

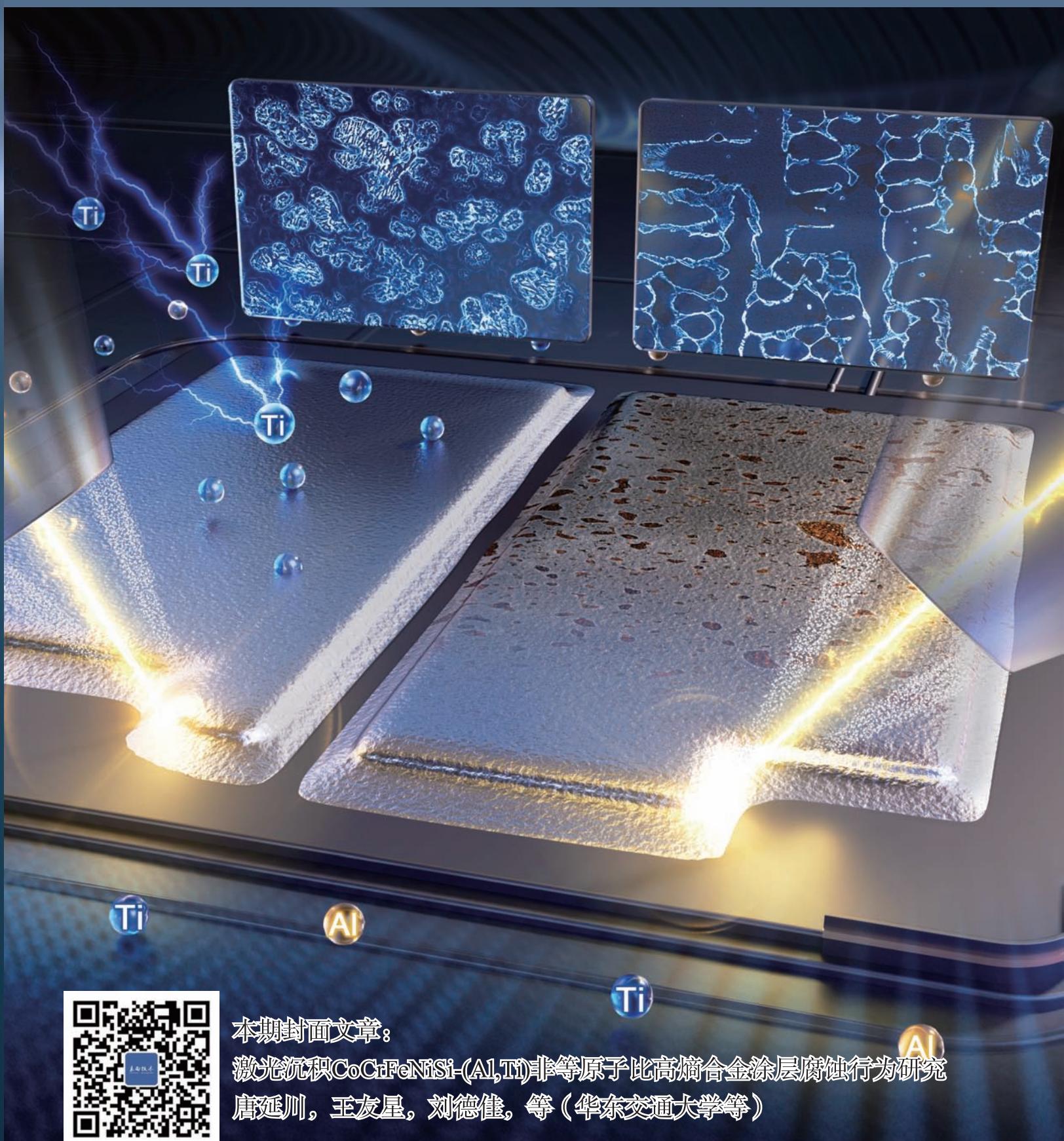
表面技术

SURFACE TECHNOLOGY

ISSN 1001-3660

CN 50-1083/TG

2023年09月
第52卷 第9期
Vol.52 No.9



本期封面文章：

激光沉积CoCrFeNiSi-(Al,Ti)非等原子比高熵合金涂层腐蚀行为研究
唐延川, 王友星, 刘德佳, 等(华东交通大学等)

