## 目次

### **CONTENTS**

# 机械制造与自动化

MACHINE BUILDING & AUTOMATION

2019年第6期 (总第265期) No.6 2019 (Total Issue No.265)

#### 综述与展望 / Summaries of Special Topics

基于三维模型的机加工艺设计关键技术

■刘晓军,刘金锋,倪中华,周宏根,仇晓黎

Review and Prospect of machining process planning technology based on 3D model

#### 机械制造 / Machine Manufacture

基于高速摄像的脉动态电解加工电流特性研究

■王明明,周泽生,姜小琛,刘嘉

Study of Current Characteristics of Pulse Dynamic Electrochemical Machining Based on High-Speed Camera

基于纳秒激光加工技术的表面织构工艺参数研究

■许晨辉,徐锋,施莉莉,高继业,王雪,左敦稳

Research on Laser Surface Texturing Parameters Based on Nanosecond Laser Processing Technology

基于 FKM 的某型转向架轴箱静强度评估

■杨龙,阳光武,肖守讷,杨冰,朱涛

Static Strength Assessment of Bogie Axlebox Based on FKM Guideline

18 电火花 - 电解复合加工的低电极损耗机理研究

■唐健,张彦, MD Rashedul Islam, 纪磊,王国乾

Research on Low Electrode Wear EDM and ECM Hybrid Process Based on Sputter Compensation

往复柱塞泵转套式配流系统凸轮槽型线及其对流场的影响研究 ■程前昌,张洪信,赵清海,姜晓天,张延君 Researchon Cam Groove Profile of Rotating Sleeve Distributing-flow System for Reciprocating Plunger Pump and Its Influence on Flow Field

25 高氮钢 TIG 焊接数值模拟及组织性能分析 ■王波,郭顺,蔡雅君

Numerical Simulation and Microstructure and Properties of High Nitrogen Steel TIG Welding

基于 NC 程序的五轴数控加工刀位信息提取算法

■闫金堂, 王洪申

NC Program-based Inverse Algorithm for Tool Location Information Extraction 基于通用生成函数的复合材料层合板可靠性分析

■许伟红,刘成龙,周金宇

Reliability Analysis of Fiber Reinforced Composite Laminates Based on Universal Generating Function

■黄建中,杨长勇,高绍武,徐九华

基于单颗磨粒划擦的铰珩毛刺形貌研究

Experimental Study of Morphology of Abrasive Reaming Based on Single-Grit Scratching

圆形非等芯电缆成束直径计算

■高科, 闫静, 李伟

■陈宝庆, 叶福民

Calculation of Bundle Diameter of Round Cable with Mixed Sizes 车用轴向调节式可变喷嘴增压器涡轮流场分析

Analysis of Turbine Field of Axial Adjustable Nozzle Turbocharger for Vehicle

■卢隆辉,张卫波,刘建军

两级行星齿轮断齿故障的动态特性分析

Dynamic Characteristic Analysis of Two-stage Planetary Gear with Broken Tooth Fault

55 整车汽车衡装配式承载基础的分块设计与强度分析 ■李金凤,杨晓翔,梁伟,姚进辉

Design of Assembled Load Bearing Foundation for Vehicle Truck Scale and Its Strength Analysis

航天薄壁框架类零件数控加工的变形抑制方法

■刘剑龙, 陆荣, 孔维森, 徐兴硕, 尹春晖, 刘晓

62 新型爪盘空心轴联轴器刚度特性分析

Deformation Suppression Method for Nc Machining of Spaceflight Thin-Walled Frame Parts

■张忠祥, 钟文生

Analysis of Stiffness Characteristics of New Spider Coupling

67 超高载荷大涵道比齿轮驱动风扇气动设计

■宋圣申,周正贵,邓瑜真

Aerodynamic Design of Ultra-high Load Geared Fan with High Bypass Ratio 72 09MnNiDR 钢焊接试验研究

