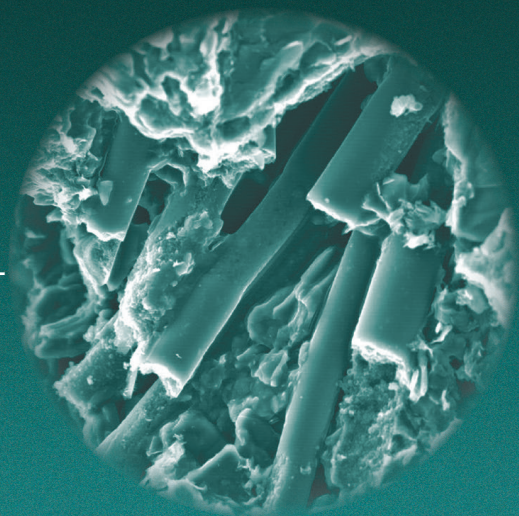


复合材料学报



Acta Materialiae Compositae Sinica

复合材料学报



Acta Materialiae Compositae Sinica

第二十九卷 第三期

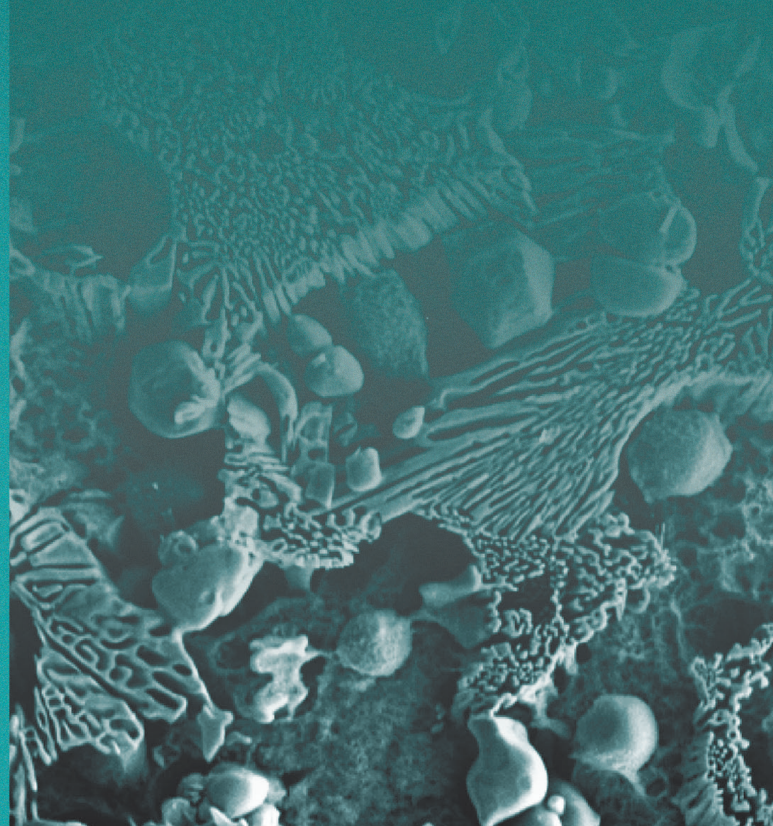
二〇二二年三月



2022. 3

北京航空航天大学 主办
中国复合材料学会

Vol.39 No.3 2022



目 次

综 述

碳纳米管改性连续纤维增强树脂基复合材料层间性能的研究进展 蒋彩, 车轍, 邢飞, 王绍凯, 李敏 (863)

有机硅烷功能化碳点的制备及应用进展 曹文兵, 孙争光, 武钰涵, 张玉红, 詹园 (884)

石墨烯增强聚合物气密性的研究进展 郭奇, 高源, 荔栓红, 卢晓英, 刘莲英, 潘凯 (896)

大型复合材料航空件固化成型模具技术研究与应用进展 肖遥, 李东升, 吉康, 李勇 (907)

FRP 配筋海水珊瑚骨料混凝土材料及构件力学性能研究进展 李小伟, 曹旗 (926)

MXene 及其复合吸波材料的制备与性能研究进展 吴梦, 饶磊, 张建峰, 李月霞, 纪子影, 应国兵 (942)