目 次 CONTENTS

研究综述 Research Review

1 SOFCs 金属连接体表面改性 Mn-Co 尖晶石涂层研究现状

Research Progress of Modified Mn-Co Spinel Coating of SOFCs Metal Interconnect

张勇, 李强, 伍彩虹, 符明君, 马江, 孙也泽谋

ZHANG Yong, LI Qiang, WU Cai-hong, FU Ming-jun, MA Jiang, SUN Ye-ze-mou

10 超声椭圆振动切削技术及装置应用研究现状及进展

Research Status and Progress of Ultrasonic Elliptical Vibration Cutting Technology and Device Application

姜帅, 付秀丽, 王振达, 潘永智, 蒋振峰

JIANG Shuai, FU Xiu-li, WANG Zhen-da, PAN Yong-zhi, JIANG Zhen-feng

23 激光复合热喷涂技术制备陶瓷基涂层研究现状

Research Status of Ceramic-based Coatings Prepared by Laser-hybrid Thermal Spraying Technology

李思源, 何鹏飞, 程延海, 梁秀兵, 孙川

LI Si-yuan, HE Peng-fei, CHENG Yan-hai, LIANG Xiu-bing, SUN Chuan

39 热障涂层演变、失效理论及模型建立研究进展

Research Progress on Thermal Barrier Coating Evolution, Failure Theory and Modeling

王志平, 战金滢, 刘延宽, 王璐璐

WANG Zhi-ping, ZHAN Jin-ying, LIU Yan-kuan, WANG Lu-lu

63 绿色环保型超疏水涂层的研究进展

Research Progress and Development Trend of Green and Environmental Friendly Superhydrophobic Coating

孙英纯, 刘如, 徐建峰, 龙玲

SUN Ying-chun, LIU Ru, XU Jian-feng, LONG Ling

79 铜基超疏水表面制备方法的研究进展

Research Progress of Fabrication Methods for Copper-based Superhydrophobic Surfaces

李宪准, 张好强, 丁岚, 董树亮

LI Xian-zhun, ZHANG Hao-qiang, DING Lan, DONG Shu-liang

96 纤维素及其组成物基超浸润材料在油水分离中的研究进展

Research Progress of Cellulose and Its Component-based Superwetting Materials in Oil-water Separation

王雅培, 林凯歌, 高陈陈, 吴明明, 陈诚, 冉杰

WANG Ya-pei, LIN Kai-ge, GAO Chen-chen, WU Ming-ming, CHEN Cheng, RAN Jie

108 聚乙烯表面接枝改性及应用的研究进展

Research Advance in Application of Surface Grafting Modification of Polyethylene

邓亚玲, 李于文成, 许煜, 于波, 汤晴欣, 高陈宏, 王宇鑫

DENG Ya-ling, LI Yu-wen-cheng, XU Yu, YU Bo,

TANG Qing-xin, GAO Chen-hong, WANG Yu-xin

摩擦磨损与润滑 Friction, Wear and Lubrication

125 L-PBF Ti6Al4V 的表面氮化处理及腐蚀磨损性能研究

Surface Nitriding Treatment and Tribocorrosion Properties of L-PBF Ti6Al4V

秦文韬, 满成, 逢昆, 张宏伟, 崔中雨, 王昕, 崔洪芝

QIN Wen-tao, MAN Cheng, PANG Kun, ZHANG Hong-wei,

CUI Zhong-yu, WANG Xin, CUI Hong-zhi

135 高速固体颗粒冲击下 30CrMo 钢的冲蚀机理测试研究

Erosion Mechanism of 30CrMo Steel Impacted by High Speed Solid Particles

刘冰, 刘旭, 邓宽海, 林元华, 周念涛, 梅宗斌, 李双贵

LIU Bing, LIU Xu, DENG Kuan-hai, LIN Yuan-hua,

ZHOU Nian-tao, MEI Zong-bin, LI Shuang-gui

146 椭圆微织构结构参数对气膜浮环密封性能的影响

Effect of Elliptical Micro-textured Structure Parameters on Sealing Performance of Floating Ring with Gas Film

王世鹏, 丁雪兴, 丁俊华, 洪先志, 包鑫

WANG Shi-peng, DING Xue-xing, DING Jun-hua, HONG Xian-zhi, BAO Xin

160 溅射技术对 TiN 涂层结构和力学性能的影响

Effect of Sputtering Technology on Microstructure and Mechanical Properties of TiN Coatings

