

1972年创刊

· 双月刊 ·

6

2013

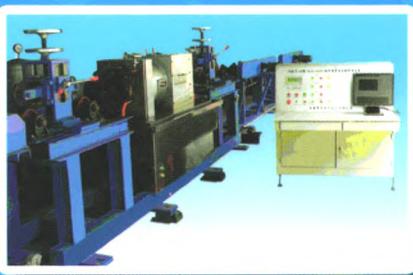
第42卷(总第229期)

南京机械工程学会  
主办  
南京机电产业(集团)有限公司  
协办  
全国高校制造技术及机床研究会  
中国机械工程学会成组技术分会

# M JIXIE ZHIZAO YU ZIDONGHUA ACHINE BUILDING & AUTOMATION



常州超声电子有限公司  
Changzhou Ultrasonic Electron Co., Ltd.



棒材超声波自动探伤设备

管材超声波自动探伤设备(探头旋转)

管材超声波自动探伤设备(管材旋转)

钢瓶超声波自动探伤设备

## Company Info

常州超声电子有限公司创建于1977年，是国内最早从事超声波探头和超声探伤仪研制、生产和服务的专业化企业之一。

公司专注于研发和生产超声波检测相关产品：

- 蝙蝠牌超声波探头；
- 常超牌数字超声波探伤仪；
- 多通道TOFD超声探伤仪；
- 超声波自动探伤设备；

公司内部严格按照ISO9001国际质量保证体系进行产品质量管理，先后荣获“江苏省重大科技成果奖”、“江苏省科技进步奖”、“江苏名牌产品”、“江苏省质量诚信双十佳单位”等奖项和称号。主要产品被电力系统列为替代进口产品质量，被铁道部列为专用定型产品。



超声波探伤仪 CST-7 型



超声波探伤仪 CST-2600 型



# 目次

## CONTENTS

# 机械制造与自动化

## MACHINE BUILDING & AUTOMATION

2013年第6期(总第229期)  
No.6 2013 (Total Issue No.229)

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

- 1 管件高压液力成形技术的发展综述  
Development of Tube High Pressure Forming Technique ■樊黎霞,王世哲,杨晨,胡雨伸

