

中国核心期刊（遴选）数据库收录期刊  
中国学术期刊（光盘版）收录期刊  
万方数据数字化期刊群收录期刊

ISSN 1674-098X  
CN 11-5640/N

科技创新导报

Science and Technology Innovation Herald

2021年

第11期

总第551期

2021-04-11

CHINA  
www.chinakjcxdb.com

Science and Technology Innovation Herald  
科技创新导报

编辑：《科技创新导报》编辑部 邮发代号：80-542 2021年 第11期 总第551期 2021-04-11

面向研制过程的符合性验证方法研究

基于有限元的焊接精密钢球工艺研究

网址：[www.chinakjcxdb.com](http://www.chinakjcxdb.com)

投稿邮箱：[kjcxdb2021@136.com](mailto:kjcxdb2021@136.com)

ISSN 1674-098X



邮发代号：80-542

中国大陆地区定价：30元RMB



微信公众平台

中国宇航出版有限责任公司

China Astronautic Publishing Co., Ltd

北京合作创新国际科技服务中心

Beijing Cooperation Innovation International Science and Technology Service Center

万方数据

## 航空航天科学技术

- 面向研制过程的符合性验证方法研究·····房峰 张松 李小光(1)
- 太阳能飞行器能源系统综合实验设计·····朱炳杰 杨希祥 邓小龙 麻震宇(4)
- 基于气象探测的平流层浮空器飞行轨迹预测方法·····蔡明 颜坤 熊超 曹瑞(9)
- 某型火箭发动机点火器故障分析与改进·····柳洋 牛磊 董海平 马文杰(15)

## 工程技术

- 国内外海底电缆现有问题总结解决与未来展望·····李勃昊 何京梅 王圆圆 张剑 高福栋 杨佳明(24)
- 三维城市建模中的无人机倾斜摄影测量技术应用·····刘显州(28)
- 普速铁路钢轨接头病害与整治措施探讨·····葛伟(31)
- 泡沫混凝土在公路抢险中的应用研究·····荆伟伟 孟海山 董威(34)
- 基于LCU实现列车占有硬线电路全功能替换的方法研究·····刘晓鹏(38)
- 测绘工程测量中测绘新技术的应用·····童淑君 俞少杰(41)
- 遥感技术在中国土地荒漠化监测中的应用进展·····吴静 王慧敏 徐娜(44)
- 省级地理信息监测基本统计方法及关键技术研究·····郭倩(47)
- 建筑工程大体积混凝土浇筑与养护措施探讨·····郑月芳(50)
- 钢铁企业高压系统直流屏蓄电池的运行维护研究·····周海宝(53)

## 工业技术

- 基于节省自行车排位空间及防倒的框架设计·····董文明 洪都斯·阿哈江 阿依努兰木·阿不都西 加尼尔克·齐纳尔别克 穆哈西(56)
- 蔡泽 王骞 张伟 刘珑(60)
- B1B2项目烟囱排出流监测系统电伴热设计与调试·····戴龙文 徐鹏程 周一东 丁丽(63)
- 基于线性动态规划的管材切割最优使用率优化研究·····姬玉生 丁龙斌 郑晓芳 白旭光 姜杨杨 尹高冲 李悦(66)
- 王雪 钟棉卿 王伟(70)
- 城市配电系统自动化及故障处理方式的应用·····张菁菁(74)
- 单台CCW泵四列水室运行分析·····王宁宁 张晓晖(77)
- 基于有限元的发动机悬置系统传递力仿真分析研究·····王楷焱 王灵犀 任晓雪(80)
- 浅谈1000MW火力发电厂智慧电厂建设·····蔡正杰(83)
- 基于运行数据的DEH控制系统在线故障诊断方法·····李海东 陈丽丽 李建鹏 刘东旭(88)
- 综合测试台检测细支卷烟的技术改造·····于珊珊(91)
- 石油化工企业数字化工厂建设及其应用探索·····刘明晶 郑兴周 毛丽娟 杨勃(94)
- 煤矿机电控制中PLC技术应用·····孙法银(98)
- 锂离子电池电解液标准化研究进展·····王媛 唐贤文 邵丹 陈治 陈锋(101)
- 金属内部孔状缺陷波形传播路径分析及边界定位·····杜蕊 郑宾 郭华玲 张钰龙 赵亚楠(106)
- 汽轮机轴向位移增大和高缸绝对膨胀不到位的原因分析·····刘善聪 李诗月(109)