谷佳宾, 李建勇, 李刘合, 金杰, 张海鹏

GU Jia-bin, LI Jian-yong, LI Liu-he, JIN Jie, ZHANG Hai-peng

170 DZ125 合金表面 Cr-Al-Y 涂层抗高温氧化性能及摩擦性能

High Temperature Oxidation Resistance and Friction Properties of Cr-Al-Y Coating on DZ125 Alloy

田兴达, 李涌泉, 王存喜, 梁国栋

TIAN Xing-da, LI Yong-quan, WANG Cun-xi, LIANG Guo-dong

178 运行工况对碳刷/集电环摩擦副表面膜形成的影响

Effect of Operating Conditions on Friction Surface Film Formation of Carbon Brush/Slip Ring Assemblies

秦红玲, 王锦涛, 李洪波, 赵新泽, 易静雯, 赵益俊, 任志英

QIN Hong-ling, WANG Jin-tao, LI Hong-bo, ZHAO Xin-ze,

YI Jing-wen, ZHAO Yi-jun, REN Zhi-ying

腐蚀与防护 Corrosion and Protection

189 纳米钛基杂化材料对水性环氧涂层组织结构和耐蚀性能的影响

Effect of Nano-titanium Polymer on Microstructure and Corrosion Resistance of Water-based Epoxy Coatings

焦志强, 魏世丞, 韩庆, 王博, 陈建设, 李斌川

JIAO Zhi-qiang, WEI Shi-cheng, HAN Qing, WANG Bo, CHEN Jian-she, LI Bin-chuan

199 超声振动辅助激光熔覆 IN718-Hf 涂层的抗高温氧化性能

High-temperature Oxidation Resistance of IN718-Hf Coating by Ultrasonic Vibration-assisted Laser Cladding

嵇春艳, 黄蕾, 徐家乐, 蔡杰, 张腾, 孟宪凯, 黄舒, 周建忠

JI Chun-yan, HUANG Lei, XU Jia-le, CAI Jie, ZHANG Teng,

MENG Xian-kai, HUANG Shu, ZHOU Jian-zhong

209 Q235 碳钢表面 SiO₂/PDMS 超疏水涂层的制备及防腐性能研究

Preparation and Anti-corrosion Properties of SiO₂/PDMS Super-hydrophobic Coating on Q235 Carbon Steel

于元昊, 董玉花, 邢静, 陈亚敏, 宁浩良, 赵彤, 彭淑鸽

YU Yuan-hao, DONG Yu-hua, XING Jing, CHEN Ya-min,

NING Hao-liang, ZHAO Tong, PENG Shu-ge

220 抗微生物腐蚀管材在 SRB/CO₂ 环境中膜特征及其腐蚀行为

Film Characteristics and Corrosion Behavior of Anti-microbial Corrosion Pipe in SRB/CO₂ Environment

赵国仙, 丁浪勇, 刘冉冉, 王映超, 张思琦, 董博星, 宋洋

ZHAO Guo-xian, DING Lang-yong, LIU Ran-ran,

WANG Ying-chao, ZHANG Si-qi, DONG Bo-xing, SONG Yang

232 稀土元素 Ce、Y 在 Mg-Mn-RE 镁合金腐蚀中的作用及其差异

Effects and Difference of Ce and Y on Corrosion Behaviors of Mg-Mn-RE Magnesium Alloys

王熠玮, 郭峰, 胡文鑫, 刘亮, 赵学平

WANG Yi-wei, GUO Feng, HU Wen-xin, LIU Liang, ZHAO Xue-ping

241 Cr 涂层 Zr-4 合金包壳的高温空气氧化/扩散行为

High-temperature Air Oxidation/Diffusion Behavior of Cr-coated Zr-4 Alloy Cladding

李志平, 宋鹏, 张瑞谦, 李青

LI Zhi-ping, SONG Peng, ZHANG Rui-qian, LI Qing

247 溶蚀型海洋防污涂料制备及其性能

Preparation and Performance Investigation of Ablative Marine Antifouling Coating

于雪艳, 高鹏, 陈正涛, 康思波, 张华庆, 王效军, 刘术辉, 丛巍巍, 张凯, 桂泰江

YU Xue-yan, GAO Peng, CHEN Zheng-tao, KANG Si-bo, ZHANG Hua-qing, WANG Xiao-jun,

LIU Shu-hui, CONG Wei-wei, ZHANG Kai, GUI Tai-jiang

253 锌铝镁镀层不同表面处理体系成分分析及耐蚀性研究

Composition Analysis and Corrosion Resistance of Different Surface Treatment Systems for Zn-Al-Mg Coating