氮化硼纳米片的制备及其增强环氧树脂复合材料导热性能的研究进展 王海花, 冯佳, 赵敏 (956)

纳米纤维素基传感器的制备及其应用研究进展 张治国, 杨桂花, 和铭, 吉兴香, 陈嘉川 (969)

纺织基超级电容器研究进展 聂文琪, 孙江东, 许帅, 徐珍珍 (981)

纤维素基金属纳米粒子复合催化剂的制备与应用 林兆云, 戢德贤, 杨桂花, 陈嘉川 (993)

MoS₂/MXene 纳米复合物的研究进展 谢杭明, 吴汉卿, 何志伟, 孔哲 (1005)

改性壳聚糖磁性纳米材料的研究进展 汤琦龙, 傅晶依, 窦信, 何珊, 赵珺 (1017)

树脂高分子复合材料

纳米 SiO₂@黄麻纤维/PP 复合材料多相界面结构与增韧机制 刘璇, 崔益华, 杨贇, 聂文骏 (1026)

MXene/硅橡胶复合材料的制备及导热性能 陈德家, 姚艳青, 赵佳, 柴春鹏 (1036)

一种超声超低温冰层支撑辅助 CFRP 钻削方法 李树健, 陈蓉, 李常平, 李鹏南, 牛秋林, 邱新义 (1044)

基于多材料 3D 打印和约束牺牲层连续功能梯度材料-结构一体化制造与性能 齐田宇, 杨建军, 赵佳伟, 宋银宝, 郭鹏飞, 张冠军, 兰红波 (1055)

再生短碳纤维湿法取向技术及其增强性能分析 李森, 黄海鸿, 刘威豪, 阚峻峰, 刘志峰 (1068)

钛酸钡-氮化硼/聚间苯二甲酰间苯二胺复合电介质的制备与导热性能 段广宇, 胡凤英, 胡祖明, 迟长龙, 李玥, 于翔 (1079)

碳化硼-有机硅二维层状复合材料的制备与动态力学性能 马春彦, 王军, 白军伟, 邓建国 (1091)

功能复合材料

多功能疏水/超疏水复合涂层的制备及其防覆冰性 徐达, 肖振, 余新泉, 张友法 (1102)

氮掺杂碳纳米片负载 Fe-Co-Pt 复合材料的制备及其氧还原电活性 陈阿玲, 盛况, 王跃冰, 章巧丽, 谭广花, 易清风 (1110)

基于双向拉伸制备还原氧化石墨烯-碳纳米管复合薄膜的高性能柔性压阻传感器 向东, 张学忠, 陈小雨, 武元鹏, 叶勇, 张杰, 赵春霞, 李云涛, 王俊杰 (1120)

PEDOT: PSS/聚(丙烯酰胺-甲基丙烯酸)导电水凝胶的制备与性能 孙富昌, 潘雨辰, 张云飞, 刘辉, 杜飞鹏 (1131)

高电导率银纳米线@聚吡咯@CoNi 气凝胶的制备及其电催化析氧性能	魏剑, 陈甜甜, 张昊, 张雪萍, 李嘉欣, 蒋一昌 (1141)
ZnO@RGO 复合材料的制备及其吸波性能	熊自明, 吴凡, 张中威, 孙懿倩, 马超, 王涛 (1152)
CuS-Bi ₂ WO ₆ /活性纳米碳纤维的制备及其光催化性能	申久英, 刘碧雯, 赵宇翔, 彭蕾, 刘心中, 席北斗 (1163)
β -FeOOH/TiO ₂ 复合薄膜的制备及其光催化性能	董晓珠, 曾雄丰, 王建省, 赵英娜, 张文丽 (1173)
A 型蒙皮复合蜂窝结构设计及其吸波性能	邢孟达, 马向雨, 宫元勋, 吕通, 李策, 赵宏杰 (1180)
锂离子电池隔膜材料 EVOLi-OMMT 的制备与性能	巩桂芬, 邹明贵, 崔巍巍, 范金强, 马续 (1186)