基于有限元的焊接精密钢球工艺研究..... 赵小健 (112)

## 环境与建筑科学

时空大数据支持下的滑坡监测预警与应急响应关键技术.....  
..... 吴浩 吴有江 王永泉 印光明 王立端 杨淞月 梁乾 (115)

危险废物焚烧废气治理措施研究..... 陈洁怀 (118)

浅析日本当代独立住宅的建筑特点..... 石媛媛 (121)

嫩江干流水质综合评价研究..... TONHNY 李雨霏 魏逸衡 郑国臣 (124)

齐齐哈尔市城区饮用水中有机氯农药残留研究..... 贾月辉 马淑丽 陈哲 娄峰阁 薛海峰 李继媛 赵浴光 (128)

## 信息科学

基于Anaconda平台的专项技术数据分析系统在生产线中的应用 ..... 李光宙 (131)

江西高校和双一流高校图书馆微信公众号比较研究..... 吴吉玲 (138)

基于5G网络的高校校园无线局域网实施研究 ..... 徐学会 (143)

网络技术在融媒体广电工程技术中的应用..... 娄峰 (146)

基于无人机倾斜摄影测量的DSM生成及变化信息提取研究 ..... 刘婵娟 (149)

科技创新风口下的“微摊”新模式..... 张振威 (152)

基于Spring Boot+Vue的二次设备数字化作业系统研究与实现 ..... 司超 张轩 韩辉 (155)

TextRank与用户情感倾向在推荐算法中的研究 ..... 齐平平 (159)

智慧行政云办公的平台建设探索..... 齐艳红 李思宏 (162)

## 创新管理

中欧陆海快线业务运作模式分析..... 马超 田晖 赵一飞 (166)

火灾事故现场保护和火灾调查..... 都都 (171)

计算机技术在体育馆器材管理中的运用..... 罗琼书 (174)

“三合一”场所消防安全管理探讨..... 李一炜 (177)

药房创新管理与药学服务质量的相关性研究..... 李博 张宏 (180)

大数据智慧化人力资源管理..... 伍丹 (183)

如何加强基层医院档案管理工作..... 季晓霞 (186)

基于同期线损的电网降损增效管理新模式探索与应用..... 杨卫明 陶崇 卢嘉熹 连聪 (189)

计算机与电子信息技术在工程管理中的应用探析..... 安晶 (192)

浅谈如何有效提高高校图书馆管理效率..... 高燕 (195)

科技企业生产合同评审问题及对策研究..... 张旭 王迪 (198)

## 创新教育

构建新型的海洋地质微生物学课程体系培养创新性学科交叉型人才..... 魏士平 崔鸿鹏 (201)

线上、线下混合模式教学在医生与病人见习课中的应用研究..... 张利伟 禹晶 王文斌 张秉全 翟婷婷 (206)

虚拟现实技术在室内艺术设计专业教学中的应用研究·····	刘东文 (209)
停课不停学背景下高校线上实验教学的思考·····	陈旻哲 陈小桥 (212)
《金属材料学》创新性教学探讨·····	安士忠 马景灵 文九巴 (215)
以科研促教学提高本科人才培养质量·····	贺明妍 李晓梅 汪祖民 陶帅 张奕 (218)
人工智能背景下的高职公共英语教学改革研究·····	谭妍 (221)
“非遗”视角下高校艺术设计专业创客教育研究·····	陈岚 (224)
“人工智能”时代基于翻转课堂的病理学教学模式初探·····	李永真 崔静 王永霞 董鑫 钟加滕 (227)
菏泽市职业学校专业群建设服务区域产业发展的实践及研究·····	陈伟 母雁群 伍青 葛会美 (230)
基于新时代产教融合背景的高职校企人才培养模式研究·····	梁宗厚 梁宗连 (233)
超材料技术在天线设计实验教学改革中的应用·····	卞立安 王焱锟 李丹琳 洪颖杰 黄楷程 刘雨 (236)
多元化模式教学在消化科实习中的应用·····	张博 刘红丹 张慧宇 王迪 邵月春 (239)
跨文化教育实践教学在护生《专业英语》教学中的应用探索·····	张艳 张海丽 许伟岚 李强 张伟新 (242)
职业中毒案例讨论混合式教学课程设计与实践·····	陈家隆 (247)