### 机械制造与研究 / Machine Manufacture and Research

- 7 基于灵敏度分析与优化的精密运动平台模型修正  
Model Modification via Sensitivity Analysis and Optimization of Precision Motion Stage ■陈增贤,成荣,姜伟  
11 齿轮轮缘厚度对裂纹扩展路径的影响研究  
Effect of Rim Thickness on Gear Crack Propagation ■刘双,朱如鹏,陆凤霞  
15 GCr15轴承钢韧性断裂阈值研究  
Research on Critical Value of GCr15 Ductile Fracture ■刘向远,郝南海  
18 基于接触应力的圆柱滚子轴承疲劳寿命分析  
Fatigue Life Analysis of Cylindrical Roller Bearings Based on Contact Stress ■邱江,朱如鹏,陆凤霞,靳广虎  
21 双腔室空气弹簧的实验建模  
Experimental Modeling of Dual-chamber Pneumatic Spring ■武文山,周振华,金建新  
25 机枪下挂榴弹发射器高低速射击稳定性研究  
Firing Stability Study of Grenade Launcher Hitched on Gun with High and Low Velocity Shoot ■唐建,廖振强,王涛  
28 复合材料起落架舱门结构优化设计  
Optimum Design of Composite Material Landing Gear Door ■徐子澎,王志瑾  
31 精密数控螺母磨床用小型直驱数控回转工作台设计  
Design of Direct-driven Numerical Control Rotary Table Used in Precision CNC Nut Grinding Machine ■周玲莉,王禹林,冯虎田  
35 渐进成形机床床身结构分析与优化设计  
Research on Structure Analysis and Optimization Design for Incremental Forming Machine Bed ■孔波,周燕飞  
40 一套柔性加工制造系统的设计  
Design for A Set of Flexible Manufacture Systems ■顾荣,文西芹  
44 农舍肥料粉碎机的设计  
Design of Fertilizer Crusher ■曾艳玲  
46 爆炸冲击波作用下机翼带孔蒙皮的损伤分析  
Damage Analysis of Wing Perforated Skin under Explosive Shockwave ■董秋阳,陈富林  
49 液压破碎锤破碎混凝土的动力学分析  
Dynamic Analysis of Hydraulic Hammer ■陈震,黄正祥,黄正华  
53 基于蓝牙的楼宇应力和振动检测仪器的设计与实现  
Design and Implementation of Vibration Testing Instrument Based on Blue-tooth Building Stress ■张安军  
55 圆弧齿轮齿面沿接触线是滚动与滑动并存的证明  
Proof of Rolling and Sliding Along the Contact Line on Circular Arc Gear Tooth Surfaces ■康星虎,闫文斗,段建中  
58 低电压电化学合成类金刚石薄膜研究  
Research on Synthesising Diamond-Like Carbon (DLC) Film by Low Voltage Electrodeposition Technique ■朱其豹,相炳坤,李文帅,杨也,孟兆升,王信智  
61 曲线代替直线——以铣代车,精加工卡罗塞尔箱体大外圆  
Curve Instead of Straight Line: Milling Instead of Turning, Finishing Carlo Sale Cabinet Large Cylindrical Surface ■汪涵,陈剑鹤,汪玉书  
64 深冷处理对1Cr18Ni9Ti不锈钢餐具耐腐蚀性的影响  
Effect of Cryogenic Treatment on Corrosion Resistance of 1Cr18Ni9Ti Stainless Steel Tableware ■林密,王为周,陆林森,顾开选,王俊杰  
66 采用三维检测技术的火车轮检测与维修  
Detection and Maintenance of Train Wheelsusing 3D Detection Technology ■程宏钊,王培俊,潘璇,聂良兵  
69 浅谈A1400减速机滑动轴承瓦维护  
Discussion on A 1400 Yeducer Sliding Bearing Maintenance ■朱宝将  
72 人的需求与资源节约在设计中的博弈与平衡  
Game and Balance of Human Needs and Resource Conservation in Design ■张俊虹,刘苏  
76 多媒体课件对自动化专业英语教学的优化作用  
Optimization Function of Multimedia Courseware on Automatically Specialized English Teaching ■荣彩虹

### 信息技术 / Information Technology

- 80 基于Pro/E和ADAMS的步行康复器械的动力学仿真与分析  
Dynamic Simulation and Analysis of Walking Rehabilitation Equipment Based on Pro/E and ADAMS ■黄玲,陈圆意,吴杰  
84 二氧化铀粉末成型系统电液位置-压力复合控制仿真  
Simulation of Electro-hydraulic Position and Force Compound Control System for Compacting UO<sub>2</sub> Powder ■邓佳,曹树平,罗小辉,彭畅,李兵华  
90 山地挖掘机自主作业轨迹规划与ADAMS仿真验证  
Trajectory Planning of Autonomous Operation of Mountain Excavator And ADAMS Simulation Verification ■张杰,刘安心,李焕良,房立丰,邵立福,崔洪新  
93 铜闪速炉精矿喷嘴风口部件设计及仿真分析  
Design and Simulation Analysis of Air Outlet Components for Concentrate Burner ■常金彪,邱亚峰,赵晓军  
97 基于热网络法与有限元法的球轴承稳态热分析  
Steady State Thermal Analysis of Ball Bearing Based on Thermal Network Method and the Finite Element Method ■程庆元,陆凤霞,鲍和云

