

# 洁净煤技术

第30卷 第3期 (总第163期) 2024年3月

## 目次

### 2060 碳中和

双碳时代下多源生物质热化学转化资源化利用研究进展

..... 陆强, 谢文奎, 胡斌, 刘吉, 张镇西, 李凯(1)

### “生物质 & 固废低碳清洁利用”专题

微藻粗生物油催化加氢提质: 外加氢源影响 ..... 王智聪, 谢龙飞, 段培高(21)

碳中和愿景下有机固废热转化清洁利用技术研究现状与展望

..... 杨天华, 佟瑶, 翟英媚, 崔爽, 马英(29)

污泥4种热处理产物中磷的化学提取-沉淀回收性能

..... 张芷晗, 罗欣宜, 张艾嘉, 杨应举, 刘晶, 乔瑜(52)

CO<sub>2</sub>间接矿化工业固废制备多晶型碳酸钙研究进展 ..... 梅杰琼, 陆诗建, 任雪峰, 康国俊, 刘玲(59)

低阶煤和生物质水热碳化特性及水热炭功能化改性研究进展 ..... 宋瑞珍, 杨晓阳, 张鹏, 王宝凤(72)

钙钛矿锚定纳米氧化铈及其化学链干重整性能 ..... 章菊萍, 宋富平, 刘天柱, 朱焘, 李东方, 祝星(86)

我国30省份秸秆水热液化技术的碳减排潜力分析

..... 刘祚希, 魏莹莹, 王建, 杨天华, 王姗姗, 李秉硕, 李彦龙, 刘珊(96)

生物质焦反应活性及其与拉曼光谱表征关联性研究进展

..... 包钰言, 卢志民, 陈金铮, 蔡坚锋, 姚顺春(106)

生物质碳基电解水催化剂定向构筑研究进展

..... 刘法明, 李国宁, 马为洋, 郭敏, 李诗杰, 肖强强, 陆万鹏, 李辉(124)

兰炭与生物质混合燃烧对NO<sub>x</sub>、SO<sub>2</sub>排放及燃烧特性的影响

..... 王学文, 陈隆, 张朝, 张鑫, 刘鹏中, 杨石(137)

### 研究论文

宁东能源化工基地燃煤电厂粉煤灰的矿物学及元素地球化学特征

..... 黄鹏程, 蔡飞飞, 吴天才, 赵辉, 郭伟勇, 梁永平, 祁风华(145)

活性焦孔结构与含氮官能团协同构筑对低温NO还原特性影响

..... 阳嘉程, 何敏强, 曲智斌, 陈兰鑫, 杨成龙, 李阳, 孙飞(153)

燃煤机组烟气挥发性有机物排放特征

..... 陈超, 刘卫平, 汤国锋, 丁一, 张建伟, 朱希峰, 王家伟, 汪涛, 张永生(161)

期刊基本参数: CN 11-3676/TD \* 1995 \* m \* A4 \* 169 \* zh \* P \* ¥35.00 \* 1000 \* 14 \* 2024-03

本期执行编辑: 常明然

# Clean Coal Technology

Vol.30 No.3 (Series No.163) Mar. 2024

## CONTENTS

---

### Column for Carbon Neutrality

Research progress on the resource utilization of multi-source biomass thermo-chemical conversion for carbon peaking and carbon neutrality ..... *LU Qiang, XIE Wenluan, HU Bin, LIU Ji, ZHANG Zhenxi, LI Kai*(1)

### Special Topic on Low-carbon Cleaner Utilization of Biomass and Solid Waste

Hydro-upgrading of crude algal bio-oil: Influence of external hydrogen sources ..... *WANG Zhicong, XIE Longfei, DUAN Peigao*(21)

Research status and prospects of thermal conversion clean utilization technology for organic solid waste under the carbon-neutral vision ..... *YANG Tianhua, TONG Yao, ZHAI Yingmei, CUI Shuang, MA Ying*(29)

Chemical extraction and precipitation recovery performance of phosphorus from four kinds of sludge heat treatment products ..... *ZHANG Zhihan, LUO Xinyi, ZHANG Aijia, YANG Yingju, LIU Jing, QIAO Yu*(52)

Preparation of various crystal forms of calcium carbonate from industrial solid waste by CO<sub>2</sub> indirect mineralization ..... *MEI Jieqiong, LU Shijian, REN Xuefeng, KANG Guojun, LIU Ling*(59)

Research progress on the hydrothermal carbonization characteristics of low rank coal and biomass and the functionalization modification of hydrochar ..... *SONG Ruizhen, YANG Xiaoyang, ZHANG Peng, WANG Baofeng*(72)

Perovskite-anchored ceria for chemical looping dry reforming ..... *ZHANG Juping, SONG Fuping, LIU Tianzhu, ZHU Tao, LI Dongfang, ZHU Xing*(86)

Analysis of the carbon emission reduction potential of straw hydrothermal liquefaction technology in 30 provinces of China ..... *LIU Zuoxi, WEI Yingying, WANG Jian, YANG Tianhua, WANG Shanshan, LI Bingshuo, LI Yanlong, LIU Shan*(96)

Research progress on the reactivity of biomass char and its correlation with Raman spectroscopy characterization ..... *BAO Zhengyan, LU Zhimin, CHEN Jinzheng, CAI Jianfeng, YAO Shunchun*(106)

Research progress in directional construction of biomass carbon-based electrolysis water catalysts ..... *LIU Faming, LI Guoning, MA Weiyang, GUO Min, LI Shijie, XIAO Qiangqiang, LU Wanpeng, LI Hui*(124)

Effects of co-combustion of semi-coke and biomass on emissions and combustion characteristics of NO<sub>x</sub> and SO<sub>2</sub> ..... *WANG Xuwen, CHEN Long, ZHANG Chao, ZHANG Xin, LIU Pengzhong, YANG Shi*(137)

### Research Articles

Mineralogical elemental and geochemistry characteristics of fly ash from coal-fired power plants in Ningdong Energy Chemical Industry Base ..... *HUANG Pengcheng, CAI Feifei, WU Tiancai, ZHAO Hui, GUO Weiyong, LIANG Yongping, QI Fenghua*(145)

Effect of synergistically constructed pore configuration and nitrogen-containing functional groups on low-temperature NO reduction performance of activated coke ..... *YANG Jiacheng, HE Minqiang, QU Zhibin, CHEN Lanxin, YANG Chenglong, LI Yang, SUN Fei*(153)

VOCs emission characteristics of coal-fired units ..... *CHEN Chao, LIU Weiping, TANG Guofeng, DING Yi, ZHANG Jianwei, ZHU Xifeng, WANG Jiawei, WANG Tao, ZHANG Yongsheng*(161)