

表面技术

SURFACE TECHNOLOGY

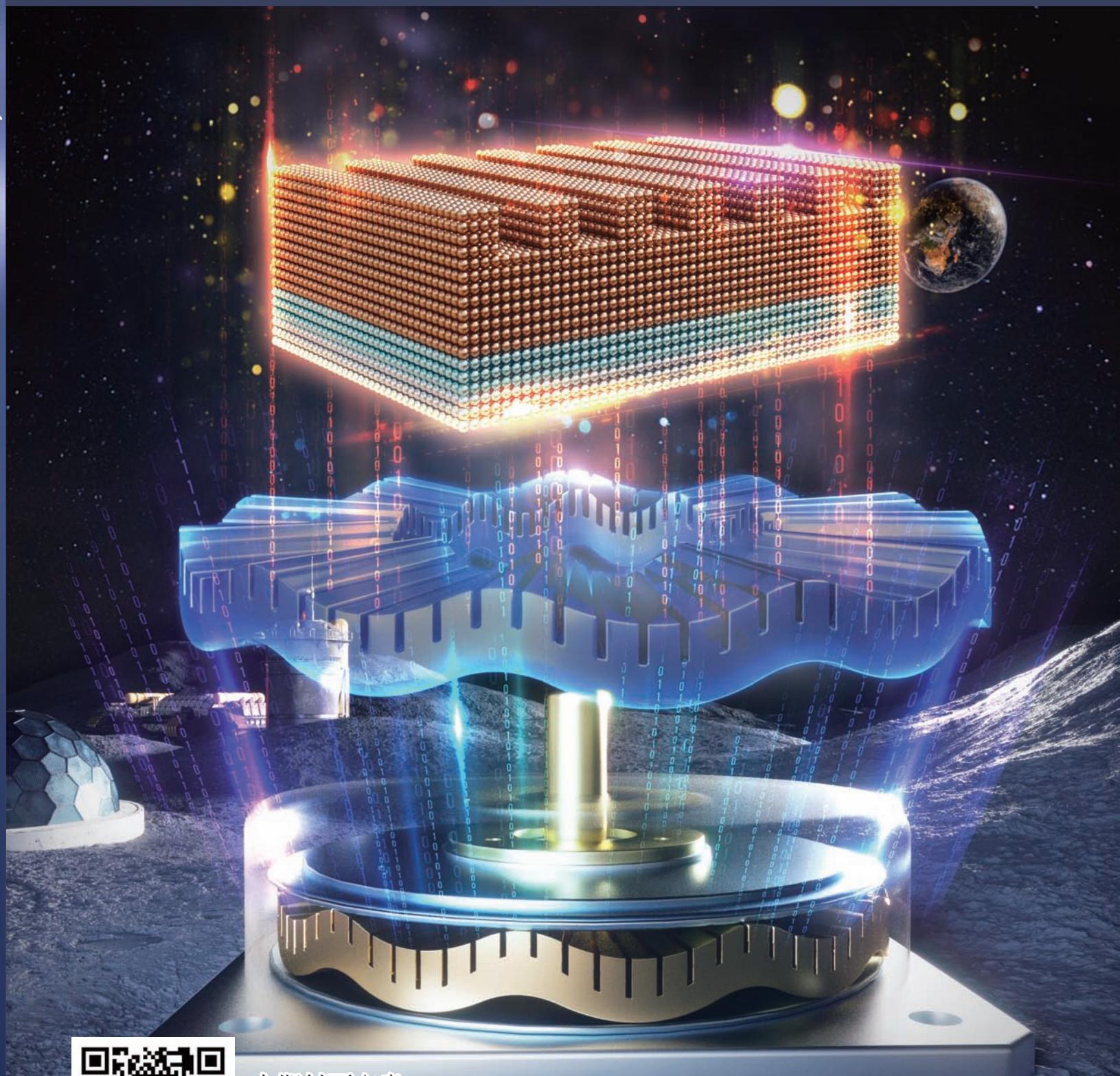
ISSN 1001-3660
CN 50-1083/TG

2023年03月
第52卷 第3期
Vol.52 No.3

表面技术

第五十二卷

第三期



本期封面文章：

铜表面纳尺度沟槽组织的摩擦学性能研究

汪国庆, 曹鑫鑫, 赵盖, 等(南京航空航天大学等)

