



美国《剑桥科学文摘（自然科学）》（CSA（NS））收录期刊
 荷兰《文摘与引文数据库》（Scopus）收录期刊
 中国科学引文数据库（CSCD）核心期刊
 《中文核心期刊要目总览》核心期刊
 中国科技核心期刊
 RCCSE中国核心学术期刊（A）

ISSN 1006-754X
 CN 33-1288/TH
 CODEN GSXOAB

工程设计学报

CHINESE JOURNAL OF ENGINEERING DESIGN



浙 江 大 学



中国机械工程学会

主办

Vol.26 No.2

Apr. 2019

中国·杭州 HANGZHOU, CHINA



工程设计学报

Gongcheng Sheji Xuebao

第26卷 第2期

2019年4月

目次

设计理论与方法学

- 增材制造使能的航空发动机复杂构件快速研发 陈静,侯伟,周毅博,王修专,储松林(123)
- 基于差距映射的变可信度近似模型构建方法 欧卫林,郑君(133)
- 核级球阀性能评估仿真流程定制开发 褚长勇,高泽峰,吴欣,孙健,施明烁(139)

保质设计

- 面向大型机场草坪的割草机器人路径规划及轨迹跟踪控制研究 周结华,代冀阳,周继强,张孝勇(146)
- 轮式爬壁机器人转向稳定性研究 唐东林,李茂扬,丁超,魏子兵,胡琳,袁波(153)
- 大惯量专用转台高精度控制研究 段志强,郭彦青,王龙(162)
- 基于GA-SVM的刚性罐道故障诊断 马天兵,王孝东,杜菲,王鑫泉(170)
- 显示移动速度对动态搜索绩效的影响研究 胡波,刘晓卫,王巍,瞿珏,蔡睿(177)

智能设计

- 多传感器融合的智能车定位导航系统设计 李磊,肖世德,李兴坤,董庆丰(182)

优化设计

- 曲面匹配方法在刀具加工轨迹优化中的应用 何改云,庞凯瑞,桑一村,刘晨辉,王宏亮(190)
- 基于AFSA-GA串行算法的桥式起重机主梁轻量化设计 任重,徐格宁,董青,陆凤仪,徐彤(197)

整机和系统设计

- 基于LabVIEW的车体静强度试验台测控系统 罗仁和,曹晓燕,余志强,张永亮,雷勇(206)
- 半主动天车升沉补偿试验平台设计与分析 黄志强,徐子扬,牟新明,梁春平,唐宇杰(215)

通用零部件设计

- 基于高低频复合振动的金属管材断裂行为研究 化春键,王超凡,陆云健(223)
- 用于心磁传感器测试系统的三轴向亥姆赫兹线圈的设计与仿真
..... 刘仲思,杨建中,张帆,李滨,陈湾湾(230)
- 基于WebGL的刮板输送机链轮参数化设计方法 刘进文,任芳,谢嘉成,杨兆建(237)

- 本刊被评为“2018年度中国高校百佳科技期刊” (196)
- 本刊被收录为2019—2020年度中国科学引文数据库(CSCD)核心库期刊 (214)
- 《中文核心期刊要目总览》入编通知 (封三)

期刊基本参数:CN 33-1288/TH * 1994 * b * A4 * 122 * zh * P * ¥30.00 * 2000 * 16 * 2019-04

本期责任编辑:陈波 吴云

Contents

Design Theory and Methodology

- Rapid research and development of complex components in aero-engine enabled by additive manufacturing
..... CHEN Jing, HOU Wei, ZHOU Yi-bo, WANG Xiu-zhuan, CHU Song-lin (123)
- Difference mapping based variable-fidelity approximation modeling method
..... OU Wei-lin, ZHENG Jun (133)
- Research on performance evaluation simulation process customization of nuclear grade ball valve
..... CHU Chang-yong, GAO Ze-feng, WU Xin, SUN Jian, SHI Ming-shuo (139)

Design for Quality

- Research on path planning and trajectory tracking control of mowing robot for large airport lawn
..... ZHOU Jie-hua, DAI Ji-yang, ZHOU Ji-qiang, ZHANG Xiao-yong (146)
- Research on steering stability of wheeled wall-climbing robot
..... TANG Dong-lin, LI Mao-yang, DING Chao, WEI Zi-bing, HU Lin, YUAN Bo (153)
- Research on high precision control of large inertia special turntable
..... DUAN Zhi-qiang, GUO Yan-qing, WANG Long (162)
- Fault diagnosis for rigid guide based on GA-SVM
..... MA Tian-bing, WANG Xiao-dong, DU Fei, WANG Xin-quan (170)
- Research on the effect of display movement speed on dynamic search performance
..... HU Bo, LIU Xiao-wei, WANG Wei, QU Jue, CAI Rui (177)

Intelligent Design

- Design of intelligent vehicle positioning and navigation system based on multi-sensor fusion
..... LI Lei, XIAO Shi-de, LI Xing-kun, DONG Qing-feng (182)

Optimization Design

- Application of surface matching method in tool path optimization
..... HE Gai-yun, PANG Kai-rui, SANG Yi-cun, LIU Chen-hui, WANG Hong-liang (190)
- Lightweight design of main beam for bridge crane based on AFSA-GA serial algorithm
..... REN Zhong, XU Ge-ning, DONG Qing, LU Feng-yi, XU Tong (197)

Whole Machine and System Design

- Measurement and control system for car body static strength test bench based on LabVIEW
..... LUO Ren-he, CAO Xiao-yan, YU Zhi-qiang, ZHANG Yong-liang, LEI Yong (206)
- Design and analysis of semi-active crane heave compensation test rig
..... HUANG Zhi-qiang, XU Zi-yang, MU Xin-ming, LIANG Chun-ping, TANG Yu-jie (215)

General Parts Design

- Research on fracture behavior of metal pipe based on high and low frequency composite vibration
..... HUA Chun-jian, WANG Chao-fan, LU Yun-jian (223)
- Design and simulation of three-axis Helmholtz coil used in magnetic sensor testing system
..... LIU Zhong-si, YANG Jian-zhong, ZHANG Fan, LI Bin, CHEN Wan-wan (230)
- Method of parametric design for scraper conveyor sprocket based on WebGL
..... LIU Jin-wen, REN Fang, XIE Jia-cheng, YANG Zhao-jian (237)