

## 第 43 卷 第 7 期 2024 年 7 月

### 目 次

#### · 水泥混凝土 ·

高寒区混凝土多场耦合损伤劣化机制研究进展 ..... 张维东,汪 愿,宋鹏飞,王亚坤,刘倩倩,王旭昊(2317)

铁铝酸盐、硫铝酸盐和硅酸盐水泥的水化进程对比研究  
..... 李红轩,齐冬有,邹德麟,王剑锋,汪智勇,郝禄禄,王亚丽,张 钰,刘洪印(2335)

定向钢纤维水泥基复合材料的含砂率及定向时程影响规律 ..... 陈卓异,寇子豪,熊永明,易宏健,曹先慧(2346)

硅烷偶联剂改性聚丙烯纤维水泥基复合材料的性能研究  
..... 孙嘉琦,刘 曦,王传林,苏芝棋,鲁 鑫,麦靖敏(2355)

玄武岩织物-钢-PVA 工程水泥基复合材料单轴受压力学性能研究  
..... 车佳玲,吴 杰,谷家威,黄 宇,刘海峰(2363)

低温环境下含石灰石粉水泥基材料抗硫酸盐侵蚀性能研究 ..... 李雪峰(2372)

水泥乳化沥青砂浆微观结构演变规律研究 ..... 金珊珊,杨 媛,徐增淼,张 扬,李 响,杨柯楠,湛伟男(2383)

纳米二氧化硅负载丙烯酸酰胺型 SAP 内养护性能研究  
..... 吕 阳,范福龙,吴远帅,朱艳超,张呈山,李相国(2393)

轴压下含裂隙聚丙烯纤维混凝土裂纹扩展及损伤演化研究 ..... 汪学清,李永超,张雪瑞,赵云猛,姜雨枫(2404)

碳酸盐环境对隧道混凝土性能和微观特征的影响 ..... 李 康,高 萌,邹 敏,刘娟红,谢永江(2415)

轻质高强蒸压加气混凝土的制备及性能研究 ..... 李相国,魏 武,何 超,蔡礼雄,吕 阳,但建明(2427)

有机酸活化偏高岭土混凝土性能研究 ..... 李 安,王彦军,张志杰,范志宏(2434)

含粗骨料超高性能混凝土静态稳定性研究 ..... 蒋 健,李传习,邓 帅,司曙英胡,杨 赛(2441)

高温后混凝土单轴拉伸和压缩破坏规律及力学性能研究 ..... 赵燕茹,陈 强,王 磊,蔚文豪(2451)

钢-连续纤维复合筋珊瑚混凝土梁式拉拔粘结应力分布研究  
..... 王 磊,余 涵,章明明,谷 健,卢家慧,朱得祥(2461)

早龄期钢纤维混凝土单轴压缩破坏前兆特征 ..... 潘晓凤,曹建涛,罗 滔,唐丽云(2470)

预置轻骨料混凝土中灌浆料与轻骨料的匹配机制研究 ..... 王映祥,彭 波,王健涛,刘云鹏(2479)

机器学习模型评估裹浆改性再生骨料形态特征及分布规律 ..... 张嘉豪,陈正发,宋 艳,陈昭言(2490)

#### · 资源综合利用 ·

地质聚合物混凝土抗氯离子渗透性能研究进展 ..... 余金虎,李 强,刘学应,周曙光,王 超(2503)