|  |                        |
|--|------------------------|
| 101 某高低压榴弹发射器两相流内弹道数值模拟<br>Numerical Simulation of Two-Phase Flow Interior Ballistics of High-Low Pressure Grenade Launcher                                      | ■方磊磊,周克栋,赫雷            |
| 104 压力容器大开孔结构的有限元分析<br>FEA of Pressure Vessel with Large Opening   | ■许鸿昊,张华,张丹             |
| 107 SolidWorks 绘制任意一元曲线的二次开发<br>Plane Curve Plotting Based on Secondary Development of Solidworks  | ■吴志林,张凯还               |
| 110 虚拟油泥造型系统的用户界面设计初探<br>Research on User Interface Design of Virtual Clay Modeling System   | ■杨慧,伍铁军                |
| 113 无线温湿度数据采集板的设计<br>Design of Wireless Temperature and Humidity Data Collection System  | ■王纪刚,袁红兵,张相田           |
| 118 人工全髋关节置换术前数字化测量系统设计<br>Design of Digital Preoperative Measuring System used in THA   | ■张泽群,姚雨林,郑潇男,黄新燕,吕征    |
| 122 客车能耗远程监测系统的设计<br>Design of Bus Energy Consumption Remote Monitoring System   | ■贾俐俐,涂金龙               |
| 125 基于 IE 改善的 MES 研发<br>R&D of MES Based on Improvement of Industrial Engineering  | ■李西,王俊佳,石宇强,张敏,梁春艳     |
| 128 转管机枪外弹道特性分析与射表计算软件研究<br>Analysis of External Ballistic Characteristics of Gatling Gun and Research on Calculation Software for Firing Table                  | ■张开耀,王永娟,徐诚,刘力力,刘国庆,袁辉 |
| 132 基于 ZigBee 和 GSM/3G 网络技术的无线传感网络监控系统设计与应用<br>Design and Application of Wireless Sensor Network Monitoring System Based on ZigBee and GSM/3G Network Technology | ■闫文娟,王水璋               |
| 135 基于 Pro/E 变位行星齿轮的参数化设计<br>3D Modeling and Parameterized Design of Planet Gear Based on Pro/E  | ■杨利红,李光照,张淳            |
| 137 基于 FANUC 系统变量程序在数控铣削球面体中的应用<br>Usage of Variable Program in Spherical Body by CNC Milling under FANUC System   | ■袁名伟,顾其俊               |
| 140 基于 CAE 技术的电子琴上盖塑件的熔接痕缺陷优化研究<br>Research on Weld Line Optimization of Plastic Cover of Electronic Piano Based on CAE Technology                               | ■顾海,卢文壮                |
| 145 温室信息传输技术研究<br>Research on Greenhouse Information Transmission Technology   | ■孙小春,孙小迎               |
| 148 面向虚拟雕刻的手势识别研究<br>Research on Hand Recognition Oriented to Virtual Sculpture  | ■高亚新,伍铁军               |
| 151 双波段红外敏感器综合性能检测研究<br>Testing for Comprehensive Parameters of Double Bands Infrared Sensor   | ■郝冲,许路铁,陈雷,陈忠振         |
| 154 基于 FPGA 的串行总线的信号发送卡设计<br>Design of Signal Transmission Card Based on FPGA Serial Bus   | ■赵宏钧,陆健,张乐年            |

