

目次 CONTENTS

《制造技术与机床》2022年第12期(总第726期) No.12.2022 Total Issue No.726

1 | 国内外动态 / Information at Home and Abroad

专题专访 / Special Topics & Interview

4 | 2022高端数控机床创新论坛在京成功召开|特约记者 / 李点睛

增材制造 / Additive Manufacturing

5 | 基于砂支撑 FDM 3D 打印的堆砂规律研究/熊旭辉 刘浩

Study on sand stacking law based on FDM 3D printing supported by sand/XIONG Xuhui, LIU Hao

11 | 选择性激光烧结技术在机械制造领域中的应用/陈旭

Application of selective laser sintering technology in mechanical manufacturing/CHEN Xu

15 | 增减材混合制造技术的研究现状与进展/孙海江 邢飞 卞宏友 锁红波 董呈 苗立国

Research status and progress of hybrid additive manufacturing technology/SUN Haijiang, XING Fei, BIAN Hongyou, SUO Hongbo, DONG Cheng, MIAO Liguo

工业机器人 / Industrial Robot

24 | 基于空间多面体异点投影的机器人基坐标标定/钟佩思 张振宇 刘梅 梁中源 张超 刘金铭

Calibration of robot base coordinate system based on spatial polyhedron anomaly projection/ZHONG Peisi, ZHANG Zhenyu, LIU Mei, LIANG Zhongyuan, ZHANG Chao, LIU Jinming

33 | 柔性关节复杂迟滞特性的改进 WLSSVM 建模方法/党选举 马樑海

An improved WLSSVM modeling method for complex hysteresis characteristics of flexible joints/DANG Xuanju, MA Lianghai

40 | 基于遗传算法的水龙头铣削机器人路径规划/王宏民 梁靖斌 蒋孟 邹云辉 林荣耀

Faucet milling robot arm path planning based on ant colony algorithm/WANG Hongmin, LIANG Jingbin, JIANG Meng, ZOU Yunhui, LIN Rongyao

46 | 品字型砂带打磨工作站控制系统设计与研究/唐振宇 黄阳明 毕齐林

Design and research on the control system of the polishing and grinding workstation of the pin-shaped abrasive belt/TANG Zhenyu, HUANG Yangming, BI Qilin

52 | 基于数字化技术的直角搬运机器人控制系统设计/王丹 李耿南 韦翠华

Design of right-angle handling robot control system based on digital technology/WANG Dan, LI Gengnan, WEI Cuihua

机器视觉与检测 / Machine Vision and Detection

58 | 基于 WGAN 的环形锻件表面偏振检测/陈景铭 张礼华 王子翔

WGAN-based surface polarization detection of ring forgings/CHEN Jingming, ZHANG Lihua, WANG Zixiang

- 65 |** 基于 Mask R-CNN 的零件抓取检测算法/乔峰丽 苗鸿宾 纪慧君 王涛 苏赫朋
Part grasping detection algorithm based on Mask R-CNN/QIAO Fengli, MIAO Hongbin, JI Huijun, WANG Tao, SU Hepeng

- 70 |** 基于深度学习的管件识别与位姿估计研究/李雨龙 陈松 李鑫 李昌龙 赵耀耀 李顺
Research on pipe fitting identification and pose estimation based on deep learning/LI Yulong, CHEN Song, LI Xin, LI Changlong, ZHAO Yaoyao, LI Shun

设计与研究 / Design and Research

- 76 |** 数控激光加工机床静动态特性分析/李忠群 张伟峰 刘强 周明虎 殷振朔 吕世晟
Analysis of static and dynamic characteristics of CNC laser processing machine tool/LI Zhongqun, ZHANG Weifeng, LIU Qiang, ZHOU Minghu, YIN Zhenshuo, LV Shisheng

- 81 |** 微细电解加工恒精度变参数采样算法/赵传军 黄天用 王冀鹏 许立忠
Constant precision and variable parameter sampling algorithm for electrochemical micromachining/ZHAO Chuanjun, HUANG Tianyong, WANG Jipeng, XU Lizhong

- 88 |** 基于顺序热力耦合的活络模具花纹块性能分析/孙峰 王一斌 宋凯华 胡海明 李林
Performance analysis of movable mold pattern block based on sequential thermodynamic coupling/SUN Feng, WANG Yibin, SONG Kaihua, HU Haoming, LI Lin

