目 次

环境工程学科基础研究领域亮点成果系列专稿	
曹世杰教授团队在城市热岛缓解策略研究取得重要进展	(2647)
特邀专稿	
国家自然科学基金委环境工程学科基础研究人才发展	(2649)
聚氨酯废物处置和利用技术研究进展 杨方雄,谭全银,朱卫平,梁媛,任慧清,吕溥	(2655)
中国碳移除技术专题	
《中国碳移除技术专题》序言一	(2664)
《中国碳移除技术专题》序言二 ·····	(2665)
中国碳移除技术应用现状与未来发展潜力探析	(2666)
2020—2060年中国森林碳汇及碳移除潜力分析	
	(2677)
海洋碳汇助力碳中和态势分析	(2686)
1980—2020 年津冀滨海湿地碳储量演变特征及驱动因素 蔡雅静, 刘瑞志, 王丽平, 徐秀丽, 刘任红	(2697)
玄武岩二氧化碳矿化封存 (I): 技术特点及适用条件 ··················· 周蒂,夏菖佑,李鹏春,梁希	(2708)
二氧化碳地质封存风险识别方法与案例应用	(2719)
基于经济可行性的 CCUS 地质封存评估——以陕西省为例 ······	
	(2729)
基于熵权 TOPSIS 法的延长石油 CO_2 地质封存潜力评价 · · · · · · · · · · · · · · · · · · ·	
基于文献计量学的地热能发展态势及热点分析李娜娜,陶诚,熊萍,孔彦龙,李霞颖,赵晏强	
海上老井井筒完整性失效机制及二氧化碳注入可行性研究进展"	
碳核查与交易需求背景下固定源 CO_2 排放连续监测技术分析 ····································	(2764)
《中国碳移除技术专题》特邀学术编辑 ·····	(2774)
水污染防治	
$Cu_{n}S$ 纳米团簇磁性吸附剂的制备及其对 Hg^{2+} 的吸附性能与机理 ····································	(2775)
预氧化对聚铝混凝去除拉氏尖头藻水华的影响	
	(2785)
循环水养殖系统水体中抗生素抗性基因的污染特征 刘欣,薛凯峋,辛会博,朱晨朝,王永康,韩梅琳,唐富江	(2795)
低温下磁加载强化纯膜 MBBR 工艺除磷效果 ············ 李金成,焦硕,夏文香,刘杰,董京洲,郑泽坤,王占江	(2805)
大治湖沉积物-上覆水 As 时空分布及释放特征 涂可为,李海波,张冬萍,马杰,何文杰,董浩,程艳,徐银	(2814)
基于印染物化污泥的高效氧化-BAF 工艺深度处理印染生化尾水 张尧,崔康平,刘俊,袁新锐,孙士杰,唐玉朝	(2825)
全湖规模下硅基固磷材料 Zeofixer®对我国典型区域湖泊中营养盐的削减效果 ·····	
王哲,包成燕,王杰,谢强,刘欣诺,吴德意	(2834)
磁性载镧水凝胶对低浓度磷的吸附性能王亚静,杨梦鑫,刘柏利,邢琳琼,刘文佳,陈静,刘艳芳	(2844)
落叶生物炭对水中 $\operatorname{Cd}(II)$ 的吸附性能及机理 $\cdots\cdots$ 米世灿,陈芳,刘梦琦,么强,赵博,周可欣,蔺满凤,李晓斌	(2857)
大气污染防治	
高比表面积 $Mn_xZr_{1:x}O_y$ 催化剂的制备及其在室温下催化氧化甲醛的效果 \cdots 唐瑞玖,施辉秋,郑振,贾丽娟,刘天成	(2869)
基于正交实验探究 Fe-Beta 分子筛催化剂 SCR 脱硝性能 ······	
	(2878)
固体废物处理与资源化	
污泥热水解滤液作为外碳源对生物脱氮系统性能和微生物群落结构的影响	
余芬,韩芸,周梦雨,卓杨,普冰玉,张瑞方,冯浩	
预处理策略对餐厨垃圾厌氧消化性能的影响及能量平衡分析 潘志勇, 孙璇, 黄雅丽, 王国祥, 张利民, 祁闯	(2899)