目 次 CONTENTS

研究综述 Research Review

1 高温合金磨削热力耦合及其对表面完整性的影响研究现状

Research Status of Superalloy Grinding Thermal Mechanical Coupling and Their Effects on Surface Integrity

刘颖, 徐佳玉, 肖贵坚, 周坤, 李少川, 黄云

LIU Ying, XU Jia-yu, XIAO Gui-jian, ZHOU Kun, LI Shao-chuan, HUANG Yun

19 单晶金属衬底上多层石墨烯的可控生长进展

Progress in Controllable Growth of Multilayer Graphene on Single Crystal Metal Substrate

郭颜瑞, 潘孟春, 张琦, 胡佳飞, 吴瑞楠, 彭俊平, 邱伟成

GUO Yan-rui, PAN Meng-chun, ZHANG Qi, HU Jia-fei,

WU Rui-nan, PENG Jun-ping, QIU Wei-cheng

35 铝合金激光增材制造材料体系研究现状

Research Status of Laser Additive Manufacturing Material System for Aluminum Alloy

俞亮, 刘永业, 赵阳

YU Liang, LIU Yong-ye, ZHAO Yang

52 金属增减材制造本构模型获取方法研究进展

Research Progress on Methods for Obtaining Constitutive Model of Metal Material Additive Manufacturing

王丰, 刘蒙, 李国和, 王大春, 闫冬, 范建勋

WANG Feng, LIU Meng, LI Guo-he, WANG Da-chun, YAN Dong, FAN Jian-xun

64 铁基非晶涂层的研究进展与应用

Research Progress and Application of Fe-based Amorphous Coatings

高鹏飞, 陈永君, 王增睿, 解志文, 丛洁, 刘鹏, 赵岭, 熊云龙

GAO Peng-fei, CHEN Yong-jun, WANG Zeng-rui, XIE Zhi-wen,

CONG Jie, LIU Peng, ZHAO Ling, XIONG Yun-long

75 橡胶/类金刚石复合材料界面结合及摩擦性能研究进展

Research Progress on Interface Adhesion and Friction Properties of Rubber/Diamond-like Carbon Composites

崔丽, 孙丽丽, 郭鹏, 李昊, 周靖远, 汪爱英

CUI Li, SUN Li-li, GUO Peng, LI Hao, ZHOU Jing-yuan, WANG Ai-ying

91 储气库管柱冲蚀理论及预测研究进展

Research Progress on Erosion Theory and Prediction in Pipe String of Gas Storage

王志远, 杨贺民, 张洋洋, 刘晓

WANG Zhi-yuan, YANG He-min, ZHANG Yang-yang, LIU Xiao

111 聚醚醚酮骨植入手体生物改性研究进展

Research Progress in Biological Modification of Polyether-ether-ketone Bone Implants

马欢欢, 仇文豪, 黄浩, 乔阳

MA Huan-huan, QIU Wen-hao, HUANG Hao, QIAO Yang

122 镁合金微弧氧化膜层性能优化研究进展

Research Progress on Performance Optimization of Micro-arc Oxidation Films on Magnesium Alloys

张祥, 周亮, 贾宏耀, 冯宴荣, 赵李斌, 房大庆

ZHANG Xiang, ZHOU Liang, JIA Hong-yao, FENG Yan-rong, ZHAO Li-bin, FANG Da-qing

摩擦磨损与润滑 Friction, Wear and Lubrication

134 铜表面纳尺度沟槽织构的摩擦学性能

Effect of Groove on the Tribological Properties of Copper from a Nanoscale

汪国庆, 曹鑫鑫, 赵盖, 宋敬伏, 丁庆军

WANG Guo-qing, CAO Xin-xin, ZHAO Gai, SONG Jing-fu, DING Qing-jun

143 FHG97/WS₂自润滑复合材料力学性能和摩擦学性能的研究

Mechanical and Tribological Properties of FHG97/WS₂ Self-lubricating Composites

于成涛, 陈明辉, 王福会

YU Cheng-tao, CHEN Ming-hui, WANG Fu-hui

151 二维纳米石墨烯作为传动油添加剂的齿轮承载性能研究

Load Carrying Performance of Gear Using Two-dimensional Nano Graphene as Transmission Oil Additive