- 94 |** 三维椭圆振动辅助车削复杂曲面的路径优化研究/卢明明 金钰博 杜永盛 刘长青 李昊
Path optimization and simulation of complex surface research in 3D vibration-assisted turning/LU Mingming, JIN Yubo, DU Yongsheng, LIU Changqing, LI Hao

- 102 |** 基于 PID 的双线圈侧置式磁流变制动器控制研究/张辉 吴杰 唐绍禹 邓兵兵
PID-based control of a dual coil side-mounted magnetorheological brake/ZHANG Hui, WU Jie, TANG Shaoyu, DENG Bingbing

工艺与制造 / Technology and Manufacture

- 107 |** 20%SiCp/Al 复合材料磨削机理及表面粗糙度研究/尹逊雨 高奇 陈野 崔天阳 张科
Study on micro-grinding mechanism and surface quality of 20 vol% SiCp/Al composites/YIN Xunyu, GAO Qi, CHEN Ye, CUI Tianyang, ZHANG Ke

- 113 |** 基于 SVR 模型的双锐棱铝合金翼子板成形工艺优化/蒋磊 贾倩茹 谢晖 龚熙 廖敏 赵磊
Forming process optimization of double-sharp-edged aluminum alloy fender based on SVR model/JIANG Lei, JIA Qianru, XIE Hui, GONG Xi, LIAO Min, ZHAO Lei

- 121 |** 激光-TIG 复合填丝焊接工艺对 6061 铝合金焊缝组织与硬度的影响/卢帅 晁艳普 张楚翔 岑辉 曹福来 陈良斌
Effect of laser-TIG composite wire filling welding process on microstructure and hardness of 6061 aluminum alloy/LU Shuai, CHAO Yanpu, ZHANG Chuxiang, CEN Hui, CAO Fulai, CHEN Liangbin

- 127 |** 超声辅助磨削工艺对微晶玻璃表面粗糙度的影响研究/詹奇云 靳刚 阎兵 李占杰 董庆运
Study on the effect of ultrasonic-assisted grinding process on the surface roughness of microcrystalline glass/ZHAN Qiyun, JIN Gang, YAN Bing, LI Zhanjie, DONG Qingyun

检测与质量 / Test and Quality

- 134** | 五轴立式精密机床 RTCP 跟随误差检测优化及补偿/刘贺强 张胤 肖博
戴玉红 魏宁

Optimization and compensation of RTCP following error detection for five-axis vertical precision machine tools/LIU Heqiang, ZHANG Yin, XIAO Bo, DAI Yuhong, WEI Ning

- 139** | 基于广州数控系统的某型号立式加工中心精度试验研究/张旭 陈帅 杨丽敏
张猛

Experimental study on the accuracy of a vertical machining center based on guangzhou cnc system/ZHANG Xu, CHEN Shuai, YANG Limin, ZHANG Meng

- 145** | 整体叶盘的 CMM 测量规划与仿真系统研究/叶茂 赵巍 刘鹏鑫 连泰湖
Research on CMM measurement planning and simulation system of integral leaf disc/
YE Mao, ZHAO Wei, LIU Pengxin, LIAN Taihu

- 153** | 提高陶瓷高速磨削温度有限元仿真精度的研究/龙华 郭力 王崇 樊新波
Study on improving the accuracy of finite element simulation of ceramic high speed grinding temperature/LONG Hua, GUO Li, WANG Chong, FAN Xinbo

管理信息化 / Management and Informatization

- 159** | 面向数字孪生的船用柴油机装配车间生产调度/李俊 方喜峰 冯麟皓
张胜文 汪通悦 李群

Production scheduling in marine diesel assembly workshops for digital twins/LI Jun, FANG Xifeng,
FENG Linhao, ZHANG Shengwen, WANG Tongyue, LI Qun

- 167** | 基于遗传算法的 FMS 系统排产算法设计/段昭 徐宁波 包壁祯 徐卫刚
王巍 罗阳 刘晓宇

Design of FMS scheduling algorithm based on genetic algorithm/DUAN Zhao, XU Ningbo,
BAO Bizhen, XU Weigang, WANG Wei, LUO Yang, LIU Xiaoyu