OndÅej MaÅ¡ek

List of Publications by Year
in descending order

115 papers	6,714 citations	66336 42 h-index	69246 77 g-index
122 all docs	122 docs citations	122 times ranked	6086 citing authors

#	Article	IF	Citations
1	The effect of pyrolysis conditions on biochar stability as determined by three methods. GCB Bioenergy, 2013, 5, 122-131.	5.6	372
2	A critical review of clay-based composites with enhanced adsorption performance for metal and organic pollutants. Journal of Hazardous Materials, 2019, 369, 780-796.	12.4	314
3	Heterogeneity of biochar properties as a function of feedstock sources and production temperatures. Journal of Hazardous Materials, 2013, 256-257, 1-9.	12.4	287
4	Influence of production conditions on the yield and environmental stability of biochar. Fuel, 2013, 103, 151-155.	6.4	250
5	CO2 Capture Technologies for Cement Industry. Energy Procedia, 2009, 1, 133-140.	1.8	249
6	Evaluating biochar and its modifications for the removal of ammonium, nitrate, and phosphate in water. Water Research, 2020, 186, 116303.	11.3	248
7	Indispensable role of biochar-inherent mineral constituents in its environmental applications: A review. Bioresource Technology, 2017, 241, 887-899.	9.6	239
8	New trends in biochar pyrolysis and modification strategies: feedstock, pyrolysis conditions, sustainability concerns and implications for soil amendment. Soil Use and Management, 2020, 36, 358-386.	4.9	200
9	Microwave and slow pyrolysis biocharâ€"Comparison of physical and functional properties. Journal of Analytical and Applied Pyrolysis, 2013, 100, 41-48.	5.5	193
10	A meta-analysis on biochar's effects on soil water properties â€" New insights and future research challenges. Science of the Total Environment, 2020, 714, 136857.	8.0	157
11	Review of biochar role as additive in anaerobic digestion processes. Renewable and Sustainable Energy Reviews, 2020, 131, 110037.	16.4	153
12	Prospective contributions of biomass pyrolysis to Chinaâ€™s 2050 carbon reduction and renewable energy goals. Nature Communications, 2021, 12, 1698.	12.8	146
13	Mobile organic compounds in biochar â€" A potential source ofÂcontamination â€" Phytotoxic effects on cress seed (LepidiumÂsativum) germination. Journal of Environmental Management, 2014, 137, 111-119.	7.8	132
14	Dual Functionality of TiO₂/Biochar Hybrid Materials: Photocatalytic Phenol Degradation in the Liquid Phase and Selective Oxidation of Methanol in the Gas Phase. ACS Sustainable Chemistry and Engineering, 2017, 5, 6274-6287.	6.7	130
15	Inherent organic compounds in biocharâ€"Their content, composition and potential toxic effects. Journal of Environmental Management, 2015, 156, 150-157.	7.8	129
16	Roles of Phosphoric Acid in Biochar Formation: Synchronously Improving Carbon Retention and Sorption Capacity. Journal of Environmental Quality, 2017, 46, 393-401.	2.0	123
17	Suitability of marginal biomass-derived biochars for soil amendment. Science of the Total Environment, 2016, 547, 314-322.	8.0	103
18	Pyrolysis biochar systems, balance between bioenergy and carbon sequestration. GCB Bioenergy, 2015, 7, 349-361.	5.6	100

