

万方知库
Eco-Environmental
Knowledge Web

ACTA SCIENTIAE CIRCUMSTANTIAE

环境科学学报

2023 Vol.43 No.3 第43卷 第3期



科学出版社
Science Press

万方数据



中国科学院生态环境研究中心 主办



目次

专论与综述

甲烷氧化耦合污水脱氮研究进展..... 郝晓地,孙思聿,李季,等 (1)

研究报告

电极褶皱角度对三维电极强化活性污泥法处理印染废水中溶解性有机物的影响..... 邢心语,胡海冬,丁丽丽,等 (16)

载钴陶粒活化过氧乙酸降解水中杂环类药物..... 朱珊珊,马杰,孔博宁,等 (30)

Co²⁺/CaO₂/草酸高级氧化体系降解水中SMT的机理研究..... 方政,陈平,刘洋,等 (40)

阳光驱动下卟啉亚胺负载膜光催化降解海水养殖废水中氟喹诺酮类药物的研究..... 肖震钧,陈平,吕文英,等 (52)

FeTiO₃@TiO₂/C纳米复合材料的合成及其PMS辅助光催化降解性能..... 朱建华,王瑞,王晨,等 (65)

CeO₂@C@NiO构筑及其光催化降解罗丹明B的研究..... 谭贺云,肖忠连,蒋森杰,等 (77)

光芬顿法处理次磷酸盐同步回收磷性能及参数研究..... 谢腾飞,李一兵,张娟娟,等 (89)

ZIF-8点缀中空花球BiOI增强可见光降解双酚A..... 朱禹,韩志国,王博涓,等 (96)

生物炭促进Shewanella sp. JN01厌氧降解水体中阿特拉津的效能与机制..... 吉莉,赵雅娜,李娜,等 (104)

生物炭固定化解有机磷菌对Pb²⁺的吸附行为研究..... 朱晓丽,林姝欢,张星,等 (116)

使用红色花生衣提取液绿色合成铁纳米颗粒(Fe NPs)去除水中的Cr(VI):去除机制和废水处理初探..... 潘自斌,林玉满,陈祖亮 (127)

典型铁氧化物对Hg(II)吸附及其机制的比较研究..... 冉颖,涂书新,袁媛,等 (138)

微塑料老化对其理化性质和盐酸四环素吸附行为的影响研究..... 程新峰,留芳芳,潘玲,等 (150)

固定化改性TiO₂光催化消毒性能与机理研究..... 严婉钰,尚子茗,袁庆科,等 (162)

紫外增强NaOCl氧化泛影酸钠的效果及产物毒性变化..... 魏红,耿琳,高美娟,等 (175)

城乡供水管网中消毒副产物的浓度水平与分布规律..... 甄伟前,焦佳佳,李忠禹,等 (186)

基于Hydrus-1D不同气候区城市绿色屋顶径流调控效益研究..... 王恺,章孙逊,张守红 (195)

基于同位素示踪方法的东江流域氮素分布特征和来源解析..... 裴德富,徐丽,赵学敏,等 (206)

水沙调控对黄河小浪底水库溶解性有机质的影响研究..... 武俐,宋百惠,杨萌,等 (216)

矿山污染水库锑形态及分布受溶解性有机质影响研究..... 罗江兰,张翅鹏,杨泽延,等 (226)

预处理污泥发酵液直接用于微生物电解池产氢研究..... 曹麒,鄯胜韩,庄廷烽,等 (234)

制革污泥堆场中含Cr污泥胶体在不同pH和离子强度条件下稳定性及迁移行为研究..... 徐铁兵,师碧玲,吕媛,等 (244)

短期高温预处理对餐厨垃圾堆肥进程及产品质量的影响..... 徐欣怡,彭韵,李芯雯,等 (255)

填埋场好氧强化稳定化过程及其碳排放特征研究..... 刘义行,楼紫阳,王罗春,等 (265)

废弃贴面纸材料不同热解阶段有害组分转化特性..... 董子航,徐期勇,陈钦冬 (273)

长江三角洲地区城市、郊区和乡村下垫面的CO₂通量观测..... 邹钧,孙鉴泞,郭维栋,等 (281)

基于多站对比的南昌地区大气CO₂浓度变化特征分析..... 陈昆,余焰文,夏玲君,等 (293)

基于CrIS卫星反演与地面观测的中国大气氨浓度的时空特征及对比评估..... 王思慧,吴锴,潘月鹏,等 (303)

2015—2020年中国PM_{2.5}污染时空演化及其与ENSO的关系研究..... 秦靖嵩,王晓红,杨艺科,等 (315)

随州市2015—2020年冬季二次气溶胶对PM_{2.5}贡献分析..... 郝元甲,白永清,朱燕,等 (333)