邵蓉, 黎敏, 刘永壮, 曹建平, 李学涛

SHAO Rong, LI Min, LIU Yong-zhuang, CAO Jian-ping, LI Xue-tao

精密与超精密加工 Precision and Ultra-precision Machining

265 单晶铜在不同温度下的纳米切削机理研究

Nano-cutting Mechanism of Single Crystal Copper at Different Temperature

张彭, 李新建, 张健生, 张毅, 黄小光, 叶贵根

ZHANG Peng, LI Xin-jian, ZHANG Jian-sheng, ZHANG Yi, HUANG Xiao-guang, YE Gui-gen

278 面向绿色高表面质量制造的硬态车削工艺多目标参数优化

Multi-objective Parameter Optimization of Hard Turning Process for Green High Surface Quality Manufacturing

迟玉伦, 范志辉, 葛爱丽, 李怡霖

CHI Yu-lun, FAN Zhi-hui, GE Ai-li, LI Yi-lin

294 GCr15 轴套纵扭超声磨削表面形貌预测及试验研究

Prediction and Experiment on Surface Morphology of Longitudinal- torsional Ultrasonic Grinding of GCr15 Shaft Sleeve

楚帅震, 牛赢, 王壮飞, 焦锋

CHU Shuai-zhen, NIU Ying, WANG Zhuang-fei, JIAO Feng

表面功能化 Surface Functionalization

306 覆冰损伤后天然超疏水表面湿润性恢复机理研究

Wettability Recovery Mechanism of Natural Superhydrophobic Surface after Icing Damage

胡琴, 杨航, 蒋兴良, 舒立春

HU Qin, YANG Hang, JIANG Xing-liang, SHU Li-chun

313 基于载能离子束技术制备超薄无胶挠性覆铜板

Preparation of Ultra-thin Adhesive-free Flexible Copper Clad Laminate Based on Energetic Ion Beam Technology

张一凡, 闫维卿, 李倩, 袁恒, 沈永清, 陈琳, 庞盼, 欧阳潇, 廖斌

ZHANG Yi-fan, YAN Wei-qing, LI Qian, YUAN Heng,

SHEN Yong-qing, CHEN Lin, PANG Pan, OUYANG Xiao, LIAO Bin

322 不同活化方式对橡胶沥青-集料黏附性的影响

Effect of Different Activation Methods on Adhesion Performance of Rubber Asphalt-aggregate

谢娟, 陈学儒, 罗浩宸, 赵勘丞, 贺文

XIE Juan, CHEN Xue-ru, LUO Hao-chen, ZHAO Kan-cheng, HE Wen

331 低共熔溶剂中超疏水结构的一步电沉积制备及性能研究

One-step Electrodeposition and Performance of Superhydrophobic Structure from Deep Eutectic Solvent

李梦情, 崔偎偎, 白子龙, 徐银杏, 于会珠, 李瑞乾

LI Meng-qing, CUI Wei-wei, BAI Zi-long, XU Yin-xing, YU Hui-zhu, LI Rui-qian

340 两种硅烷偶联剂修饰的铝合金表面超疏水性能研究

Superhydrophobic Properties of Aluminum Alloy Surfaces Modified by Two Silane Coupling Agents

李文艳, 杨含铭, 夏祖西, 彭华乔, 石涛

LI Wen-yan, YANG Han-ming, XIA Zu-xi, PENG Hua-qiao, SHI Tao

351 四棱锥复合梯度表面液滴的定向移动

Directional Droplet Movement Based on Spatial Quadric Pyramid Composite Surface

王湘涵, 弯艳玲, 楚顺顺, 许金凯, 吴庆堂

WANG Xiang-han, WAN Yan-ling, CHU Shun-shun, XU Jin-kai, WU Qing-tang

358 水下超疏油不锈钢网的制备及其油水分离性能研究

Preparation and Oil-water Separation Performance of Underwater Superoleophobic Stainless Steel Mesh

武金龙, 付玉坤, 李郝琪, 施冬梅, 范瑞娟, 张永兰, 谭梦妍, 王鹏

WU Jin-long, FU Yu-kun, LI Hao-qi, SHI Dong-mei,

FAN Rui-juan, ZHANG Yong-lan, TAN Meng-yan, WANG Peng

激光表面改性技术 Laser Surface Modification Technology

377 激光沉积 CoCrFeNiSi-(Al,Ti)非等原子比高熵合金涂层腐蚀行为研究

Corrosion Behavior of Laser Deposited Non-equiautomic CoCrFeNiSi-(Al,Ti) HEA Coatings