■申伟, 尤佳

Study of Welding Test for 09MnNiDR Steel

响应曲面法优化球墨铸铁切削参数的研究

Optimization of Cutting Parameters of Ductile Iron by Response Surface Methodology

■蔡霏,何强,冯丰,王伟,曹利平

镍铬铁合金 UNS N06600 材料换热器腐蚀原因分析

■严彬

Analysis of Corrosion Causes of Nichrome Alloy N06600 Material of Heat Exchanger

#### 信息技术 / Information Technology

82 微型章动心室辅助泵的流体动力学仿真与实验

■郑荣业,张隆,姚立纲,陈刚

Fluid Dynamic Simulation and Experiment of Miniature Nutation Heart Pump 86 基于间隙误差的 HCPE 运动精度仿真分析

Simulation Analysis of Motion Accuracy of HCPE Based on Clearance Error

■黄妮, 戴作强

90 基于云模型的多工况城市客车车架优化 Optimization of Urban Bus Frames in Multi-Case Based on Cloud Model ■付磊,张洪信,赵清海

■林浩,张洪信,赵清海

94 基于电化学 - 热耦合模型的锂电池热源分析

Heat Source Analysis of Lithium Battery Based on Electrochemical Thermal Coupling Model

■杨峰

98 水轮机转轮准三维反问题设计及流场性能分析

■郑祥盘

Inverse Design and Fluid Analysis of Water Turbine Runner 101 基于 Solidworks 的丝饼推送电机的参数研究

Research on Parameters of Cake Push Motor Based on Solidworks

104 基于数控渐进成形的金属凸出 LOGO 制作研究

Research on Fabrication of Metal Convex LOGO Based on CNC Incremental Forming

107 五相永磁同步电机容错控制仿真

■银豪,王腾飞,高超,汪慧明

Fault Tolerant Control of Five-Phase Permanent Magnet Synchronous Motor and Its Process Simulation

111 插电式混合动力汽车控制策略硬件在环仿真研究

■潘广纯,赵红,闫松,袁焕涛,崔翔宇

Hardware in the Loop Simulation Study on Control Strategy pf Plug-in Hybrid Electric Vehicle

115 摇臂式缠膜机的设计及有限元分析

■崔瀚, 于喜川

Design and Finite Element Analysis of a Rocker Arm Type Film Wrapping Machine

118 基于高斯粗糙表面的角接触球轴承微弹流润滑研究

■陆凤霞, 王涛, 朱如鹏

■佟珺泽,陶冠岐,朱虎

Research on Micro-Elastohydrodynamic Lubrication of Angular Contact Ball Bearings Based on Gaussian Rough Surface

123 秸秆连续炭化装置关键部件有限元分析

■李利,谢添,万呈呈,杨林彬,陈现征

Finite Element Analysis of Key Part of Straw Continuous Carbonization Device

127 MVC 与设计模式在测控系统中的应用 Application of MVC and Design Pattern in Measurement and Control System ■耿红杰,徐超,赵世平

130 组合密封圈密封性能仿真研究

Simulation Study of Sealing Performance of Combined Sealing Ring

■王玺, 仲健林, 夏文嘉, 王恒

134 基于 VC 和 ANSYS 的自动扶梯 CAE 辅助分析系统研究

■吴海平, 江叶峰, 吴兴生, 蒋杰

Research on Escalator CAE Aided Analysis System Based on VC and ANSYS 137 舵桨推进器水下箱体冰区强度数值模拟分析

■陈永道,林富华,柳德君

Numerical Simulation and Analysis of Ice Area of Underwater Box of Azimuth Thruster 139 热力学仿真在天线罩热防护设计中的应用