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19	Strategies for producing biochars with minimum PAH contamination. Journal of Analytical and Applied Pyrolysis, 2016, 119, 24-30.	5.5	93
20	Consistency of biochar properties over time and production scales: A characterisation of standard materials. Journal of Analytical and Applied Pyrolysis, 2018, 132, 200-210.	5.5	91
21	Toward the Standardization of Biochar Analysis: The COST Action TD1107 Interlaboratory Comparison. Journal of Agricultural and Food Chemistry, 2016, 64, 513-527.	5.2	86
22	Estimation of Enthalpy of Bio-Oil Vapor and Heat Required for Pyrolysis of Biomass. Energy & Fuels, 2013, 27, 2675-2686.	5.1	82
23	Country-level potential of carbon sequestration and environmental benefits by utilizing crop residues for biochar implementation. Applied Energy, 2021, 282, 116275.	10.1	81
24	Investigating the potential for a self-sustaining slow pyrolysis system under varying operating conditions. Bioresource Technology, 2014, 162, 148-156.	9.6	80
25	A state-of-the-art review on algae pyrolysis for bioenergy and biochar production. Bioresource Technology, 2022, 346, 126258.	9.6	79
26	Biochar â€“ synergies and tradeâ€offs between soil enhancing properties and C sequestration potential. GCB Bioenergy, 2015, 7, 1161-1175.	5.6	75
27	Interaction of Inherent Minerals with Carbon during Biomass Pyrolysis Weakens Biochar Carbon Sequestration Potential. ACS Sustainable Chemistry and Engineering, 2019, 7, 1591-1599.	6.7	74
28	Biochar composites: Emerging trends, field successes and sustainability implications. Soil Use and Management, 2022, 38, 14-38.	4.9	73
29	Potassium doping increases biochar carbon sequestration potential by 45%, facilitating decoupling of carbon sequestration from soil improvement. Scientific Reports, 2019, 9, 5514.	3.3	69
30	Risks and benefits of marginal biomass-derived biochars for plant growth. Science of the Total Environment, 2016, 569-570, 496-506.	8.0	67
31	Catalytic Fast Pyrolysis of Biomass over Microporous and Hierarchical Zeolites: Characterization of Heavy Products. ACS Sustainable Chemistry and Engineering, 2018, 6, 4717-4728.	6.7	62
32	Combination of electrospray ionization, atmospheric pressure photoionization and laser desorption ionization Fourier transform ion cyclotronic resonance mass spectrometry for the investigation of complex mixtures â€“ Application to the petroleomic analysis of bio-oils. Analytica Chimica Acta, 2017, 969, 26-34.	5.4	58
33	Torrefaction/biochar production by microwave and conventional slow pyrolysis â€“ comparison of energy properties. GCB Bioenergy, 2013, 5, 144-152.	5.6	56
34	Hydrothermal Carbonization of Digestate in the Presence of Zeolite: Process Efficiency and Composite Properties. ACS Sustainable Chemistry and Engineering, 2015, 3, 2967-2974.	6.7	53
35	Thermochemical decomposition of coffee ground residues by TG-MS: A kinetic study. Journal of Analytical and Applied Pyrolysis, 2018, 130, 358-367.	5.5	53
36	Investigation of biomass and agricultural plastic co-pyrolysis: Effect on biochar yield and properties. Journal of Analytical and Applied Pyrolysis, 2021, 155, 105029.	5.5	50

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37	Influence of pyrolysis temperature and production unit on formation of selected PAHs, oxy-PAHs, N-PACs, PCDDs, and PCDFs in biocharâ€"a screening study. Environmental Science and Pollution Research, 2018, 25, 3933-3940.	5.3	49
38	Quick pyrolysis of a massive coal sample via rapid infrared heating. Applied Energy, 2019, 242, 732-740.	10.1	49
39	Pyrolytic temperature evaluation of macauba biochar for uranium adsorption from aqueous solutions. Biomass and Bioenergy, 2019, 122, 381-390.	5.7	49
40	Do you BET on routine? The reliability of N2 physisorption for the quantitative assessment of biocharâ€™s surface area. Chemical Engineering Journal, 2021, 418, 129234.	12.7	49
41	Spatial and temporal microscale pH change at the soil-biochar interface. Geoderma, 2018, 331, 50-52.	5.1	48
42	Removal of contaminants of emerging concern from multicomponent systems using carbon dioxide activated biochar from lignocellulosic feedstocks. Bioresource Technology, 2021, 340, 125561.	9.6	48
43	Toxicity screening of biochar-mineral composites using germination tests. Chemosphere, 2018, 207, 91-100.	8.2	45
44	Synergies between BECCS and Biocharâ€"Maximizing Carbon Sequestration Potential by Recycling Wood Ash. ACS Sustainable Chemistry and Engineering, 2019, 7, 4204-4209.	6.7	44
45	Self-ignition of natural fuels: Can wildfires of carbon-rich soil start by self-heating?. Fire Safety Journal, 2017, 91, 828-834.	3.1	43
46	Unlocking the Fertilizer Potential of Waste-Derived Biochar. ACS Sustainable Chemistry and Engineering, 2020, 8, 12295-12303.	6.7	43
47	Self-heating behavior and ignition of shale rock. Combustion and Flame, 2017, 176, 213-219.	5.2	42
48	Unexplored potential of novel biochar-ash composites for use as organo-mineral fertilizers. Journal of Cleaner Production, 2019, 208, 960-967.	9.3	41
49	Slow Pyrolysis Performance and Energy Balance of Corn Stover in Continuous Pyrolysis-Based Poly-Generation Systems. Energy & Fuels, 2018, 32, 3743-3750.	5.1	40
50	Feedstock doping using iron rich waste increases the pyrolysis gas yield and adsorption performance of magnetic biochar for emerging contaminants. Bioresource Technology, 2021, 321, 124473.	9.6	40
51	Mineral-enriched biochar delivers enhanced nutrient recovery and carbon dioxide removal. Communications Earth & Environment, 2022, 3, .	6.8	39
52	Interparticle Desorption and Re-adsorption of Alkali and Alkaline Earth Metallic Species within a Bed of Pyrolyzing Char from Pulverized Woody Biomass. Energy & Fuels, 2006, 20, 1294-1297.	5.1	38
53	Simultaneous Maximization of the Char Yield and Volatility of Oil from Biomass Pyrolysis. Energy & Fuels, 2013, 27, 247-254.	5.1	38
54	The role of biochar particle size and hydrophobicity in improving soil hydraulic properties. European Journal of Soil Science, 2022, 73, .	3.9	38