土木工程复合材料

CFRP 筋与海水海砂混凝土粘结性能试验与机制分析	高婧, 范凌云 (1194)
不同预浸骨料-PVA 纤维对再生混凝土力学性能的影响	王兴国, 姜茂林, 陈旭, 王永贵, 朱建平, 程飞 (1205)
氯盐侵蚀作用下 BFRP 筋增强海砂 ECC 的拉伸及弯曲性能试验	姚洪耀, 陆宸宇, 彭林欣, 滕晓丹, 罗月静 (1215)
玄武岩纤维对再生混凝土抗碳化性能的影响	丁亚红, 郭书奇, 张向冈, 徐平, 武军, 张美香 (1228)

生物纳米复合材料

木质素-纳米纤维素复合薄膜的制备及其紫外光屏蔽性能	张梦丽, 陈港, 魏渊, 钱杨杨 (1239)
纤维含量对 VARTM 制备竹纤维/环氧树脂复合材料性能影响	施江靖, 陈红, 张文福, 吴婕妤 (1249)
ZIF-67/废棉纤维素复合气凝胶的制备及其对染料去除性能	翟健玉, 白文浩, 李昂, 崔策, 郭荣辉 (1259)
MnO ₂ -rGO/竹纤维素基炭气凝胶的制备及其在超级电容器中的应用	孔令宇, 文世涛, 李世杰, 马千里, 刘杏娥 (1268)
C6 位羧基纤维素制备及其对 Cu ²⁺ 吸附性能	李继丰, 闫文静, 方婷, 顾殿宽, 胡超凡, 杜兆芳, 陈巍 (1280)
还原氧化石墨烯-壳聚糖复合膜的制备及其性能	郭明媛, 马永宁, 陈腾飞 (1291)
壳聚糖/浮石浮上式复合除藻材料的制备及其除藻性能和除藻机制	徐园园, 郑宇, 田啸, 王趁义, 方雨博 (1300)

金属基和陶瓷基复合材料

弹性阻尼金属螺旋丝网夹芯结构连接工艺及力学特性	王珊珊, 魏雨函, 薛新, 吴章斌, 白鸿柏 (1308)
SnO ₂ 添加剂对 AgCuOIn ₂ O ₃ 复合材料电接触性能的影响	胡晨, 周晓龙, 陈力, 刘满门, 王立惠 (1322)

复合材料细观力学

纤维增强树脂复合材料中的褶皱缺陷: 分散性与虚拟测试	申川川, 马利, 文安戈, 郭静, 郑津洋 (1332)
复合材料压力容器含凹陷内胆屈曲的有限元分析	张国, 朱海洋, 蔡雅琪, 任明法, 李刚 (1343)
碳纤维增强树脂基复合材料模拟海洋环境长期老化及失效行为	王登霞, 孙岩, 谢可勇, 李晖, 王新波, 段剑, 邵蒙 (1353)

期刊基本参数: CN 11-1801/TB*1984*m*A4*500*zh*P*¥60.00*550*45*2022-3

编辑: 孙芳 李博涵 韩东蔚 万玉敏

审校: 吴红丽

CONTENTS

Review

- Research progress on interlaminar property of carbon nanotube-continuous fiber reinforced resin matrix composites JIANG Cai, CHE Zhe, XING Fei, WANG Shaokai, LI Min (863)
- Progresses in preparation and application of organosilane functionalized carbon dots CAO Wenbing, SUN Zhengguang, WU Yuhan, ZHANG Yuhong, ZHAN Yuan (884)
- Research progress in the enhanced polymer airtightness of graphene GUO Qi, GAO Yuan, LI Shuanhong, LU Xiaoying, LIU Lianying, PAN Kai (896)
- Research and application progress of curing tooling technology for large composite aeronautical components XIAO Yao, LI Dongsheng, JI Kang, LI Yong (907)
- Research progress on mechanical properties of FRP reinforced seawater coral aggregate concrete materials and structural components LI Xiaowei, CAO Qi (926)
- Research progress in preparation and performance of MXene and its composite absorbing materials WU Meng, RAO Lei, ZHANG Jianfeng, LI Yuexia, JI Ziyang, YING Guobing (942)
- Research progress on the preparation of boron nitride nanosheets and its reinforcement on the thermal conductivity of epoxy resin composites WANG Haihua, FENG Jia, ZHAO Min (956)
- Research progress in preparation and application of nanocellulose-based sensors ZHANG Zhiguo, YANG Guihua, HE Ming, JI Xingxiang, CHEN Jiachuan (969)
- Textile-based for supercapacitors: A review NIE Wenqi, SUN Jiandong, XU Shuai, XU Zhenzhen (981)
- Preparation and application of cellulose-based metal nanoparticles composite catalysts LIN Zhaoyun, JI Dexian, YANG Guihua, CHEN Jiachuan (993)
- Research progress in MoS₂/MXene nanocomposites XIE Hangmin, WU Hanqing, HE Zhiwei, KONG Zhe (1005)
- Research progress of modified chitosan magnetic nanomaterials TANG Qilong, FU Jingyi, DOU Xin, HE Shan, ZHAO Jun (1017)