煤气化渣制备单一相 Y 分子筛研究 .....	吕俊敏,王 正,杨颖臻,赵潇霞,范素兵(2514)
粉煤灰基沸石 X 的制备与邻二甲苯、CO <sub>2</sub> 和 H <sub>2</sub> 的吸附应用 .....	杨乐乐,刘志远,张亚龙,张晓明,程星星(2522)
CFB 灰渣混凝土的组成设计与应用研究 .....	李卫红,郭文斌,郭向兵,陈 潇,周明凯(2530)
自燃煤矸石地质聚合物低强度注浆材料的制备及其微观分析 .....	吴求刚,赵 恒,刘 威,王新富,王彦君,何建国,章 梅,朱 李(2539)
基于正交试验的锂渣基可控低强度材料配合比研究 .....	刘 瑞,刘 泽,赵利杰,张 帅,王栋民(2548)
新型复合激发锂渣基固化剂加固软土试验研究 .....	杨 林,杨建宇,杨伟军(2556)
花岗岩尾矿砂制备砂浆的黏结性能研究 .....	何 娟,刘 双,宋学锋,徐单汉苏,李萌萌(2565)
机械活化对碳酸钠激发矿渣胶凝材料早期性能的影响 .....	胡凯伟,陈 轩,李廷锋,张俊杰,高 璇,杨 涛(2577)
硅灰及矿渣粉对大掺量粉煤灰砂浆力学性能的影响及机理研究 .....	刘 扬,王家理,罗 冬,袁和平,鲁乃唯,王柏文(2584)
淤泥和电石渣基新型轻质陶砖的制备 .....	曹 丹,沈 锭,姚瞬雨,丁之尧,黄梓谕,李梦琪,黄慕洋,包申旭(2595)
弱碱激发条件下磷渣-水泥复合填料路用性能试验研究 .....	殷 源,林 康,曾卫新,程树范(2602)
可溶性磷对纸面石膏板板芯强度及纸芯粘结性能的影响 .....	李 翊,王宏霞,武发德,于 剑,余海燕,高春勇,郭君华,高瑞军(2612)
建筑陶瓷固废模拟热液蚀变反应低碳制备陶瓷砖 .....	吴文新,周正元,夏光华,宁高朋,周彩玲(2620)
干湿循环下稻草秸秆-聚乙烯醇增强粉质黏土强度特性与微观机理 .....	汪锦东,罗梦婷,鹿庆蕊,王秋哲,李栋伟(2630)
氧化石墨烯对天然水硬性石灰水化及力学性能的影响 .....	张 彪,刘泓宇,齐 南,王 芬,朱建锋,李 立,马 涛,罗宏杰,施 佩(2640)
<b>· 陶 瓷 ·</b>	
高导热氮化硅陶瓷基板影响因素研究现状 .....	朱允瑞,贺云鹏,杨 鑑,周国相,林坤鹏,张砚召,杨治华,贾德昌,周 玉(2649)
增材制造 SiC 陶瓷反射镜的研究进展 .....	李 伟,张 舸,崔聪聪,包建勋,郭聪慧(2661)
<b>· 耐火材料 ·</b>	
原料组成对多微孔方镁石-镁铁铝复合尖晶石陶瓷显微结构与性能的影响 .....	陈茜琳,鄢 文,王 晓,李亚伟(2672)
碳热还原氮化硅藻土制备 Si <sub>2</sub> N <sub>2</sub> O/SiC 复合粉体 .....	万 贛,匡 猛,黄思源,张璿珺,王 平,张声洲(2680)
<b>· 新型功能材料 ·</b>	
新型水泥基电池的制备与电化学性能研究 .....	夏冬林,王亚杰,蒋 洋(2685)
AgCl/Ag 复合粉体材料的制备及机理 .....	杨华键,赵远云(2697)
<b>· 评述广角 ·</b>	
无机非金属材料工程专业人才培养改革与探索 .....	饶美娟,刘志超,蹇守卫(2706)

# BULLETIN OF THE CHINESE CERAMIC SOCIETY

Vol. 43 No. 7 July 2024 (Series No. 334)