稻田土强化好氧颗粒污泥同步除污资源化的效果与机制
硅钙源固废负载钴基催化剂活化过一硫酸盐降解双酚 A 的性能及机理
土壤与地下水污染治理
不同阳极自产氧化剂的电动迁移及对蒽的降解
环境生物技术
不同氢分压对氨氮和 ${ m CO_2}$ 同步合成微生物蛋白的影响 ····································
生物炭负载纳米零价铁强化脱氮副球菌去除硝酸盐及微生物代谢特征解析 姚变,孙成驹,王龙飞(2947
智能化生态环境技术及应用
基于改进鲸鱼算法优化 GRU-CNN 的溶解氧预测 ····································
相关研究
共同富裕示范区目标下浙江省全域"无废城市"建设的协同路径研究
基于 LCA 方法的光伏产品碳足迹量化评价与低碳设计
······································
超临界 CO_2 旋转磨料射流颗粒跟随特性 ····································
工程创新与实践
地下水污染原位修复技术在离子型稀土矿区的工程应用 罗育池, 韩奕彤, 王刚, 刘畅, 宋宝德, 秘昭旭, 王先稳(2995
应用 A^2/O 生物接触氧化工艺处理低碳氮比污水工程设计与处理效能 ······

CONTENTS

2647 Mitigating urban heat island through neighboring rural land cover

Development of basic research talent in environmental engineering supported by the National Natural Science Foundation of China ANG Jing

2655 Research progress on polyurethane waste disposal and recycling technology

YANG Fangxiong, TAN Quanyin, ZHU Weiping, LIANG Yuan, REN Huiqing, LYU Pu Analysis on the application status and future development potential of carbon removal technology in China 2666 WU Haoran, CAO Xiaomin, LI Qi, CAI Bofeng

Analysis of forest carbon sinks and carbon removal potential in China from 2020 to 2060 2677 JIA Min, YE Shu, LI Mingyu, HUANG Ni, BAI Yanfeng, RUAN Jianhui, ZHANG Li, ZHENG Haitao, TANG Ling, WANG Li, CAI Bofeng
Situation analysis of marine carbon sinks contributing to carbon neutralization

XIONG Ping, YIN Jianping, ZHAO Yanqiang, LI Bo, LI Nana, CHEN Deke, LI Xiaying, TAO Cheng
Changes and driving forces analysis of carbon storage in coastal wetland of the Tianjin-Hebei region during 40 years
CAI Yajing, LIU Ruizhi, WANG Liping, XU Xiuli, LIU Renhong
CO, mineral storage in basalt (1): Technology and application conditions 2697

2719

ZHOU Di, XIA Changyou, LI Pengchun, LIANG Xi
CO, geological storage risk identification: Methods and application
JING Meng, LI Qi, LIU Guizhen, XU Xiaoyi
Research on CCUS geological storage evaluation based on economic feasibility: A case study of Shaanxi province
RUAN Jianhui, ZHU Shuying, YAN Yan, WU Yunlong, PANG Lingyun, GUO Jing, XU Xiaoyi, CAI Bofeng, CAO Libin, LI Qi,

Evaluation of geological storage potential of Yanchang Oilfield based on entropy weight TOPSIS method
LIU Ying, WANG Hong, WANG Keyu, WU Yunlong, WANG Heyi, SHEN Zhenzhen, CAI Bofeng, PANG Lingyun, CAO Libin,

2746

Research development and hotspots of geothermal energy based on bibliometrics
LI Nana, TAO Cheng, XIONG Ping, KONG Yanlong, LI Xiaying, ZHAO Yanqiang
Research progress on mechanism of wellbore integrity failure and feasibility of CO₂ injection for existing wells of offshore CO₂ geological storage TAN Yongsheng, PANG Zhaoyu, LI Qi, WU Guangai, CHEN Bowen Technical analysis of continuous monitoring of ${
m CO}_2$ emissions from stationary sources within the framework of carbon

verification and trading requirements ZHU Qianlin, LIU Hanxiao, CHEN Dongbao, LU Shijian

Preparation of Cu_xS nanocluster magnetic adsorbent and its Hg²⁺ adsorption performance and mechanism LI Peng, CUI Ying, DAI Guofu

Effects of pre-oxidation on the removal of *Raphidiopsis raciborskii* by coagulation with polyaluminum chloride GENG Zhengyan, XU Li, LIANG Rongchang, YAO Lingai, MA Qianli, GOU Ting, FENG Yanhui, SUN Ruixin, YANG Yuyin, 2785 CAI Qijia, ZHAO Rui

2795

2805

CAI Qijia, ZHAO Rui
Pollution characteristics of antibiotic resistance genes in water bodies of circulating aquaculture systems
LIU Xin, XUE Kaixun, XIN huibo, ZHU Chenzhao, WANG Yongkang, HAN Meilin, TANG Fujiang
Phosphorus removal effect enhanced by magnetic seeds loading in pure membrane MBBR process at low temperature
LI Jincheng, JIAO Shuo, XIA Wenxiang, LIU Jie, DONG Jingzhou, ZHENG Zekun, WANG Zhanjiang
Spatio-temporal distribution and release characteristics of As in sediment-overlying water of Daye Lake
TU Kewei, LI Haibo, ZHANG Dongping, MA Jie, HE Wenjie, DONG Hao, CHENG Yan, XU Yin
Highly efficient oxidation-BAF process based on printing and dyeing pysicochemical sludge for advanced treatment of printing 2825 and dyeing biochemical tailwater