## 探索与创新

量子点标记的抗体试剂盒的风险预测与应对策略·····	郑冰清 马江珊 魏后宣 徐天旖 胡兆丽 (250)
智能时代的图书馆资源建设与数据服务·····	王琳 (254)

### 本刊声明

1. 凡经本刊录用并发表的作品,即视为署名作者将作品的复制、发行、汇编、信息网络传播等权利授予本刊,本刊有权将上述权利许可第三方使用。
2. 本刊已许可万方、维普、龙源、超星等以数字化方式复制、发行、汇编、通过信息网络向公众传播本刊全文。本刊向作者支付的稿酬包含了上述各项权利的报酬,已与本刊收取的部分融合出版费用相抵扣。所有署名作者向本刊提交作品发表之行为视为同意上述声明。如有异议,请在投稿时说明,本刊将做相应处理。
3. 本刊未与任何机构、组织和个人签署论文发表代理协议,也从未授权任何组织、机构和个人从事相关业务。对发布相关虚假信息的机构、组织和个人,本刊保留追究其法律责任的权利。

期刊基本参数: CN11-5640/N\*2004\*t\*A4\*256\*ZH\*P\*¥30.00\*1000\*73\*2021-11

**Aerospace Science and Technology**

Research on Conformance Verification Method Oriented to Development Process .....  
..... FANG Feng ZHANG Song LI Xiaoguang (1)

Comprehensive Experimental Designing of Solar Powered Aircraft Energy System .....  
..... ZHU Bingjie YANG Xixiang DENG Xiaolong MA Zhenyu (4)

Forecasting Method of Stratospheric Aerostat Flight Trajectory Based on Meteorological Detection .....  
..... CAI Ming YAN Kun XIONG Chao CAO Rui (9)

Failure Analysis and Improvement for Rocket Engine Igniter .....  
..... LIU Yang NIU Lei DONG Haiping MA Wenjie (15)

**Engineering Technology**

Summary and Solution of Existing Problems of Submarine Cable at Home and Abroad and Its Future Prospect ...  
..... LI Bohao HE Jingmei WANG Yuanyuan ZHANG Jian GAO Fudong YANG Jiaming (24)

Application of UAVT Tilt Photography in 3D City Modeling ..... LIU Xianzhou (28)

Discussion on Rail Joint Defects and Treatment Measures of General-Speed Railway ..... GE Wei (31)

Research on Application of Foamed Concrete in Highway Emergency.....  
..... JING Weiwei MENG Haishan DONG Wei (34)

Research on the Method of Realizing Full Function Replacement of Train Occupied Hard Wire Circuit Based on LCU ..... LIU Xiaopeng (38)

Application of New Surveying and Mapping Technology in Surveying Engineering Survey .....  
..... TONG Shujun YU Shaojie (41)

Application Progress of Remote Sensing Technology in Land Desertification Monitoring in China .....  
..... WU Jing WANG Huimin XU Na (44)

Research on Basic Statistical Methods and Key Technologies of Provincial Geographic Information Monitoring .....  
..... GUO Qian (47)

Discussion on Pouring and Maintenance Measures of Mass Concrete in Construction Engineering .....  
..... ZHENG Yuefang (50)

Research on the Operation and Maintenance of DC Battery in High Pressure System of Iron and Steel Enterprises .....  
..... ZHOU Haibao (53)