## CONTENTS

### • Cement and Concrete •

- Research Progress on Multi-Field Coupling Damage Deterioration Mechanism of Concrete in Alpine Region  
..... ZHANG Weidong, WANG Yuan, SONG Pengfei, WANG Yakun, LIU Qianqian, WANG Xuhao(2317)
- Comparative Study on Hydration Process of Ferroaluminate, Sulfoaluminate and Portland Cement  
..... LI Hongxuan, QI Dongyou, ZOU Delin, WANG Jianfeng, WANG Zhiyong, HAO Lulu, WANG Yali, ZHANG Yu, LIU Hongyin(2335)
- Sand Content and Orientation Time Influence Law of Oriented Steel Fiber Cementitious Composites  
..... CHEN Zhuoyi, KOU Zihao, XIONG Yongming, YI Hongjian, CAO Xianhui(2346)
- Performance of Silane Coupling Agent Modified Polypropylene Fiber Cement-Based Composites  
..... SUN Jiaqi, LIU Xi, WANG Chuanlin, SU Zhiqi, LU Xin, MAI Jingmin(2355)
- Uniaxial Compressive Mechanical Performance of Basalt Fiber Fabric-Steel-PVA Engineered Cementitious Composites  
..... CHE Jialing, WU Jie, GU Jiawei, HUANG Yu, LIU Haifeng(2363)
- Sulfate Resistance Performance of Cement-Based Materials Containing Limestone Powder at Low Temperature  
..... LI Xuefeng(2372)
- Microstructure Evolution Law of Cement-Emulsified Asphalt Mortar  
..... JIN Shanshan, YANG Yuan, XU Zengmiao, ZHANG Yang, LI Xiang, YANG Kenan, ZHAN Weinan(2383)
- Internal Curing Properties of Acrylamide Type SAP Loaded with Nano Silica  
..... LYU Yang, FAN Fulong, WU Yuanshuai, ZHU Yanchao, ZHANG Chengshan, LI Xiangguo(2393)
- Crack Propagation and Damage Evolution in Polypropylene Fiber Reinforced Concrete with Cracks under Axis Compression  
..... WANG Xueqing, LI Yongchao, ZHANG Xuerui, ZHAO Yunmeng, JIANG Yufeng(2404)
- Influence of Carbonate Environment on Performance and Microscopic Characteristics of Tunnel Concrete  
..... LI Kang, GAO Meng, ZOU Min, LIU Juanhong, XIE Yongjiang(2415)
- Preparation and Properties of Lightweight High-Strength Autoclaved Aerated Concrete  
..... LI Xiangguo, WEI Wu, HE Chao, CAI Lixiong, LYU Yang, DAN Jianming(2427)
- Properties of Organic Acid Activated Metakaolin Concrete  
..... LI An, WANG Yanjun, ZHANG Zhijie, FAN Zhihong(2434)
- Static Stability of Ultra-High Performance Concrete Containing Coarse Aggregate  
..... JIANG Jian, LI Chuanxi, DENG Shuai, SIDU Yinghu, YANG Sai(2441)
- Uniaxial Tensile and Compressive Failure Law and Mechanical Properties of Concrete after High Temperature  
..... ZHAO Yanru, CHEN Qiang, WANG Lei, YU Wenhao(2451)
- Bond Stress Distribution of Steel-FRP Composite Bar Coral Concrete Beam Drawing  
..... WANG Lei, YU Han, ZHANG Mingming, GU Jian, LU Jiahui, ZHU Dexiang(2461)
- Failure Precursory Characteristics of Early-Age Steel Fiber Reinforced Concrete under Uniaxial Compression  
..... PAN Xiaofeng, CAO Jiantao, LUO Tao, TANG Liyun(2470)
- Matching Mechanism Between Grouting Material and Lightweight Aggregate in Preplaced Lightweight Aggregate Concrete  
..... WANG Yingxiang, PENG Bo, WANG Jiantao, LIU Yunpeng(2479)
- Morphology Characteristics and Distribution Patterns of Slurry-Modified Recycled Aggregate Evaluated by Machine Learning  
..... ZHANG Jiahao, CHEN Zhengfa, SONG Yan, CHEN Zhaoyan(2490)

### • Solid Waste and Eco-Materials •

- Research Progress on Chloride Ion Penetration Resistance of Geopolymer Concrete  
..... YU Jinhu, LI Qiang, LIU Xueying, ZHOU Shuguang, WANG Chao(2503)

