

## 专稿 Feature

### 14 碳纤维复合材料干涉配合连接技术研究进展

Research Progress on Interference Fit Joint Technology in Carbon Fiber Composites

曹增强 郭映江 霍鲁斌  
CAO Zengqiang GUO Yingjiang HUO Lubin

## 封面文章 Cover Story

### 26 人工智能辅助空天新材料设计研究进展

AI-Assisted Design of Aerospace Advanced Materials: Recent Advances and Perspectives

孙升 陈祎远 尚卿  
SUN Sheng CHEN Yiyuan SHANG Qing

## 论坛 Forum

### 自修复涂层 Self-Healing Coatings

#### 48 新型航空航天自修复涂层技术研究进展及其未来展望

Recent Advances and Future Prospects of Novel Self-Healing Coating Technologies in Aerospace Applications

薛名山 郭敬潇 洪珍 殷祚炷 罗一丹 谢婵  
XUE Mingshan GUO Jingxiao HONG Zhen YIN Zuozhu LUO Yidan XIE Chan

#### 62 界面形貌对自修复热障涂层残余应力分布的影响

Influence of Interface Morphology on Residual Stress Distribution of Self-Healing Thermal Barrier Coatings

赵伟玲 王亮  
ZHAO Weiling WANG Liang

#### 74 自修复环氧树脂涂层及其在航空航天领域的应用

Self-Healing Epoxy Resin Coatings and Their Application in Aerospace Fields

高文通 戈嗣诚 李承辉  
GAO Wentong GE Sicheng LI Chenghui

#### 88 自修复功能复合涂层及其在航空领域应用前景

Self-Healing Functional Composite Coatings and Application Prospects in Aeronautic Field

李明玮 方亮 陆春华 许仲梓  
LI Mingwei FANG Liang LU Chunhua XU Zhongzi

## 专题 Special Topic

### 数字化装配 Digital Assembly

- 104 飞航舱段薄壁筒件装配误差分析与调控  
金贺荣 孙中锐 韩雪艳 曹子晨 宜亚丽  
Assembly Error Analysis and Control of Thin-Walled Cylindrical Parts in Flight Section of Aircraft  
JIN Herong SUN Zhongrui HAN Xueyan CAO Zichen YI Yali
- 114 飞机装配工装测量稳定性分析及控制方法  
梁艳杰 王守川 周新房 刘若璇  
Measurement Stability Analysis and Control Method of Aircraft Assembly Tooling  
LIANG Yanjie WANG Shouchuan ZHOU Xinfang LIU Ruoxuan
- 120 零件形貌误差和受力变形融合表征的装配精度分析研究  
杨溢涛 赵强强 胡晓坤 余德文 李小虎 洪军  
Research on Assembly Accuracy Analysis Integrating Surface Profile Errors of Part and Force-Induced Deformations  
YANG Yitao ZHAO Qiangqiang HU Xiaokun YU Dewen LI Xiaohu HONG Jun
- 133 基于超声波声弹法的螺栓预紧力精确测量系统研究  
王金强 王国栋 王绪嘉 巩浩 刘检华 黄嘉禹 王晓光 李志杰  
Research on Ultrasonic Acoustoelastic-Based Precise Measurement System of Bolt Preload  
WANG Jinqiang WANG Guodong WANG Xujia GONG Hao LIU Jianhua  
HUANG Jiayu WANG Xiaoguang LI Zhijie

### 连接与成形 Joining and Forming

- 146 钛合金压印接头疲劳服役剩余强度及寿命预测  
雷蕾 孙嘉伟 赵志强 石也 张华斌  
Residual Strength and Life Prediction of Titanium Alloy Clinched Joints in Fatigue Service  
LEI Lei SUN Jiawei ZHAO Zhiqiang SHI Ye ZHANG Huabin
- 154 高频脉冲对Ni-Cr-Fe合金焊缝组织的影响  
夏云浩 董博伦 蔡笑宇 林三宝  
Effect of High-Frequency Pulse on Weld Microstructure of Ni-Cr-Fe Alloy  
XIA Yunhao DONG Bolun CAI Xiaoyu LIN Sanbao
- 162 航空发动机高温合金铸件精密成形研究进展  
张攀 汪东红 肖程波 周乐尧 雷四雄 郑行 谭庆彪 夏小江 黄震 孙宝德  
Research Progress on Precision Forming of Aero-Engine Superalloy Castings  
ZHANG Pan WANG Donghong XIAO Chengbo ZHOU Leyao LEI Sixiong  
ZHENG Xing TAN Qingbiao XIA Xiaojiang HUANG Zhen SUN Baode