李东山, 孔宁, 张清东, 曹学乾, 鲁志斌, 万晓娜, 林博

LI Dong-shan, KONG Ning, ZHANG Qing-dong, CAO Xue-qian,

LU Zhi-bin, WAN Xiao-na, LIN Bo

161 核用 2.25Cr-1Mo 钢在不同环境下的微动磨损性能

Fretting Wear Properties of Nuclear 2.25Cr-1Mo Steel in Different Environments

王立闻, 陈旭东, 王俊, 冯铄, 汤瑞, 莫堃, 官雪梅, 张强升, 蔡振兵

WANG Li-wen, CHEN Xu-dong, WANG Jun, FENG Shuo, TANG Rui,

MO Kun, GUAN Xue-mei, ZHANG Qiang-sheng, CAI Zhen-bing

172 冷喷涂制备 CuZn35 涂层结构及耐摩擦磨损性能

Structure and Wear Resistance of CuZn35 Coating Prepared by Cold Spraying

张龙龙, 黄继波, 刁鹏源, 李德元, 黄仁忠, 张楠楠, 谢迎春

ZHANG Long-long, HUANG Ji-bo, DIAO Peng-yuan,

LI De-yuan, HUANG Ren-zhong, ZHANG Nan-nan, XIE Ying-chun

181 基底偏压对电弧离子镀制备 AlCrVN 涂层微结构及力学性能的影响

Influence of Substrate Bias Voltage on Structure and Properties of AlCrVN Coatings Deposited by Cathodic Arc Ion Platings

田灿鑫, 邹长伟, 王泽松, 项燕雄, 谢伟, 李助军, 刘怡飞

TIAN Can-xin, ZOU Chang-wei, WANG Ze-song,

XIANG Yan-xiong, XIE Wei, LI Zhu-jun, LIU Yi-fei

189 WC 颗粒熔解析出对 Ni60 熔覆层性能的影响

Effects of Dissolving and Precipitating of WC Particles on Performance of Ni60 Coating

芦海俊, 水剑虹, 王锴, 尚勇, 姜海峰, 魏金

LU Hai-jun, SHUI Jian-hong, WANG Kai, SHANG Yong, JIANG Hai-feng, WEI Jin

197 爆炸喷涂 Al-Cu-Fe 准晶涂层性能分析

Microstructure and Properties of Al-Cu-Fe Quasicrystal Coating Prepared by Explosive Spraying

王仲勋, 张恕爱, 邢勤, 于仁萍, 宫晓峰, 肖凤艳, 王浩

WANG Zhong-xun, ZHANG Shu-ai, XING Qin, YU Ren-ping,

GONG Xiao-feng, XIAO Feng-yan, WANG Hao

207 高速高温条件下刷式封严环涂层与刷丝摩擦副磨损行为

Wear Behavior of Brush Seal Ring Coating and Bristles Friction Pair under High Speed and High Temperature

郭会明, 杨丽琪, 张航, 王恩庆, 刘砚飞, 田伟, 钟燕, 薛伟海

GUO Hui-ming, YANG Li-qi, ZHANG Hang, WANG En-qing,

LIU Yan-fei, TIAN Wei, ZHONG Yan, XUE Wei-hai

腐蚀与防护 Corrosion and Protection

217 液压阻尼器活塞杆激光熔覆 WC/Co06 涂层耐磨耐腐蚀性能

Wear Resistance and Corrosion Resistance of Laser Cladding WC/Co06 Coating on the Piston Rod of Hydraulic Damper

肖居鹏, 杨学锋, 李万洋, 侯启敏

XIAO Ju-peng, YANG Xue-feng, LI Wan-yang, HOU Qi-min

228 化学镀 Pt 对多弧离子镀 NiCoCrAlY 涂层高温氧化行为的影响

Effect of Electroless Pt Plating on High Temperature Oxidation Behavior of Multi-arc Ion Plated NiCoCrAlY Coating

闫吕英, 董志宏, 鲍泽斌

YAN Lv-ying, DONG Zhi-hong, BAO Ze-bin

237 水对低共熔溶剂中电沉积 Zn-Fe 合金镀层性能的影响

Effect of Water on the Properties of Electrodeposited Zn-Fe Alloy Coating in Deep Eutectic Solvent