Resin Polymer Composite

- Multi-phase interface structure and toughening mechanism for nano-SiO₂@jute fiber/PP composites LIU Xuan, CUI Yihua, YANG Yun, NIE Wenjun (1026)
- Preparation and thermal conductivity of MXene/silicone rubber composites CHEN Dejie, YAO Yanqing, ZHAO Jia, CHAI Chunpeng (1036)
- A method of CFRP drilling assisted by ultrasonic, cryogenic temperature and ice support LI Shujian, CHEN Rong, LI Changping, LI Pengnan, NIU Qiulin, QIU Xinyi (1044)
- Integrated manufacturing and performance study of continuous functionally graded materials-structures based on multi-material 3D printing and constraint sacrifice layer QI Tianyu, YANG Jianjun, ZHAO Jiawei, SONG Yinbao, GUO Pengfei, ZHANG Guanjun, LAN Hongbo (1055)
- Wet orientation technology of recycled short carbon fiber and analysis of its reinforcement performance LI Sen, HUANG Haihong, LIU Weihao, KAN Junfeng, LIU Zhifeng (1068)
- Preparation and thermal conductivity of barium titanate-boron nitride/poly(m-phenyleneisophthalamide) dielectric composites DUAN Guangyu, Hu Fengying, HU Zuming, CHI Changlong, LI Yue, YU Xiang (1079)
- Preparation and dynamic mechanical properties of boron carbide andorganosilicon two-dimensional laminated composites MA Chunyan, WANG Jun, BAI Junwei, DENG Jianguo (1091)

Functional Composite

- Preparation and anti-icing characteristics of multifunctional hydrophobic/superhydrophobic composite coating XU Da, XIAO Zhen, YU Xinquan, ZHANG Youfa (1102)
- Fabrication and oxygen reduction reaction electroactivity of Fe-Co-Pt loaded on nitrogen-doped carbon nanosheet composites CHEN Aling, SHENG Kuang, WANG Yuebing, ZHANG Qiaoli, TAN Guanghua, YI Qingfeng (1110)
- High-performance flexible piezoresistive strain sensor based on biaxially stretched conductive polymer composite films with reduced graphene oxide-carbon nanotubes XIANG Dong, ZHANG Xuezhong, CHEN Xiaoyu, WU Yuanpeng, YE Yong, ZHANG Jie, ZHAO Chunxia, LI Yuntao, WANG Junjie (1120)

Preparation and properties of PEDOT : PSS/poly(acrylamide-co-methacrylic acid) conductive hydrogels	SUN Fuchang, PAN Yuchen, ZHANG Yunfei, LIU Hui, DU Feipeng (1131)
Synthesis and electrocatalytic oxygen evolution performances of high conductivity silver nanowire@polypyrrole@CoNi alloy aerogels	WEI Jian, CHEN Tiantian, ZHANG Hao, ZHANG Xueping, LI Jiaxin, JIANG Yichang (1141)
Preparation and wave absorption properties of ZnO@RGO composites	XIONG Ziming, WU Fan, ZHANG Zhongwei, SUN Minqian, MA Chao, WANG Tao (1152)
Preparation and photocatalytic properties CuS-Bi ₂ WO ₆ /carbon nanofibers composites	SHEN Jiuying, LIU Biwen, ZHAO Yuxiang, PENG Lei, LIU Xinzhong, XI Beidou (1163)
Preparation of β-FeOOH/TiO ₂ composite film and its photocatalytic performance	DONG Xiaozhu, ZENG Xiongfang, WANG Jiansheng, ZHAO Yingna, ZHANG Wenli (1173)
Design and wave absorbing properties of honeycomb with A-type skin	XING Mengda, MA Xiangyu, GONG Yuanxun, LV Tong, LI Ce, ZHAO Hongjie (1180)
Preparation and performance of EVOLi-OMMT separator material for lithium ion battery	GONG Guifen, ZOU Minggui, CUI Weiwei, FAN Jinqiang, MA Xu (1186)