- Preparation of Single Phase Y Zeolite from Coal Gasification Slag  
 ..... LYU Junmin, WANG Zheng, YANG Yingzhen, ZHAO Xiaoxia, FAN Subing(2514)
- Preparation of Coal Fly Ash-Based Zeolite X and Its Adsorption Application for O-Xylene, CO<sub>2</sub>, and H<sub>2</sub>  
 ..... YANG Lele, LIU Zhiyuan, ZHANG Yalong, ZHANG Xiaoming, CHENG Xingxing(2522)
- Composition Design and Application of CFB Ash-Slag Concrete  
 ..... LI Weihong, GUO Wenbin, GUO Xiangbing, CHEN Xiao, ZHOU Mingkai(2530)
- Preparation and Microanalysis of Geopolymer Low-Strength Grouting Material Based on Self-Combusting Gangue  
 ..... WU Qiugang, ZHAO Heng, LIU Wei, WANG Xinfu, WANG Yanjun, HE Jianguo, ZHANG Mei, ZHU Bei(2539)
- Mixture Ratio of Lithium Slag-Based Controllable Low Strength Materials Based on Orthogonal Experiment  
 ..... LIU Rui, LIU Ze, ZHAO Lijie, ZHANG Shuai, WANG Dongmin(2548)
- Experimental Study on New Composite Excited Lithium Slag-Based Curing Agent for Reinforcing Soft Soil  
 ..... YANG Lin, YANG Jianyu, YANG Weijun(2556)
- Adhesion Property of Mortar Prepared by Granite Tailing Sand  
 ..... HE Juan, LIU Shuang, SONG Xuefeng, XU Shanfansu, LI Mengmeng(2565)
- Effect of Mechanical Activation on Early-Age Performance of Sodium Carbonate-Activated GBFS Binders  
 ..... HU Kaiwei, CHEN Xuan, LI Tingfeng, ZHANG Junjie, GAO Xuan, YANG Tao(2577)
- Effects of Silica Fume and GGBS on Mechanical Properties of High Volume Fly Ash Mortar and Its Mechanism  
 ..... LIU Yang, WANG Jiali, LUO Dong, YUAN Heping, LU Naiwei, WANG Bowen(2584)
- Preparation of New Lightweight Ceramic Bricks Based on Silt and Carbide Slag  
 ..... CAO Dan, SHEN Ding, YAO Shunyu, DING Zhiyao, HUANG Ziyu, LI Mengqi, HUANG Muiyang, BAO Shenxu(2595)
- Experimental Study on Road Performance of Weak Alkali-Activated Phosphorus Slag-Cement Composite Filler  
 ..... YIN Yuan, LIN Kang, ZENG Weixin, CHENG Shufan(2602)
- Effect of Soluble Phosphorus on Core Strength and Paper Core Bonding Property of Paper-Based Gypsum Board  
 ..... LI Yi, WANG Hongxia, WU Fade, YU Jian, YU Haiyan, GAO Chunyong, GUO Junhua, GAO Ruijun(2612)
- Low-Carbon Preparation of Ceramic Tiles from Building Ceramic Solid Waste by Simulating Hydrothermal Alternation  
 ..... WU Wenxin, ZHOU Zhengyuan, XIA Guanghua, NING Gaopeng, ZHOU Cailing(2620)
- Strength Characteristics and Micro Mechanism of Straw-Polyvinyl Alcohol Reinforced Silty Clay under Dry-Wet Cycle  
 ..... WANG Jindong, LUO Mengting, LU Qingrui, WANG Qiuzhe, LI Dongwei(2630)
- Effect of Graphene Oxide on Hydration and Mechanical Properties of Natural Hydraulic Lime  
 ..... ZHANG Biao, LIU Hongyu, QI Nan, WANG Fen, ZHU Jianfeng, LI Li, MA Tao, LUO Hongjie, SHI Pei(2640)

• **Ceramics** •

- Research Status on Influencing Factors of High Thermal Conductivity Si<sub>3</sub>N<sub>4</sub> Ceramic Substrate  
 ..... ZHU Yunrui, HE Yunpeng, YANG Jian, ZHOU Guoxiang, LIN Kunpeng, ZHANG Yanzhao, YANG Zhihua, JIA Dechang, ZHOU Yu(2649)
- Research Progress of Additive Manufacturing SiC Ceramic Mirror  
 ..... LI Wei, ZHANG Ge, CUI Congcong, BAO Jianxun, GUO Conghui(2661)

• **Refractory Materials** •

- Effect of Raw Material Composition on Microstructures and Properties of Microporous Periclase-Composite Spinel (Mg(Fe, Al)<sub>2</sub>O<sub>4</sub>) Ceramics  
 ..... CHEN Qianlin, YAN Wen, WANG Xiao, LI Yawei(2672)
- Preparation of Si<sub>2</sub>N<sub>2</sub>O/SiC Composite Powders Using Carbothermal Reduction Nitridation Method for Diatomite  
 ..... WAN Gan, KUANG Meng, HUANG Siyuan, ZHANG Jinjun, WANG Ping, ZHANG Shengzhou(2680)

• **New Functional Materials** •

- Preparation and Electrochemical Properties of Novel Cement-Based Batteries  
 ..... XIA Donglin, WANG Yajie, JIANG Yang(2685)
- Preparation and Mechanism of AgCl/Ag Composite Powder Material  
 ..... YANG Huajian, ZHAO Yuanyun(2697)