Negative Autothermal Pyrolysis System Using Machine Learning. Frontiers in Climate, 2022, 4, .	2.8	4
98	Conversion of Phenolic Oil from Biomass Pyrolysis into Phenyl Esters. Energy & Fuels, 2022, 36, 6317-6328.	5.1	3
99	Tetrahydrofuran-based two-step solvent liquefaction process for production of lignocellulosic sugars. Reaction Chemistry and Engineering, 2020, 5, 1694-1707.	3.7	2
100	Retention of oxyanions on biochar surface. , 2022, , 233-276.		1