关中地区不同类型气溶胶时空分布特征与驱动因素..... 杨霞,王旭红,崔思颖,等 (343)

霾过程大气消光系数时间序列混沌特性分析..... 孟子圣,倪长健,王思媛,等 (353)

天津大气稳定度特征及基于湍流扩散系数优化的空气质量数值模拟研究..... 杨健博,蔡子颖,杨旭,等 (363)

某整车制造企业挥发性有机物排放特征及反应活性研究..... 谷欣,陈凯涛,翟瑞晓,等 (377)

北京市露天停车场尘负荷特征及管控研究..... 陈彤,龙腾,樊守彬,等 (387)

封装型Pd@S-1催化剂中Pd状态对低浓度甲烷催化氧化性能的影响..... 陈晓迈,石雪凤,刘美茵,等 (394)

Fe掺杂Mn-Ce多孔催化剂低温脱硝性能及甲苯的影响机制..... 刘杨井浩,赵令葵,王雨轩,等 (405)

碱活化载铜碳纤维的制备及其对CH₃SH的高效催化水解去除研究..... 冯嘉予,张伊珊,宁平,等 (416)

萘在选择性催化还原脱硝系统内的转化机制..... 江博琼,陈孜颖,刘牵牵,等 (427)

城市土壤重金属的时空变化特征对土壤重金属背景值确定的启示:以北京市为例..... 夏星辉,张真瑞,张效颖,等 (438)

中国土壤铜的区域分级基准建立及生态风险评估初探..... 陈艳楠,钱雨欣,李志美,等 (448)

基于物种敏感性分布(SSDs)的土壤硒生态基准值推导..... 王靖茜,许秋云,王婷,等 (459)

不同类型纳米塑料在饱和沙土中的迁移行为研究..... 张颖昕,刘金,徐佳乐,等 (466)

锡林河流域潜在异养硝化-好氧反硝化菌群的陆向分异及影响因素..... 王红越,任莞露,王润博,等 (478)

不同类型富营养化微型水体藻华暴发期微生物群落结构变化分析..... 邵志平,赖美伶,苑宏英,等 (490)

基于物种敏感度分布的典型抗生素的长期水质基准推导及其在生态风险评估中的应用..... 林颖,高俊敏,郭劲松,等 (503)

基于贝叶斯网络的流域水环境承载力超载风险评价—以北运河流域为例..... 傅婕,曹若馨,曾维华,等 (516)