Civil Construction Composite

Experiment on bond performance between CFRP bar and seawater sea sand concrete and its working mechanism	GAO Jing, FAN Lingyun (1194)
Effect of different pre-soaked aggregate-PVA fiber on the mechanical properties of recycled aggregate concrete	WANG Xingguo, JIANG Maolin, CHEN Xu, WANG Yonggui, ZHU Jianping, CHENG Fei (1205)
Experimental study on tensile and bending properties of sea sand ECC reinforced by BFRP bars under chloride salt erosion	YAO Qiyao, LU Chenyu, PENG Linxin, TENG Xiaodan, LUO Yuejing (1215)
Influence of basalt fiber on the anti-carbonation performance of recycled aggregate concrete	DING Yahong, GUO Shuqi, ZHANG Xianggang, XU Ping, WU Jun, ZHANG Meixiang (1228)

Biological Nano-composite

Preparation and UV-blocking performance of lignin-cellulose nanofiber composite film	ZHANG Mengli, CHEN Gang, WEI Yuan, QIAN Yangyang (1239)
Effect of fiber content on the properties of bamboo fiber/epoxy resin composites prepared by VARTM	SHI Jiangjing, CHEN Hong, ZHANG Wenfu, WU Jieyu (1249)
Preparation of ZIF-67/waste cotton cellulose composite aerogels and the removal performance on dyes	ZHAI Jianyu, BAI Wenhao, LI Ang, CUI Ce, GUO Ronghui (1259)
Preparation of MnO ₂ -rGO/bamboo cellulose based carbon aerogel and its application in supercapacitors	KONG Lingyu, WEN Shitao, LI Shijie, MA Qianli, LIU Xing'e (1268)
Preparation of C6 carboxylic cellulose and adsorption for Cu ²⁺	LI Jifeng, YAN Wenjing, FANG Ting, GU Diankuan, HU Chaofan, DU Zhaofang, CHEN Wei (1280)
Preparation and properties of reduced graphene oxide-chitosan composite film	GUO Mingyuan, MA Yongning, CHEN Tengfei (1291)
Study on the preparation of chitosan-pumice floating composite material for removing algae and its performance and mechanism of removing algae	XU Yuanyuan, ZHENG Yu, TIAN Xiao, WANG Chenyi, FANG Yubo (1300)

Metal and Ceramic Matrix Composite

Connection technology and mechanical properties of sandwich structure with the core of elastic damping metal spiral wire mesh	WANG Shanshan, WEI Yuhan, XUE Xin, WU Zhangbin, BAI Hongbai (1308)
Effect of SnO ₂ additive on the electrical contact properties of AgCuOIn ₂ O ₃ composites	HU Chen, ZHOU Xiaolong, CHEN Li, LIU Manmen, WANG Lihui (1322)

Composite Micro-mechanics

Wrinkles in fiber-reinforced resin composites: Heterogeneity and virtual test	SHEN Chuanchuan, MA Li, WEN Ange, GUO Jing, ZHENG Jinyang (1332)
Finite element analysis of the buckling of the liner of composite pressure vessel with depression	ZHANG Guo, ZHU Haiyang, CAI Yaqi, REN Mingfa, LI Gang (1343)
Long term aging and failure behaviors of carbon fiber reinforced polymer composites in simulated marine environments	WANG Dengxia, SUN Yan, XIE Keyong, LI Hui, WANG Xinbo, DUAN Jian, SHAO Meng (1353)