■蒋苏苏, 沈红祥, 李兴勇, 张兰兰, 杜方辉

Application of Thermodynamic Simulation in Radiation Protection Design of Radome

#### 电气与自动化 / Electric and Automation

142 移动机器人航位误差推算算法研究

■东辉,陈刚,林蔚韡,孙浩

Research on Dead Reckoning for Mobile Robot

145 基于 SURF 和改进 CSS 的弧形槽几何尺寸视觉检测算法研究

■李阳, 陆永华, 张翔

Geometric Size Measurement Algorithm for Arc-shaped Groove Based on SURF and Improved CSS

150 基于动态划分感兴趣区域的车道线检测算法

■谢昌刚,黎向锋,李堃,杨振泰,毕高杰

Lane Line Detection Algorithm Based on Dynamic Partition of Interested Region

155 基于嵌入式技术的机床能耗监测系统研究 ■顾文斌,李卓,李育鑫,黄主 Study of Energy Consumption Monitoring System of NC Machine Tools Based on Embedded Technology

■傅宏辉,王友仁,孙灿飞,孙权

159 基于 ACGAN 的功率变换器参数性故障诊断方法

Method of Diagnosing Parametric Fault of Power Converter Based on Auxiliary Classifier Generative Adversarial Nets

164 一种剪式液压升降台控制及检测系统设计

■蒋勇

■姚健, 刘爱军

Design of Control and Detection System of Scissors Hydraulic Lifting Platform

168 物料自动化输送系统实时可视化故障预警技术

■罗家文,钱晓明,楼佩煌,李斌

Real Time Visual Fault Warning Technology for Automatic Conveying System 172 EPS 助力曲线设计

■张永辉, 王栋

■秦洪艳,刘京静,江发潮

Research on Characteristics of EPS Based on Ideal Steering Wheel Torque Model

174 基于 Cruise 的纯电动客车动力传动系统优化匹配研究 Study of Optimization of Powertrain Matching for Electric Bus Based on Cruise

178 储能电站电源管理系统研究

Research on Power Management System of Energy Storage Power Station

■陈鹏,朱智富,黄福闯,张洪信

183 分布式同步发电机励磁系统动态性能研究

Research on Dynamic Performance of Distributed Synchronous Generator Excitation System

■张沪松,楼佩煌,朱立群,钱晓明,潘天宇

Study of High Precision Path Tracking Technology of Differential AGV Based on Combined Reaching Law 191 增程式电动客车控制策略研究

■郑健,张铁柱,张洪信,赵清海

Research on Control Strategy of Extended-range Electric Bus 195 基于 Tsai 算法的摄像机标定可视化操作平台研究与应用

186 基于组合趋近律的差速 AGV 高精度路径跟踪技术研究

Research on Visualization Platform for Camera Calibration Based on Tsai Algorithm and Its Application 199 苏通管廊内气体处理设备布置运输方案的研究

■路书军, 倪向萍, 王玉春, 凌建, 吴威, 高亚平, 戴大海

Study of Transportation Scheme of Gas Treatment Equipment in Sutong Gallery 202 基于系统工程的可制造性优化

■葛磊,温勤

Optimization of Manufacturability based on System Engineering 205 某纯电动物流车后置驱动系统异响机理及改进研究

■张行峰

Research on Mechanism and Improvement of Abnormal Sound of Electric Logistics Vehicle Rear Drive System

209 发动机柔性冷启动测试的研究与应用

一胡刚

■马涛

Research on Flexible Cold Start Test for Engine and Its Application 211 综合管廊工程中的人员管理系统设计

■生红莹, 丁道军, 周杨, 王伟, 于扬, 李刚, 袁建

Design of Personnel Management System in Integrated Pipe Gallery Project

214 基于激光分拣技术的烟草异物剔除系统

■杨俊杰,陶文华

Tobacco Sorting System Based on Laser Sorting Technology 217 基于 BP 神经网络的 SRG 风力发电最大功率点跟踪研究

■卢智鹏, 王宏华

Research on MPPT Strategy of SRG Wind Power Generation Based on BP Algorithm

#### 消息与动态