周国庆, 向倩, 秦水平, 吴敏娴, 光崎尚利, 王文昌, 陈智栋

ZHOU Guo-qing, XIANG Qian, QIN Shui-ping, WU Min-xian,

NAOTOSHI Mitsuzaki, WANG Wen-chang, CHEN Zhi-dong

246 激光功率对低碳钢表面激光熔覆钛合金涂层组织和性能的影响

Effects of Laser Power on Microstructure and Properties of Titanium Alloy Coatings Prepared on Low Carbon Steel by Laser Cladding

高炜, 俞宏英, 蒋旭洲, 斯佳佳, 孙冬柏

GAO Wei, YU Hong-ying, JIANG Xu-zhou, SI Jia-jia, SUN Dong-bai

255 成膜时间对 AZ31B 镁合金镨盐转化膜形貌和耐蚀性的影响

Effect of Film Formation Time on the Morphology and Corrosion Resistance of Praseodymium Salt Conversion Film of AZ31B Magnesium Alloy

刘坤, 邹忠利, 马琳梦, 张旭, 王北平

LIU Kun, ZOU Zhong-li, MA Lin-meng, ZHANG Xu, WANG Bei-ping

266 Al₂O₃-13% TiO₂ 绝缘防护复合涂层组织及电偶腐蚀性能

Microstructure and Galvanic Corrosion Properties of Al₂O₃-13% TiO₂ Insulation and Protection Composite Coatings

吴护林, 张智峰, 彭冬, 杨钊, 宋凯强, 丛大龙, 李毅, 谢杨, 陈爽, 黄安畏, 李忠盛

WU Hu-lin, ZHANG Zhi-feng, PENG Dong, YANG Zhao, SONG Kai-qiang,

CONG Da-long, LI Yi, XIE Yang, CHEN Shuang, HUANG An-wei, LI Zhong-sheng

276 Q235 焊缝表面镍基合金熔覆层在 NaCl 溶液中的腐蚀行为

Corrosion Behavior of Nickel-based Alloy Cladding Layer on Q235 Weld in NaCl Solution

柴廷玺, 晏丽琴, 徐宏彤, 蒋锴, 刘鹏

CHAI Ting-xi, YAN Li-qin, XU Hong-tong, JIANG Kai, LIU Peng

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

287 叶轮零件磨粒流抛光机理与数值模拟的研究

Mechanism and Numerical Simulation of Abrasive Flow Polishing for Impeller Parts

索文华, 王毅, 闻家成, 梁翔宇, 刘壮壮, 王善飞, 索红莉

SUO Wen-hua, WANG Yi, WEN Jia-cheng, LIANG Xiang-yu,

LIU Zhuang-zhuang, WANG Shan-fei, SUO Hong-li

299 丝锥刀具旋转磨粒流去毛刺和钝化抛光技术

Deburring and Passivation Polishing Technology of Tap Tool with Rotary Abrasive Flow

高航, 郭天博, 彭灿, 王宣平, 李伟秋, 林海生

GAO Hang, GUO Tian-bo, PENG Can, WANG Xuan-ping, LI Wei-qi, LIN Hai-sheng

308 二维超声振动车削 6061 铝合金圆筒表面粗糙度研究

Surface Roughness of 6061 Aluminum Alloy Cylinder Turned by Two-dimensional Ultrasonic Vibration

刘自强, 童景琳, 卞平艳, 宰鹏辉, 张志鹏

LIU Zi-qiang, TONG Jing-lin, BIAN Ping-yan, ZAI Peng-hui, ZHANG Zhi-peng

318 基于数值模拟的电镀 3D 打印厚度均匀性研究

Thickness Uniformity of Electroplating 3D Printing Based on Numerical Simulation

汤家港, 葛大丽

TANG Jia-gang, GE Da-li

表面功能化 Surface Functionalization

327 儿茶酚-(胺) 表面化学介导的一氧化氮催化释放涂层研究

Chemical-mediated Nitric Oxide-generating Coatings on Catechol-(Amine) Surface

刘苗, 谢鑫, 周吴一凡, 缪婉, 涂秋芬, 熊开琴

LIU Miao, XIE Xin, ZHOU Wu-yi-fan, MIAO Wan, TU Qiu-fen, XIONG Kai-qin

338 磁控溅射铱薄膜的表面形态与取向演变的控制优化

Control and Optimization of Surface Morphology and Orientation Evolution of Iridium Films Prepared by Magnetron Sputtering