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55	Co-hydrothermal carbonization of swine and chicken manure: Influence of cross-interaction on hydrochar and liquid characteristics. Science of the Total Environment, 2021, 786, 147381.	8.0	38
56	High-VOC biocharâ€"effectiveness of post-treatment measures and potential health risks related to handling and storage. Environmental Science and Pollution Research, 2016, 23, 19580-19589.	5.3	36
57	Source and Biological Response of Biochar Organic Compounds Released into Water; Relationships with Bio-Oil Composition and Carbonization Degree. Environmental Science & Technology, 2017, 51, 6580-6589.	10.0	35
58	Design and Fabrication of TiO₂/Lignocellulosic Carbon Materials: Relevance of Lowâ€temperature Sonocrystallization to Photocatalysts Performance. ChemCatChem, 2018, 10, 3469-3480.	3.7	35
59	Designing an optimised supply network for sustainable conversion of waste agricultural plastics into higher value products. Journal of Cleaner Production, 2018, 189, 683-700.	9.3	34
60	Pyrolysis characteristics of waste tire particles in fixed-bed reactor with internals. Carbon Resources Conversion, 2018, 1, 228-237.	5.9	34
61	Contaminants in biochar and suggested mitigation measures â€" a review. Chemical Engineering Journal, 2022, 429, 132287.	12.7	34
62	Experimental Study of Self-heating Ignition of Lithium-Ion Batteries During Storage: Effect of the Number of Cells. Fire Technology, 2020, 56, 2649-2669.	3.0	33
63	Examination of catalytic roles of inherent metallic species in steam reforming of nascent volatiles from the rapid pyrolysis of a brown coal. Fuel Processing Technology, 2007, 88, 179-185.	7.2	32
64	Quantifying self-heating ignition of biochar as a function of feedstock and the pyrolysis reactor temperature. Fuel, 2019, 236, 201-213.	6.4	32
65	New directions and challenges in engineering biologically-enhanced biochar for biological water treatment. Science of the Total Environment, 2021, 796, 148977.	8.0	32
66	Uranium removal from aqueous solution using macauba endocarp-derived biochar: Effect of physical activation. Environmental Pollution, 2021, 272, 116022.	7.5	31
67	Aging features of metal(loid)s in biochar-amended soil: Effects of biochar type and aging method. Science of the Total Environment, 2022, 815, 152922.	8.0	31
68	A study on pyrolytic gasification of coffee grounds and implications to allothermal gasification. Biomass and Bioenergy, 2008, 32, 78-89.	5.7	30
69	Valorization of humins from food waste biorefinery for synthesis of biochar-supported Lewis acid catalysts. Science of the Total Environment, 2021, 775, 145851.	8.0	30
70	Production and use of biochar from lignin and lignin-rich residues (such as digestate and olive) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 142	5.5	30
71	Experimental measurement of particle size effects on the self-heating ignition of biomass piles: Homogeneous samples of dust and pellets. Fuel, 2019, 256, 115838.	6.4	29
72	Novel biomass-derived hybrid TiO 2 /carbon material using tar-derived secondary char to improve TiO 2 bonding to carbon matrix. Journal of Analytical and Applied Pyrolysis, 2018, 131, 35-41.	5.5	28