## 电气技术与自动化 / Electric Technology and Automation

|  |                        |
|--|------------------------|
| 158 双直线电机驱动的 H 型运动平台同步控制研究<br>Research on Dual Linear Motor Synchronous Control in H type Stage  | ■罗品奎,金建新,李小平           |
| 162 异步电动机分级变频软启动仿真研究<br>Research on Asynchronous Motor Soft-Starter Based on Discrete Variable Frequency Technology                    | ■严垚,王宏华                |
| 166 一种基于 GIS 的高压线故障监控显示技术研究<br>High Tension Line Fault Monitoring and Display Technology Based on GIS                                  | ■罗沛文,赵敏,王玉峰            |
| 170 一种用于结构静力试验的电液伺服控制加载系统<br>Electro-hydraulic Servo Control Loading System for Static Test  | ■江礼鹏,王宏宇               |
| 173 双闭环进给伺服系统动态性能研究<br>Research on Dynamic Performance of Double Close Loop Feed Servo System  | ■何家远,赵孟,李亮,何宁          |
| 175 一种基于多方法的多传感器数据融合算法研究<br>Study of Multi-sensor Data Fusion Algorithm Based on Diverse Methods                                       | ■罗艳龙,狄长安               |
| 178 一种高压线非接触式自取电电源的设计<br>Design of Non-contact Self-supplying Electric Power Applied in High-voltage Bus                               | ■王玉峰,赵敏,罗沛文            |
| 181 4-UPU 并联机构自由度计算及其运动学分析<br>Degree of Freedom Calculation and Kinematic Analysis of the 4-UPU Parallel Mechanism                     | ■卫江                    |
| 186 基于遗传算法的塔式起重机定位和防摆研究<br>Tower Crane Positioning and Anti swing Research Based on Genetic Algorithm                                  | ■游谊,胡伟,张自强,曾经宇,熊彤      |
| 189 输入整形法在起重机中的应用<br>Application of Input Shaping Strategy in Crane  | ■任会礼,付玲,李向国,高常春,梅志千,孙雷 |
| 192 基于 MATLAB 的变压器空载合闸时励磁涌流仿真分析<br>Simulation and Analysis of No load Switching Transformer Magnetizing Inrush Current Based on MATLAB | ■李兴宁,王书杰               |
| 194 基于 ABAQUS 的动中通车风载荷有限元分析<br>Finite Element Analysis of Wind Load of Car Based on ABAQUS   | ■高亮                    |
| 197 柴油机消声器净化装置设计<br>Design of Decontamination Device for Diesel Engine Silencer  | ■王家珂                   |
| 199 PLC 在油封旋转性能试验机控制系统中的应用<br>Use of PLC in Control System for Oil Seal Rotation Performance Testing Machine                           | ■杭小宇,周建华,宰广旭,周海涛       |
| 202 离线梗丝分离技术在 PROTOS70 中的应用<br>Application of Off-line Technology of Separation Between Cut Stem and Cut Tobacco in PROTOS70           | ■熊克林,戴卫良,林国华,刘东        |

## 消息与动态

|                              |     |                  |     |
|------------------------------|-----|------------------|-----|
| 新能源的概念                       | 57  | 低碳经济的内涵          | 139 |
| 关于参加中国学术期刊(光盘版)学术不端文献检测系统的公告 |     | 低碳经济包括的领域        | 198 |
| 低碳的概念及产生的时代背景                | 79  | “低碳”的历程          | 201 |
| 新能源的环境意义和能源安全战略意义            | 89  | 《机械制造与自动化》期刊征稿启事 | 204 |
|                              | 127 |                  |     |



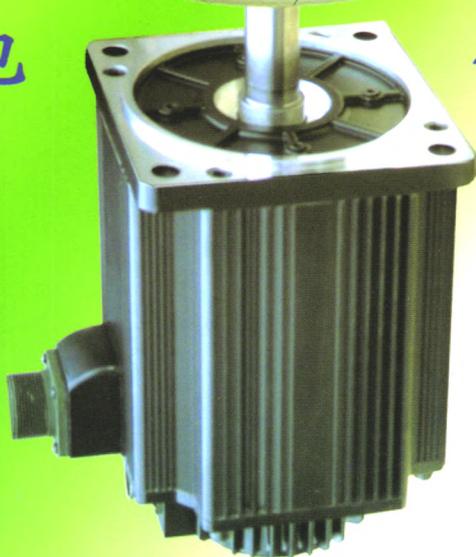
# 南京科博磁电有限公司

自主知识产权的永磁交流伺服电动机



科博磁电

伺服世界



地址：南京市溧水县  
东屏镇东湖路65号

邮编：211212

电话：025-57491299

025-57491179

传真：025-57491159

E-mail: kebo299@126.com  
Http: kebocidian.cn.alibaba.com