CONTENTS

Research advances of methane oxidation coupled to nitrogen removal of wastewater	HAO Xiaodi, SUN Sabei, LI Ji, et al (1)
Treatment of dissolved organic matter in dyeing wastewater by three-dimensional electrode enhanced activated sludge process: Effect of electrode folding angles	XING Xinyu, HU Haidong, DING Lili, et al (16)
Degradation of heterocyclic drugs in water by activation of peracetic acid with cobalt-loaded ceramic granules	ZHU Shanshan, MA Jie, KONG Boning, et al (30)
Mechanism study on the degradation of SMT in water by $\text{Co}^{2+}/\text{CaO}_2/\text{oxalic acid}$ advanced oxidation system	FANG Zheng, CHEN Ping, LIU Yang, et al (40)
Sunlight driven photocatalytic degradation of fluoroquinolones in mariculture wastewater by perylene imide loaded membrane	XIAO Zhenjun, CHEN Ping, LÜ Wenying, et al (52)
Synthesis of $\text{FeTiO}_3/\text{TiO}_2/\text{C}$ nanocomposites and the enhanced visible light catalytic degradation properties promoted by PMS	ZHU Jianhua, WANG Rui, WANG Chen, et al (65)
Construction of $\text{CeO}_2/\text{C}/\text{NiO}$ and its photocatalytic degradation of Rhodamine B	TAN Heyun, XIAO Zhonglian, JIANG Senjie, et al (77)
The influencing factors for the treatment of hypophosphite and simultaneous recovery of phosphorus via photo-Fenton	XIE Tengfei, LI Yibing, ZHANG Juanjuan, et al (89)
ZIF-8 modified hollow BiOI with follow-ball shape for enhanced visible light degradation of bisphenol A	ZHU Yu, HAN Zhiguo, WANG Bowei, et al (96)
Efficiency and mechanism of biochars enhancing the anaerobic biodegradation of atrazine by <i>Shewanella</i> sp. JN01 in aqueous system	Ji Li, ZHAO Yana, Li Na, et al (104)
Adsorption of Pb^{2+} by biochar immobilized organic phosphorus-degrading bacteria	ZHU Xiaoli, LIN Shuhuan, ZHANG Xing, et al (116)
Removal of Cr(VI) from water by green synthetic iron nanoparticles (Fe NPs): Mechanistic insights and wastewater treatment	PAN Zibin, LIN Yuman, CHEN Zuliang (127)
A comparative study of Hg(II) adsorption characteristics and mechanisms by three typical iron oxides	RAN Ying, TU Shuxin, YUAN Yuan, et al (138)
Study on the effect of aging of microplastics on their physicochemical properties and adsorption behavior of tetracycline hydrochloride	CHENG Xinfeng, LIU Fangfang, PAN Ling, et al (150)
Investigation of performance and mechanism of photocatalytic disinfection by immobilized modified TiO_2	(162)
UV-enhanced NaOCl oxidizing sodium diatrizoate and the variation for its intermediates toxicity	WEI Hong, GENG Lin, GAO Meijuan, et al (175)
Occurrence and variability of disinfection byproducts in a centralized water distribution system in urban and rural communities	ZHEN Weiqian, JIAO Jiajia, LI Zhongyu, et al (186)
Hydrological performances of green roofs in different climates based on Hydrus-1D simulation	WANG Kai, ZHANG Sunxun, ZHANG Shouhong (195)
Characterization of nitrogen distribution and source analysis in the Dongjiang River basin based on isotope tracing method	PEI Defu, XU Li, ZHAO Xuemin, et al (206)
Influence of water-sediment regulation on dissolved organic matter in Xiaolangdi Reservoir of the Yellow River	WU Li, SONG Baihui, YANG Meng, et al (216)
Influence of dissolved organic matter on antimony speciation and distribution in mining polluted reservoir	LUO Jianglan, ZHANG Chipeng, YANG Zeyan, et al (226)
Hydrogen production from pretreated sludge fermentation liquid in microbial electrolysis cell	CAO Qi, YAN Shenghan, ZHUANG Tingfeng, et al (234)
Stability and migration behavior of Cr-containing sludge colloids in tannery sludge landfill under different pH and ionic strength conditions	XU Tiebing, SHI Biling, LÜ Yuan, et al (244)
Effect of short-term high temperature pretreatment on food waste composting process and product quality	XU Xinyi, PENG Yun, LI Xinwen, et al (255)
Research on aerobic stabilization process and carbon emission characteristics of landfill	LIU Yihang, LOU Ziyang, WANG Luochun, et al (265)
Variation of hazardous compounds in waste MPF at different pyrolysis stages	DONG Zihang, XU Qiyong, CHEN Qindong (273)
Measurements of CO_2 flux over urban, suburban and rural surfaces in Yangtze River Delta region of China	ZOU Jun, SUN Jianning, GUO Weidong, et al (281)
An inter-comparison study on the variations of atmospheric CO_2 mole fractions observed at multiple stations in Nanchang City	CHEN Kun, YU Yanwen, XIA Lingjun, et al (293)
Spatio-temporal characteristics and evaluation of atmospheric ammonia concentrations in China based on CrIS inversion data and ground observations	WANG Sihui, WU Kai, PAN Yuepeng, et al (303)
Analysis of the spatial and temporal evolution of $\text{PM}_{2.5}$ and the relationship of ENSO and $\text{PM}_{2.5}$ concentrations in China from 2015 to 2020	QIN Jinghao, WANG Xiaohong, YANG Yike, et al (315)
Analysis on the contribution of secondary aerosol to $\text{PM}_{2.5}$ in Suizhou City in Central China from 2015 to 2020	HAO Yuanjia, BAI Yongqing, ZHU Yan, et al (333)
Spatio-temporal distribution characteristics and influencing factors of different aerosol types in the Guanzhong area	YANG Xia, WANG Xuhong, CUI Siying, et al (343)
Chaotic characteristic analysis of time series of atmospheric extinction coefficient during haze periods	MENG Zisheng, NI Changjian, WANG Siyuan, et al (353)
Analysis of atmospheric stability characteristics in Tianjin and air quality modeling study based on the modification of minimum eddy diffusivity	YANG Jianbo, CAI Ziyang, YANG Xu, et al (363)
Emission characteristics and reactivity of volatile organic compounds from vehicle manufacturing company	GU Xin, CHEN Kaitao, ZHAI Ruixiao, et al (377)
Study on road fugitive dust characteristics and control of open-air parking lot in Beijing	CHEN Tong, LONG Teng, FAN Shoubin, et al (387)
The effect of Pd state of encapsulated Pd@S-1 catalyst on the catalytic oxidation performance of low concentration methane	CHEN Xiaomai, SHI Xuefeng, LIU Meiyin, et al (394)
Insight into the catalytic performance and toluene effect of Fe-doped Mn-Ce porous catalyst for low-temperature selective catalytic reduction of NO with NH_3	LIU Yangjinghao, ZHAO Linghui, WANG Yuxuan, et al (405)
Preparation of alkali-activated copper-loaded carbon fibers for the efficient catalytic hydrolysis removal of CH_3SH	FENG Jiayu, ZHANG Yishan, NING Ping, et al (416)
Conversion mechanism of naphthalene in selective catalytic reduction DeNO_x system	JIANG Boqiong, CHEN Ziyang, LIU Qianqian, et al (427)
Implications of spatial and temporal variation characteristics of heavy metals in urban soil for the determination of soil heavy metal background values: A case study for Beijing	XIA Xinghui, ZHANG Zhenrui, ZHANG Xiaoying, et al (438)
Preliminary study on regional grading benchmarking and ecological risk assessment of copper in Chinese soils	CHEN Yannan, QIAN Yuxin, LI Zhimei, et al (448)
Derivation of soil ecological criteria of selenium based on species sensitivity distributions (SSDs)	WANG Jinghan, XU Qiuyun, WANG Ting, et al (459)
Transport behavior of different types of nanoplastics in saturated sandy soil	ZHANG Yingxin, LIU Jin, XU Jiale, et al (466)
Landward differentiation and influencing factors of heterotrophic nitrification-aerobic denitrification bacterial populations in Xilin River Basin	WANG Hongyue, REN Wanlu, WANG Runbo, et al (478)
Analysis on the microbial community structure during the outbreak of algal bloom in different kinds of eutrophic micro water bodies	SHAO Zhiping, LAI Jiangling, YUAN Hongying, et al (490)
Long-term water quality criteria derivation of typical antibiotics based on species sensitivity distribution and its application to ecological risk assessment	LIN Ying, GAO Junmin, GUO Jinsong, et al (503)
Risk assessment of water environmental carrying capacity overloading based on Bayesian network: A case study of the North Canal basin	FU Jie, CAO Ruoxin, ZENG Weihua, et al (516)