夏天, 黄珂, 郑宇亭, 陈良贤, 刘金龙, 魏俊俊, 李成明

XIA Tian, HAUNG Ke, ZHENG Yu-ting, CHEN Liang-xian,

LIU Jin-long, WEI Jun-jun, LI Cheng-ming

345 透明耐磨疏水有机硅改性丙烯酸树脂的制备及性能

Preparation and Properties of Transparent and Wear-resistant Hydrophobic Silicone Modified Acrylic Resin

陈思安, 朱本峰, 张沐萱, 卢晓怡, 杨雨萌, 卫国英

CHEN Si-an, ZHU Ben-feng, ZHANG Mu-xuan, LU Xiao-yi, YANG Yu-meng, WEI Guo-ying

352 激光图案化铝合金表面的润湿性和各向异性研究

Wettability and Anisotropy of Laser Patterned Aluminum Alloy Surfaces

郭永刚, 吕志, 朱亚超

GUO Yong-gang, LYU Zhi, ZHU Ya-chao

360 微纳超疏水钛合金表面的制备及其性能研究

Fabrication and Properties of Micro-nano Superhydrophobic Titanium Alloy Surface

赵欣, 黄成超, 李梦, 杨华荣, 赵皓东

ZHAO Xin, HUANG Cheng-chao, LI Meng, YANG Hua-rong, ZHAO Hao-dong

370 DP980 表面氧化物对胶接性能的影响

Effect of Surface Oxides on Bonding Properties of DP980

邵蓉, 刘永壮, 董妮妮, 李润昌, 刘新华, 刘洋, 黎敏, 李学涛, 曹建平

SHAO Rong, LIU Yong-zhuang, DONG Ni-ni, LI Run-chang,

LIU Xin-hua, LIU Yang, LI Min, LI Xue-tao, CAO Jian-ping

激光表面改性技术 Laser Surface Modification Technology

379 316L 水平悬垂结构初始层选区激光熔化成形貌研究

Forming Morphology of 316L Horizontal Overhanging Structure Initial Layer by Selective Laser Melting

李梓杉, 杨高林, 董刚, 姚建华

LI Zi-shan, YANG Gao-lin, DONG Gang, YAO Jian-hua

388 热处理对激光熔化沉积 18Ni300 马氏体时效钢微观组织和力学性能的影响

Effect of Heat Treatment on Microstructure and Mechanical Properties of 18Ni300 Maraging Steel Prepared by Laser Melting Deposition

郑步云, 陈鑫, 雷剑波, 王天琪

ZHENG Bu-yun, CHEN Xin, LEI Jian-bo, WANG Tian-qi

399 基于分形曲线的分区扫描策略对激光熔化沉积基板变形的影响

Effect of Fractal-based Subarea Strategy on Substrate Deformation Produced by Laser Melting Deposition

姚少科, 孙辉磊, 李正阳, 蒋华臻

YAO Shao-ke, SUN Hui-lei, LI Zheng-yang, JIANG Hua-zhen

408 激光功率对 DH36 船用钢力学性能及强化机制的影响

Effect of Laser Power on Mechanical Property and Strengthening Mechanism of DH36 Marine Steel

柳睿, 于佳成, 杨琪帆, 吴志杰, 席明哲, 高士友

LIU Rui, YU Jia-cheng, YANG Qi-fan, WU Zhi-jie, XI Ming-zhe, GAO Shi-you

418 激光熔覆 CoCrCu_{0.4}FeNi 高熵合金涂层的微观组织和性能

Microstructure and Properties of Laser Cladding CoCrCu_{0.4}FeNi High Entropy Alloy Coating

徐洪洋, 卢金斌, 彭璇, 马明星

XU Hong-yang, LU Jin-bin, PENG Xuan, MA Ming-xing

429 激光熔覆 CoCrFeNiW_x 高熵合金涂层的组织及性能

Microstructure and Properties of CoCrFeNiW_x High Entropy Alloy Coated by Laser Cladding

马世忠, 孙荣禄, 牛伟, 谷米, 左润燕, 张连旺

MA Shi-zhong, SUN Rong-lu, NIU Wei, GU Mi, ZUO Run-yan, ZHANG Lian-wang