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73	Recent trends in biochar integration with anaerobic fermentation: Win-win strategies in a closed-loop. Renewable and Sustainable Energy Reviews, 2021, 149, 111371.	16.4	28
74	Algae, biochar and bacteria for acid mine drainage (AMD) remediation: A review. Chemosphere, 2022, 304, 135284.	8.2	28
75	Superior activity of metal oxide biochar composite in hydrogen evolution under artificial solar irradiation: A promising alternative to conventional metal-based photocatalysts. International Journal of Hydrogen Energy, 2019, 44, 28698-28708.	7.1	26
76	Biochar amendment improves alpine meadows growth and soil health in Tibetan plateau over a three year period. Science of the Total Environment, 2020, 717, 135296.	8.0	26
77	Customizing high-performance molten salt biochar from wood waste for CO2/N2 separation. Fuel Processing Technology, 2022, 234, 107319.	7.2	23
78	Detailed Analysis of Residual Volatiles in Chars from the Pyrolysis of Biomass and Lignite. Energy & Fuels, 2013, 27, 3209-3223.	5.1	21
79	Chemical stabilization of Cd-contaminated soil using fresh and aged wheat straw biochar. Environmental Science and Pollution Research, 2021, 28, 10155-10166.	5.3	20
80	Analysis of the influence of activated biochar properties on methane production from anaerobic digestion of waste activated sludge. Biomass and Bioenergy, 2021, 150, 106129.	5.7	20
81	Rapid Gasification of Nascent Char in Steam Atmosphere during the Pyrolysis of Na- and Ca-Ion-Exchanged Brown Coals in a Drop-Tube Reactor. Energy & Fuels, 2009, 23, 4496-4501.	5.1	18
82	Influence of Biochar Composition and Source Material on Catalytic Performance: The Carboxylation of Glycerol with CO2 as a Case Study. Catalysts, 2020, 10, 1067.	3.5	16
83	Composition of PAHs in Biochar and Implications for Biochar Production. ACS Sustainable Chemistry and Engineering, 2022, 10, 6755-6765.	6.7	16
84	Advances in algal biochar: Production, characterization and applications. Bioresource Technology, 2020, 317, 123982.	9.6	15
85	Comparison of Pyrolysis Liquids from Continuous and Batch Biochar Productionâ€"Influence of Feedstock Evidenced by FTICR MS. Energies, 2021, 14, 9.	3.1	15
86	Numerical Study of Self-Heating Ignition of a Box of Lithium-Ion Batteries During Storage. Fire Technology, 2020, 56, 2603-2621.	3.0	14
87	Kinetic study of pyrolysis of highâ€density polyethylene (HDPE) waste at different bed thickness in a fixed bed reactor. Canadian Journal of Chemical Engineering, 2021, 99, 1733-1744.	1.7	14
88	Immobilizing chromate reductase NfoR on magnetic biochar reduced Cr(VI) in copper-containing wastewater. Journal of Cleaner Production, 2022, 361, 132118.	9.3	14
89	Secondary cracking of volatile and its avoidance in infrared-heating pyrolysis reactor. Carbon Resources Conversion, 2018, 1, 202-208.	5.9	12
90	Biochar from pyrolyzed Tibetan Yak dung as a novel additive in ensiling sweet sorghum: An alternate to the hazardous use of Yak dung as a fuel in the home. Journal of Hazardous Materials, 2021, 403, 123647.	12.4	10

