



ISSN 1005-0299  
CODEN CKAOEY

# 材料科学与工程

## MATERIALS SCIENCE AND TECHNOLOGY

第31卷 第3期 Vol.31 No.3



P55



中国材料研究学会 (C-MRS) 主办  
哈尔滨工业大学 (HIT)

# 2023.3

# 材料科学与工程

第 31 卷 第 3 期 2023 年 6 月

---

## 目 次

倒置钙钛矿太阳能电池的空穴传输层的研究进展

..... 郭 盼,龙彦汐,李 英,杨元林( 1 )

超薄层羟镁铝石纳米片的制备和应用

..... 苗哲彦,曹耀武,唐保春,马月花,赵 杰,郭清海( 22 )

石墨烯/纳米  $\text{Al}_2\text{O}_3$  增韧 Ti(C,N)基金属陶瓷的力学及摩擦磨损性能

..... 周后明,刘 刚,周金虎,陈皓月,朱宇旭,李神贵( 31 )

抗高温抗高盐聚酰亚胺微球的制备及驱油性能评价

..... 彭鹏傲,周 明,古 月,涂宏俊,夏亮亮( 41 )

45 钢表面激光熔覆 CoCrNi 中熵合金涂层组织与性能

..... 陈 凯,崔承云,赵 恺,姜高强( 48 )

基于 BP 和 RBF 神经网络对静电纺丝工艺参数的优化研究

..... 孙 旺,朱 平,严宏鑫( 56 )

含马来酰亚胺结构的 DOPO 基反应型阻燃剂的合成及其对环氧树脂性能的影响

..... 廖庆玲,马福民,付勇军,谭 行,曾黎明,冯帮余( 63 )

铝合金曲轴后端盖压铸模浇注与排溢系统优化设计

..... 舒吉平, 龚海军, 彭 军, 宋 鹏, 张继祥( 71 )

镁合金表面 Zn 改性 MgO 复合陶瓷层的微弧氧化制备及其抗菌性能

..... 王殿君, 梁 英, 魏 源, 李思远, 刘崇林( 81 )

核壳结构 CdS/ZnS@ rGA 的制备及光催化性能研究

..... 邹 明, 丁 颖, 刘海涛, 徐丽慧, 潘 虹( 88 )

# MATERIALS SCIENCE AND TECHNOLOGY

Vol. 31 No. 3 Jun. 2023

## CONTENTS

Research progress of hole transport layer in inverted perovskite solar cells

..... *GUO Pan, LONG Yanxi, LI Ying, YANG Yuanlin*( 1 )

Preparation and application of ultrathin meixnerite nanosheets

..... *MIAO Zheyang, CAO Yaowu, TANG Baochun, MA Yuehua, ZHAO Jie, GUO Qinghai*( 22 )

Mechanical properties and friction and wear properties of graphene/nano- $\text{Al}_2\text{O}_3$  toughened Ti(C,N)-based cermets

..... *ZHOU Houming, LIU Gang, ZHOU Jinhua, CHEN Haoyue, ZHU Yuxu, LI Shengui*( 31 )

Preparation and oil displacement performance of polyimide microspheres with high-temperature and high-

salinity resistance ..... *PENG Peng'ao, ZHOU Ming, GU Yue, TU Hongjun, XIA Liangliang*( 41 )

Microstructure and properties of laser cladding CoCrNi medium-entropy alloy coating on 45 steel

..... *CHEN Kai, CUI Chengyun, ZHAO Kai, JIANG Gaoqiang*( 48 )

Optimization of electrospinning process parameters based on BP and RBF neural networks

..... *SUN Wang, ZHU Ping, YAN Hongxin*( 56 )

Synthesis of DOPO-based reactive flame retardant containing maleimide structure and its effect on epoxy resin

..... *LIAO Qingling, MA Fumin, FU Yongjun, TAN Xing, ZENG Liming, FENG Bangyu*( 63 )

Optimization design of die casting mold pouring and overflow discharge system for an aluminum alloy crankshaft

rear end cap ..... *SHU Jiping, GONG Haijun, PENG Jun, SONG Peng, ZHANG Jixiang*( 71 )

Micro-arc oxidation preparation and antibacterial properties of Zn-modified MgO composite ceramic layer on Mg alloy surface ..... *WANG Dianjun, LIANG Ying, WEI Yuan, LI Siyuan, LIU Chonglin*( 81 )

Preparation and photocatalytic properties of core-shell CdS/ZnS@ rGA ..... *ZOU Ming, DING Ying, LIU Haitao, XU Lihui, PAN Hong*( 88 )