



ISSN 0577-6686  
CODEN CHHKA2

中国机械工程学会主办

# 机械工程学报<sup>®</sup>

JOURNAL OF MECHANICAL ENGINEERING

庆祝《机械工程学报》创刊60周年特刊



半月刊 | 19 / 2013  
第 49 卷

# 机械工程学报

JIXIE GONGCHENG XUEBAO

2013年第49卷第19期 10月5日出版

庆祝《机械工程学报》创刊60周年特刊

## 目次

序	(1)
机械工程学科基础研究的重要载体——贺《机械工程学报》创刊60周年	王国彪 赖一楠 宋建丽等 (2)
<b>机械学</b>	
<b>机构学及机器人</b>	
国内齿轮研究现状及问题研究	赵韩 吴其林 黄康等 (11)
基于再生能源的极地漫游机器人研究及现场试验	王田苗 张韬懿 梁建宏等 (21)
一种新型并联动力头动力学参数辨识方法研究	黄田 陈闯 王辉 (31)
新型变结构球形机器人运动分析	孙汉旭 赵伟 张延恒 (40)
一种新型3自由度大行程微定位平台设计与分析	李杨民 肖霄 汤晖 (48)
<b>机械动力学</b>	
机械系统光纤光栅分布动态监测与诊断的现状与发展	周祖德 谭跃刚 刘明尧等 (55)
太阳翼驱动机构的模糊动态故障树分析	黄洪钟 李彦锋 孙健等 (70)
<b>制造科学与技术</b>	
<b>数字化设计与制造</b>	
科学发展观指导下的产品系统化设计的理论与方法	闻邦椿 李小彭 (77)
机械加工系统能量效率研究的内容体系及发展趋势	刘飞 王秋莲 刘高君 (87)
试论海洋摩擦学的内涵、研究范畴及其研究进展	严新平 白秀琴 袁成清 (95)
用于地外星体探测的一种新结构取心钻头研究	邓宗全 田野 唐德威等 (104)
矿山机械装备云仿真CAE服务系统研究与应用	杨兆建 王学文 (111)
滚刀几何误差与齿轮几何精度的映射规律研究	王时龙 孙守利 周杰等 (119)
高性能复杂曲面零件测量-再设计-数字加工一体化加工方法	贾振元 王永青 王福吉等 (126)
复杂曲面零件加工精度的原位检测误差补偿方法	高健 陈岳坪 邓海祥等 (133)
<b>制造工艺与装备</b>	
微结构自由曲面的超精密单点金刚石切削技术概述	李荣彬 孔令豹 张志辉等 (144)
凝胶结合剂磨粒工具制备及其磨抛性能研究	徐西鹏 刘娟 于怡青等 (156)
薄型非球面弹性变形面形复制加工技术研究	袁巨龙 吴喆 吕冰海等 (163)
大口径光学元件超精密加工技术与应用	郭隐彪 杨炜 王振忠等 (171)
<b>专题征文</b>	
基于热塑性热熔胶的主动拆卸结构设计方法	刘志峰 成焕波 李新宇等 (179)
基于压力流场的高分子在微纳通道内的横向迁移行为	许少锋 汪久根 (185)
纳米切削过程中刀-屑接触区应力分布	吉春辉 刘战强 (192)

# JOURNAL OF MECHANICAL ENGINEERING

Vol.49 No.19 October 2013

## CONTENTS

- Important Carrier of Basic Research Achievements of Mechanical Engineering Discipline—In Celebration of the 60th Anniversary of 《Journal of Mechanical Engineering》  
.....WANG Guobiao LAI Yinan SONG Jianli et al (2)
- Status and Problem research on Gear Study  
.....ZHAO Han WU Qilin HUANG Kang et al (11)
- Design and Field Test of a Rover Robot for Antarctic Based on Renewable Energy  
.....WANG Tianmiao ZHANG Taoyi LIANG Jianhong et al (21)
- Identification of Dynamic Parameters of a Novel 3-DOF Spindle Head  
.....HUANG Tian CHEN Chuang WANG Hui (31)
- Mechanical Analysis about a New Kind of Variable Structure Spherical Mobile Robot  
.....SUN Hanxu ZHAO Wei ZHANG Yanheng (40)
- Design and Analysis of a Novel 3-DOF Large Stroke Micro-positioning Platform  
.....LI Yangmin XIAO Xiao TANG Hui (48)
- Actualities and Development on Dynamic Monitoring and Diagnosis with Distributed  
Fiber Bragg Grating in Mechanical Systems.....ZHOU Zude TAN Yuegang LIU Mingyao et al (55)
- Fuzzy Dynamic Fault Tree Analysis for the Solar Array Drive Assembly  
.....HUANG Hongzhong LI Yanfeng SUN Jian et al (70)
- Systematized Design Theory and Method of Products Based on Scientific Development Outlook  
.....WEN Bangchun LI Xiaopeng (77)
- Content Architecture and Future Trends of Energy Efficiency Research on Machining Systems  
.....LIU Fei WANG Qiulian LIU Gaojun (87)
- Discussion on Connotation and Research Scopes of Ocean Tribology and Its Research Progress  
.....YAN Xinping BAI Xiuqin YUAN Chengqing (95)
- Research on New Structure Coring Bit for Extraterrestrial Bodies Exploration  
.....DENG Zongquan TIAN Ye TANG Dewei et al (104)
- Study on Cloud Simulation CAE Service System for Mining Machinery Equipment  
.....YANG Zhaojian WANG Xuwen (111)
- Research on Mapping Rules of Hob Geometric Errors and Gear Geometric Precision  
.....WANG Shilong SUN Shouli ZHOU Jie et al (119)
- Research on Measure-redesign-machining Integration Manufacturing Method for Complicated  
Surface Parts with High Performance .....JIA Zhenyuan WANG Yongqing WANG Fuji et al (126)

(下转封三)

(上接第 II 页)

- In-situ Inspection Error Compensation for Machining Accuracy Improvement of Complex Components  
..... GAO Jian CHEN Yueping DENG Haixiang et al (133)
- An Overview of Ultra-precision Diamond Machining of Microstructured Freeform Surfaces  
.....LEE Wingbun KONG Lingbao CHEUNG Chifai et al (144)
- Fabrication and Application of Gel-bonded Abrasive Tools for Grinding and Polishing Tools  
.....XU Xipeng LIU Juan YU Yiqing et al (156)
- Research on Thin Aspheric Surface Machining Using Elastic Deformation Molding Method  
.....YUAN Julong WU Zhe LÜ Binghai et al (163)
- Technology and Application of Ultra-precision Machining for Large Size Optic  
.....GUO Yinbiao YANG Wei WANG Zhenzhong et al (171)
- Design Methods of Active Disassembly Structure Based on Thermoplastic Hot Melt Adhesive  
.....LIU Zhifeng CHENG Huanbo LI Xinyu et al (179)
- Cross-stream Migration of Macromolecules under Pressure Driven Flow in Micro- and Nanochannels  
.....XU Shaofeng WANG Jiugen (185)
- Investigation on Stress Distribution along Tool/chip Interface in Atomistic Machining Processes  
.....JI Chunhui LIU Zhanqiang (192)