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91	Addition of Different Biochars as Catalysts during the Mesophilic Anaerobic Digestion of Mixed Wastewater Sludge. Catalysts, 2021, 11, 1094.	3.5	10
92	Anisotropic and homogeneous model of heat transfer for self-heating ignition of large ensembles of lithium-ion batteries during storage. Applied Thermal Engineering, 2021, 197, 117301.	6.0	10
93	Biochar stability scores from analytical pyrolysis (Py-GC-MS). Journal of Analytical and Applied Pyrolysis, 2022, 161, 105412.	5.5	10
94	Comparative study on the characteristics and environmental risk of potentially toxic elements in biochar obtained via pyrolysis of swine manure at lab and pilot scales. Science of the Total Environment, 2022, 825, 153941.	8.0	10
95	Evaluating the performance of honeycomb briquettes produced from semi-coke and corn stover char: Co-combustion, emission characteristics, and a value-chain model for rural China. Journal of Cleaner Production, 2020, 244, 118770.	9.3	9
96	Specific enrichment of hydrocarbonclastic bacteria from diesel-amended soil on biochar particles. Science of the Total Environment, 2021, 762, 143084.	8.0	9
97	Comprehensive analysis of industrial-scale heating plants based on different biomass slow pyrolysis technologies: Product property, energy balance, and ecological impact. Cleaner Engineering and Technology, 2022, 6, 100391.	4.0	9
98	How to trace back an unknown production temperature of biochar from chemical characterization methods in a feedstock independent way. Journal of Analytical and Applied Pyrolysis, 2020, 151, 104926.	5.5	8
99	A Graphical-User-Interface application for multifractal analysis of soil and plant structures. Computers and Electronics in Agriculture, 2020, 174, 105454.	7.7	8
100	Co-combustion, co-densification, and pollutant emission characteristics of charcoal-based briquettes prepared using bio-tar as a binder. Fuel, 2021, 287, 119512.	6.4	8
101	Biochar from sawmill residues: characterization and evaluation for its potential use in the horticultural growing media. Biochar, 2021, 3, 201-212.	12.6	8
102	Effect of Pyrolysis Temperature on the Characterisation of Dissolved Organic Matter from Pyroligneous Acid. Molecules, 2021, 26, 3416.	3.8	8
103	Biochar, Tool for Climate Change Mitigation and Soil Management. , 2013, , 73-140.		7
104	Synchrotron X-ray microtomography and multifractal analysis for the characterization of pore structure and distribution in softwood pellet biochar. Biochar, 2021, 3, 671-686.	12.6	7
105	Semi-continuous anaerobic digestion of mixed wastewater sludge with biochar addition. Bioresource Technology, 2021, 340, 125664.	9.6	7
106	Biocidal Activity of Fast Pyrolysis Biochar against Escherichia coli O157:H7 in Soil Varies Based on Production Temperature or Age of Biochar. Journal of Food Protection, 2020, 83, 1020-1029.	1.7	7
107	Numerical Simulation of Secondary Gas Phase Reactions of Coffee Grounds with a Detailed Chemical Kinetic Model. Nihon Enerugi Gakkaishi/Journal of the Japan Institute of Energy, 2010, 89, 955-961.	0.2	6
108	Study on multi-objective optimization of load dispatch including renewable energy and CCS technologies. International Journal of Energy Research, 2009, 34, n/a-n/a.	4.5	4

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109	SPEAR (Solar Pyrolysis Energy Access Reactor): Theoretical Design and Evaluation of a Small-Scale Low-Cost Pyrolysis Unit for Implementation in Rural Communities. Energies, 2021, 14, 2189.	3.1	4
110	Highly efficient phosphorus recovery from sludge and manure biochars using potassium acetate pre-treatment. Journal of Environmental Management, 2022, 314, 115035.	7.8	4
111	Superior visible-light photocatalytic activity of biocarbon derived from sewage sludge in the absence of active phase for hydrogen production. AIP Conference Proceedings, 2019, , .	0.4	1
112	Engineered biochar as a potential adsorbent for carbon dioxide capture. , 2022, , 345-359.		1
113	Sequential biochar systems in a circular economy. , 2022, , 305-319.		1
114	Opening the black box: Soil microcosm experiments reveal soot black carbon short-term oxidation and influence on soil organic carbon mineralisation. Science of the Total Environment, 2021, 801, 149659.	8.0	0
115	Prospects of Biochar for Carbon Sequestration and Livelihood Improvement in theÂTibetan Grasslands. , 2020, , 185-196.		0