## Industrial Technology

- Frame Design Based on Saving Bicycle Ranking Space and Preventing Falling .....  
 ..... DONG Wenming Hong dousi·Ahajiang Ayinulanmu·A budouxi Jianierke·Qi naerbieke MU Haxi(56)
- Research on Cable Crimping Quality Judgment Method ..... CAI Ze WANG Qian ZHANG Wei LIU Long(60)
- Design and Commissioning of Electric Heat-Tracing for the Exhausting Stack Effluent Monitoring System of B1B2Project ..... DAI Longwen XU Pengcheng ZHOU Yidong DING Li(63)
- Research of Optimal Utilization of Pipe Cutting Based on Linear-Dynamic Programing .....  
 ..... JI Yusheng DING Longbin ZHENG Xiaofang BAI Xuguang JIANG Yangyang YIN Gaochong LI Yue(66)
- Research on 3D Laser Scanning Technology in 3D Reconstruction of Complex Sculptures .....  
 ..... WANG Xue ZHONG Mianqing WANG Wei(70)
- Application of Urban Power Distribution System Automation and Fault Handling Methods .....  
 ..... ZHANG Jingjing(74)
- Analysis of Four Condenser Water Chamber Operation of Single CCW Pump .....  
 ..... WANG Ningning ZHANG Xiaohui(77)
- Simulation Analysis of Transmission Force of Engine Mounting System Based on Finite Element Method .....  
 ..... WANG Kaiyan WANG Lingxi REN Xiaoxue(80)
- Discussion on the construction of Gansu Power Investment Changle 1000MW Thermal Power Generation Unit Smart Power Plant ..... CAI Zhengjie(83)
- Online Fault Diagnosis Method of DEH System Based on Operating Data .....  
 ..... LI Haidong CHEN Lili LI Jianpeng LIU Dongxu(88)
- Technical Transformation of Comprehensive Test Bench for Fine Cigarettes Detection .....  
 ..... YU Shanshan(91)
- Construction and Application Exploration of Digital Factory in Oil and Chemical Industry .....  
 ..... LIU Mingjing ZHENG Xingzhou MAO Lijuan YANG Bo(94)
- Application of PLC Technology in Coal Mine Electromechanical Control ..... SUN Fayin(98)
- Research Progress in the Standardization of Electrolyte for Lithium-Ion Batteries .....  
 ..... WANG Yuan TANG Xianwen SHAO Dan CHEN Zhi CHEN Feng(101)
- Analysis of P-Wave Characteristics and Boundary Location of Hole Defects in Metal Interior .....  
 ..... DU Rui ZHENG Bin GUO Hualing ZHANG Yulong ZHAO Yanan(106)
- Cause Analysis of Axial Displacement Increase of Steam Turbine and Absolute Expansion Failure of High Pressure

Cylinder .....LIU Shancong LI Shiyue (109)  
Research on Welding Technology of Precision Steel Ball Based on Finite Element Method .....  
..... ZHAO Xiaojian (112)

### Environment and Building Science

Key Technologies of Landslide Monitoring, Early Warning and Emergency Response Based on Spatiotemporal Big Data.....  
... WU Hao WU Youjiang WANG Yongquan YIN Guangming WANG Liduan YANG Songyue LIANG Qian (115)  
Study on Treatment Measures of Saste Gas from Hazardous Waste Incineration ..... CHEN Jiehuai (118)  
A Brief Analysis of the Architectural Features of Contemporary Detached Houses in Japan .....  
..... SHI Yuanyuan (121)  
Comprehensive Evaluation of Water Quality in Nenjiang River Mainstream .....  
..... TONHNY LI Yufei WEI Yiheng ZHENG Guochen (124)  
Study on the Residues of Organochlorine Pesticides in Drinking Water in Qiqihar City .....  
..... JIA Yuehui MA Shuli CHEN Zhe LOU Fengge XUE Haifeng LI Jiyuan ZHAO Yuguang (128)

### Information Science

Application of Specialized Technical Data Analysis System Based on Anaconda Platform in Production Line .....  
..... LI Guangzhou (131)  
A Comparative Study of WeChat Public Account between Double First-Class University and Jiangxi University Libraries..... WU Jiling (138)  
Research on the Implementation of Wireless Local Area Network in University Campus Based on 5G Network .....  
..... XU Xuehui (143)  
Application of Network Technology in Converged Media Broadcasting Engineering Technology .....  
..... LOU Feng (146)  
Research on DSM Generation and Change Information Extraction Based on UAV Tilt Photogrammetry .....  
..... LIU Chanjuan (149)  
A New Model of "Micro-Sharing" under the Trend of Technological Innovation ..... ZHANG Zhenwei (152)  
Research and Implementation of Secondary Equipment Digital Operation System Based on Spring Boot + Vue .....  
..... SI Chao ZHANG Xuan HAN Hui (155)  
Research on TextRank and User Emotional Tendency in Recommendation Algorithm ..... QI Pingping (159)

Exploration of Platform Construction for Smart Administrative Cloud Office ..... QI Yanhong LI Sihong (162)