《环境科学学报》第六届编委会名单

主 编：曲久辉

副 主 编：刘文清 杨志峰 彭永臻 袁志国 俞汉青 朱 彤 毕 军
王书肖

学术顾问：汤鸿霄 郝吉明 陶 澍 江桂斌 傅伯杰 赵进才 贺克斌
张远航 彭平安

编 委：(按姓氏笔画排)

马 军	王书肖	王金南	王学军	王建龙	王晓昌	王爱杰
文湘华	尹大强	毕 军	曲久辉	朱 彤	朱利中	全 燮
刘 永	刘文清	刘会娟	麦碧娴	杨 敏	杨志峰	吴丰昌
何品晶	余 刚	张利田	陈同斌	欧阳志云	周启星	郑 华
郑君瑜	郑明辉	胡 春	胡勇有	俞汉青	袁志国	贾晓珊
黄 霞	崔宝山	彭永臻	潘 纲			

编辑部主任：杨桂华

责 任 编 辑：卜庆杰 王 虎 李永欢

环 境 科 学 学 报

(Huanjing Kexue Xuebao)

(月刊,1981 年创刊)

2023 年 3 月 第 43 卷 第 3 期

ACTA SCIENTIAE CIRCUMSTANTIAE

(Monthly, Started in 1981)

Vol.43, No.3, March 2023

主 管	中国科学院	Sponsored by	Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences,
主 办	中国科学院生态环境研究中心		State key Laboratory of Environmental Aquatic Chemistry,
协 办	环境水质学国家重点实验室		School of Environmental Sciences, Beijing Normal University
编 辑	《环境科学学报》编辑委员会	Edited by the	Editorial Board of Acta Scientiae Circumstantiae
	北京 2871 信箱 邮政编码 100085		(P.O.Box 2871, Beijing 100085, China)
	电话:(010)62941073	Editor-in-Chief	Qu Jiuhui
	E-mail:hjkxxb@rcees.ac.cn	Published by	Science Press(16 Donghuangchenggen North Street Beijing 100717, China)
	网址:www.actasc.cn	Distributed by	Science Press Tel:010-64034563, E-mail:journal@cspg.net
主 编	曲 久 辉	International distributed by	China International Book Trading Corporation (Guoji Shudian)
出 版	科 学 出 版 社		(P.O.Box 399, Beijing 100044, China)
	北京东黄城根北街 16 号		
	(邮政编码 100717)		
印刷装订	北京宝昌彩色印刷有限公司		
发 行 处	科学出版社		
	电话:010-64017032,64017539		
国外总发行	中国国际图书贸易总公司		
	(北京 399 信箱,100044)		
出 版 日 期	每月 26 日		

中国标准刊号:ISSN 0253-2468
CN 11-1843/X CODEN:HKXUDL

国内邮发代号:82-625 国外发行代号:M410

订购处:全国各地邮政局 定价:160.00 元

网上购买请扫以下二维码



ISSN 0253-2468

9 770253 246234 03>