ZHANG Yao, CUI Kangping, LIU Jun, YUAN Xinrui, SUN Shijie, TANG Yuchao 2834

2844

Nutrient reduction by a novel phosphorus inactivation agent Zeofixer® at whole lake scale in typical regional lakes of China WANG Zhe, BAO Chengyan, WANG Jie, XIE Qiang, LIU Xinnuo, WU deyi

Adsorption performance of magnetic lanthanum-loaded hydrogel towards low-concentration phosphorus

WANG Yajing, YANG Mengxin, LIU Baili, XING Linqiong, LIU Wenjia, CHEN Jing, LIU Yanfang

Adsorption characteristics and mechanisms of fallen leaves biochar towards Cd(II) in water

MI Shican, CHEN Fang, LIU Mengqi, YAO Qiang, ZHAO Bo, ZHOU Kexin, LIN Manfeng, LI Xiaobin

Preparation of high specific surface area Mn_xZr_{1x}O_y catalyst and its catalytic oxidation effect of formaldehyde at room

temperature

TANG Ruijiu, SHI Huiqiu, ZHENG Zhen, JIA Lijuan, LIU Tiancheng
Investigation of SCR denitrification performance of Fe-Beta zeolite catalysts based on the orthogonal experiments
XIAO Meng, YUE Junjie, LI Penghui, GUO Mingyu, ZHAO Yingjie, LIU Boqun, CUI Shaoping, GAO Jing, NIU Ke
Effect of thermal hydrolyzed sludge filtrate as an external carbon source on the performance and microbial community structure 2878

2889 of a biological nitrogen removal system
YU Fen, HAN Yun, ZHOU Mengyu, ZHUO Yang, PU Bingyu, ZHANG Ruifang, FENG Hao
Impact of pretreatment strategies on anaerobic digestion of food waste and energy balance analysis
PAN Zhiyong, SUN Xuan, HUANG Yali, WANG Guoxiang, ZHANG Limin, QI Chuang
Effect and mechanism of paddy soil-enhanced simultaneous decontamination and resource recovery by aerobic granular sludge
FENG Siqi, GUO Yuan, Quan Chenyan, LI Jiake, ZHANG Bing, SHI Wenxin
Performance and mechanism of degradation of bisphenol A by cobalt-based catalysts loaded on silicate-calcium solid waste

2899

2908

activating peroxymonosulfate BAI Wensheng, WANG Yingqing, SU Yiping, SHEN Xuehua, ZHANG Zuotai, YAN Feng Electrokinetic migration of self-produced oxidants from different anodes and their degradation of anthracene LIANG Jiaqi, CHEN Ruihan, CANG Long 2930

Effects of different hydrogen partial pressure on microbial protein production via simultaneous conversion of CO₂ and ammonia XIAO Xiangjie, CHEN Jin, WU Heying, YANG Ziyi nZVI materials loaded on biochar enhance the nitrate removal by denitrifying bacteria and the microbial metabolic 2939

YAO Bian, SUN Chengju, WANG Longfei
Dissolved oxygen prediction based on GRU-CNN optimized with improved whale optimization algorithm
HU Longyuan, LIU Lizhi
The synergistic construction path of provincial-scale "zero-waste city" and common prosperity demonstration zone in Zhejiang 2957

Province

2972

LEI Kaige, CHEN Qi, CHEN Zhangyu, ZHANG Jiang, LIAN Yulu, SU Qi, WU Chao Carbon footprint evaluation and low carbon design of China's photovoltaic products based on LCA methodology LIU Hanxiao, ZHU Qianlin, LIN Qingyang, ZHOU Ye, ZHU Haijian, LIU Xiaowei, LIU Meiling, SUN Li Particle following performance in supercritical CO₂ swirling jet PANG Zhaoyu, WANG Haizhu, CHEN Jianxiang, LI Jiawen, YANG Ruiyue Engineering application of in-situ remediation technology of groundwater pollution in ionic rare earth mining area LUO Yuchi, HAN Yitong, WANG Gang, LIU Chang, SONG Baode, MI Zhaoxu, WANG Xianwen

3006 A case study on domestic sewage treatment plant using A²/O biological contact oxidation process for treating the wastewater with low carbon and nitrogen ratio WU Guangxiang, LI Deqiang, LIU Pengcheng, MA Jun, WANG Yonglei, WU Daoji