## Innovation Management

Business Operation Model Analysis of China-Europe Land-Sea Express .....  
 ..... MA Chao TIAN Hui ZHAO Yifei (166)

On-Site Protection of Fire Accidents and Fire Investigation ..... DU Du (171)

Application of Computer Technology in Equipment Management of Gymnasium ..... LUO Qiongshu (174)

Discussion on Fire Safety Management of "Three-in-one" Places ..... LI Yiwei (177)

Study on the Correlation between Pharmacy Innovation Management and Pharmaceutical Service Quality .....  
 ..... LI Bo ZHANG Hong (180)

Big Data Intelligent Human Resource Management ..... WU Dan (183)

How to Strengthen the Archives Management of Grass-Roots Hospitals ..... JI Xiaoxia (186)

Exploration and Application of a New Mode of Power Grid Loss Reduction and Efficiency Management Based on  
 Line Loss in the Same Period ..... YANG Weiming TAO Chong LU Jiaxi LIAN Cong (189)

Analysis on the Application of Computer and Electronic Information Technology in Engineering Management  
 ..... AN Jing (192)

How to Effectively Improve the Management Efficiency of University Library ..... GAO Yan (195)

Research on the Problems and Countermeasures of the Evaluation of Production Contract in Science and  
 Technology Enterprises ..... ZHANG Xu WANG Di (198)

## Innovative Education

Construction of a New Curriculum System for Marine Geomicrobiology to Foster the Talents with Innovative  
 Interdisciplinary Ability ..... WEI Shiping CUI Hongpeng (201)

Research on the Application of Online and Offline Mixed Teaching Mode in the Doctor and Patient Internship ...  
 ..... ZHANG Liwei YU Jing WANG Wenbin ZHANG Bingquan ZHAI Tingting (206)

Research on the Application of Virtual Reality Technology in the Teaching of Interior Art Design .....  
 ..... LIU Dongwen (209)

Thoughts on Online Experimental Teaching under the Background of Suspending Classes without Stopping  
 Learning ..... CHEN Minzhe CHEN Xiaoqiao (212)

Discussion on Innovative Teaching of "Metal Materials Science" .....  
 ..... AN Shizhong MA Jingling WEN Jiuba (215)

Promoting Teaching with Scientific Research to Improve the Quality of Undergraduate Cultivation .....  
..... HE Mingyan LI Xiaomei WANG Zumin TAO Shuai ZHANG Yi (218)

Research on Vocational English Teaching Reform under the Background of Artificial Intelligence .....  
..... TAN Yan (221)

Maker Education for Art Design Majors in Colleges and Universities from the Perspective of Intangible Cultural  
Heritage ..... CHEN Lan (224)

Preliminary Study on Pathology Teaching Mode Based on Flipped Classroom in the Era of "Artificial Intelligence"  
.....LI Yongzhen CUI Jing WANG Yongxia DONG Xin ZHONG Jiateng (227)

The Practice and Research of Heze Vocational Schools Major Construction Serving Regional Industry Development  
..... CHEN Wei MU Yanqun WU Qing GE Huimei (230)

Research on the Talent Training Mode of Higher Vocational Colleges and Enterprises Based on the Background of  
the Integration of Production and Education in the New Era .....LIANG Zonghou LIANG Zonglian (233)

Application of Metamaterial Technology in Experiment Teaching Reform of Antenna Design.....  
.....BIAN Li'an WANG Yaokun LI Danlin HONG Yingjie HUANG Kaicheng LIU Yu (236)

Application of Multi-mode Teaching in Gastroenterology Practice .....  
..... ZHANG BO LIU Hongdan ZHANG Huiyu WANG Di SHAO Yuechun (239)

Application of Cross-cultural Education and Teaching Practice in the Teaching of "Professional English" for  
Nursing Students ..... ZHANG Yan ZHANG Haili XU Weilan LI Qiang ZHANG Weixin (242)

Design and Practice of Mixed Teaching of Occupational Poisoning Case Discussion .....CHEN Jialong (247)

### Exploration and Innovation

Risk Prediction and Countermeasures of Quantum Dot Labeled Antibody Kit .....  
..... ZHENG Bingqing MA Jiangshan WEI Houxuan XU Tianyi HU Zhaoli (250)

Library Resources Construction and Data Service in the Intelligent Era ..... WANG Lin (254)