唐延川, 王友星, 刘德佳, 焦海涛, 胡勇, 唐兴昌, 赵龙志

TANG Yan-chuan, WANG You-xing, LIU De-jia, JIAO Hai-tao,

HU Yong, TANG Xing-chang, ZHAO Long-zhi

388 激光冲击光整对 2024 铝合金铣削平面表面质量的影响

Effect of Laser Shock Finishing on the Surface Quality of 2024 Aluminum Alloy with Milled Plane

李海洋, 赵喆, 郑超, 季忠, 赵国群

LI Hai-yang, ZHAO Zhe, ZHENG Chao, JI Zhong, ZHAO Guo-quan

397 激光加工工艺参数对 Invar 36 合金表面微织构质量的影响

Effect of Laser Processing Parameters on Surface Micro-texture Quality of Invar 36 Alloy

王斌, 郭岩宝, 张政, 王经鑫, 王德国

WANG Bin, GUO Yan-bao, ZHANG Zheng, WANG Jing-xin, WANG De-guo

408 不同含量 WC 颗粒增强激光熔覆截齿涂层性能研究

Properties of Laser Cladded Coating on Pick with Different Content of WC Particles

刘东刚, 梁国星, 郝新辉, 贾文婷, 杨世清, 黄永贵, 赵建, 吕明

LIU Dong-gang, LIANG Guo-xing, HAO Xin-hui, JIA Wen-ting,

YANG Shi-qing, HUANG Yong-gui, ZHAO Jian, LYU Ming

420 18CrNiMo7-6 齿轮钢表面激光熔覆及其胶合承载性能研究

Laser Cladding of 18CrNiMo7-6 Gear Steel and Its Scuffing Load Capacity

杜佳俊, 米佳良, 师陆冰, 陈超, 刘忠明, 王文健, 丁昊昊

DU Jia-jun, MI Jia-liang, SHI Lu-bing, CHEN Chao,

LIU Zhong-ming, WANG Wen-jian, DING Hao-hao

430 激光熔覆(Ni60+NbC)+h-BN@Cu 涂层组织与性能研究

Microstructure and Properties of Laser Cladding (Ni60+NbC)+h-BN@Cu Coatings

黄旭, 徐伟麒, 张家诚, 江吉彬, 练国富, 黄文泰, 胡新新, 玉津宇

HUANG Xu, XU Wei-qi, ZHANG Jia-cheng, JIANG Ji-bin,

LIAN Guo-fu, HUANG Wen-tai, HU Xin-xin, YU Jin-yu

热喷涂与冷喷涂技术 Thermal Spraying and Cold Spraying Technology

439 爆炸喷涂工艺参数对 AlCuFeSc 准晶涂层力学性能的影响

Effect of Explosive Spraying Process Parameters on Mechanical Properties of AlCuFeSc Quasicrystalline Coatings

李彰, 田浩亮, 王长亮, 肖晨兵, 金国, 王浩, 魏世丞

LI Zhang, TIAN Hao-liang, WANG Chang-liang,

XIAO Chen-bing, JIN Guo, WANG Hao, WEI Shi-cheng

451 喷嘴下游形状对冷喷涂粒子加速行为影响的数值模拟研究

Numerical Simulation on Effect of Nozzle Downstream Shape on Acceleration Behavior of Cold Spray Particles

李尊甲, 周红霞

LI Zun-jia, ZHOU Hong-xia

459 等离子喷涂 FeCrBC-NiAl-TiB₂ 复合涂层制备及性能研究

Preparation and Properties of Plasma-sprayed FeCrBC-NiAl-TiB₂ Composite Coating

陈东, 卢静, 孙澄川, 吴应东, 李挺

CHEN Dong, LU Jing, SUN Cheng-chuan, WU Ying-dong, LI Ting

469 8YSZ 热障涂层结构设计及其结合强度变化规律

Structural Design and Bonding Strength Variation of 8YSZ Thermal Barrier Coating

张文展, 肖和, 裴承, 邱小林, 全才兵, 廖丹, 周冬兰, 刘定荣, 陈秋香

ZHANG Wen-zhan, XIAO He, QIU Cheng, QIU Xiao-lin, QUAN Cai-bing,

LIAO Dan, ZHOU Dong-lan, LIU Ding-rong, CHEN Qiu-xiang