

前瞻性 战略性 全局性 学术性 实用性

ISSN1006-7523  
CN37-1222/T



# 山東工業技術

JOURNAL OF SHANDONG INDUSTRIAL TECHNOLOGY

SHANDONG  
INDUSTRIAL  
TECHNOLOGY

第2期  
2020  
总第292期



INTECH  
WE LEARN

# 目录



2020年 第2期  
(总第292期)  
(双月刊)

主管：  
出版：  
《山东省工业和  
信息技术》  
编辑部

刊号：ISSN1006-7523  
CN37-1222/T

创刊时间：1982年

主 编：秦 可  
副 主 编：张永君  
责任编辑：王 娟  
牛宗宝

编辑部地址：  
济南市解放路134号

定价：每期30元

注：本刊不以任何形  
式收取版面费，拒绝  
任何中介或代理。

举 报、联系电 话：  
0531-82593397

## 工业经济

- 山东省数字经济与实体经济融合发展浅析····· 刘金旺,王 娟(3)  
山东省“三评”改革主要问题及对策研究····· 刘 用,赵燕清(9)  
山东省新能源汽车产业政策方向浅析····· 国 栋,宋鹏飞,李尚达(15)  
烟台市小微工业企业融资问题与对策····· 杨安琪(22)

## 工业技术

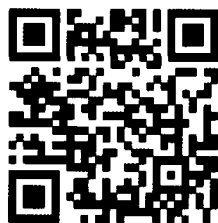
- 电学全息测量处理成像一体化软件架构设计····· 张 阔(28)  
氧化锆陶瓷球阀的材料性能分析····· 周小芳,邵海燕(33)  
粘土防膨剂有效期影响因素试验研究····· 温晓杰(38)  
BFBR 立体生态工艺用于中型污水厂优化升级改造  
····· 马 涛,诸葛云,曾贤桂,马文冬(42)  
基于 RFID 标签天线的无源传感技术····· 徐雅薇(47)  
山钢日照 2050mm 热连轧链式提升机的研究应用····· 孙二刚,李景伟(56)  
基于数字图像处理的导光板网点分布检测····· 陈召全(60)  
齐鲁石化衡器无人值守技术开发与应用····· 牛启光(65)  
BIM 技术在地铁车站暖通设计的应用····· 董军寨,李纪英(69)  
基于 MATLAB 的优化变环宽滞环控制方法仿真与分析  
····· 宋 潇(73)  
智能变频器对流体输送管路性能的改善····· 赵 亮,顾 鹏(77)  
微波-芬顿-活性炭处理化工企业纤维素醚废水的研究····· 张 川,潘 宁(83)  
大型水泵性能曲线拟合算法分析与实现····· 高伟恒(87)  
22MDSY 螺杆钻具马达试验台的研究····· 王冬梅,陈 强,王 凡,张桂昌(91)  
对平行四边形底座起升影响因素的分析与研究····· 赵鹏博,陈洪光,周桂智(96)  
无人值守智能运销系统的研究与实现  
····· 刘建国,郭加法,刘永光,文小云,李 鹏(101)  
汽车总装生产线的 MES 系统设计····· 张柏兴(106)  
超超临界二次再热机组主、再热汽温低的原因分析及调整策略  
····· 马 记,李绍刚(112)  
特高压串补平台支架焊前对接定位装置····· 李海国(118)  
电动汽车技术进展和发展趋势····· 赵 越(122)  
关于高职院校单片机控制技术教学改革的几点思考····· 许中璞(125)



# Contents

<b>On the Integration of Digital Economy and Real Economy in Shandong Province</b> ·····	LIU Jin-wang, WANG Juan ( 3 )
<b>Research on Science &amp; Technology Evaluation and Policy in Shandong Province</b> ·····	LIU Yong, ZHAO Yan-qing ( 9 )
<b>Analysis on the Policy Direction of New Energy Vehicles Industry in Shandong</b> ·····	GUO Dong, SONG Peng-fei, LI Shang-da ( 15 )
<b>Financing Problems and Countermeasures of Small and Micro Industrial Enterprises in Yantai Area</b> ·····	YANG An-qi ( 22 )
<b>Architectural Design on the Integrated Software of Electric Holographic Measurement, Processing and Imaging</b> ·····	ZHANG Kuo ( 28 )
<b>Material Property Analysis of Zirconia Ceramic Ball Valve</b> ·····	ZHOU Xiao-fang, SHAO Hai-yan ( 33 )
<b>Experimental Study on the Influencing Factors of the Validity Period of Clay Inhibitor</b> ·····	WEN Xiao-jie ( 38 )
<b>Bio-Film Biological-Reactor Technology used for Optimization Upgrading and Reconstruction of a Middle-Sized Wastewater Treatment Plant</b> ·····	MA Tao, ZHU-GE Yun, ZENG Xian-gui, MA Wen-dong ( 42 )
<b>Passive Sensing Technology Based on RFID Tag Antenna</b> ·····	XU Ya-wei ( 47 )
<b>Chain Hoist Technology Research and Application at 2050mm Hot Strip Rolling Line at Shansteel Rizhao</b> ·····	SUN Er-gang, LI Jing-wei ( 56 )
<b>The Detection of the Backlight Pattern Distribution Basing on Digital Image Processing Methods</b> ·····	CHEN Zhao-quan ( 60 )
<b>Development and Application of Unattended Weighing Instrument Technology in Qilu Petrochemical Corp.</b> ·····	NIU Qi-guang ( 65 )
<b>Application of BIM Technology in HVAC design of metro station</b> ·····	DONG Jun-zhai, LI Ji-ying ( 69 )
<b>Simulation and Analysis of Variable Loop Width Constant Frequency Hysteresis Control Strategy Based on MATLAB</b> ·····	SONG Xiao ( 73 )
<b>The Improvement of Intelligent Frequency Converter on the Performance of Conveying Pipeline</b> ·····	ZHAO Liang, GU Peng ( 77 )
<b>Study on Treatment of Cellulose Ether Wastewater by Microwave - Fenton - Activated Carbon</b> ·····	ZHANG Chuan, PAN Ning ( 83 )
<b>Analysis and Realization of Pump Performance Curve Fitting Algorithm</b> ·····	GAO Wei-heng ( 87 )
<b>Research on 22MDSY Downhole Motor Power Section Test Bench</b> ·····	WANG Dong-mei, CHEN Qiang, WAN Fan, ZHANG Gui-chang ( 91 )
<b>The Analysis and Researching on Erection of Rhomboid substructure</b> ·····	ZHAO Peng-bo , CHEN Hong-guang , ZHOU Gui-zhi ( 96 )
<b>Study and Implementation of Unattended Intelligent Transportation and Marketing System</b> ·····	Liu Jianguo, Guo Jiafa, Liu Yongguang, Wen Xiaoyun, Li Peng ( 101 )
<b>The MES System Design of Assembly Production Line</b> ·····	ZHANG Bo-xing ( 106 )
<b>Cause Analysis and Adjustment Strategy of Low Temperature of Main and Reheat Steam in Ultra Supercritical Secondary Reheating Unit</b> ·····	MA Ji, LI Shao-gang ( 112 )
<b>Butt Joint Positioning Device of UHV Series Repair Platform Support Before Welding</b> ·····	LI Hai-guo ( 118 )
<b>Technical Progress and Development Trend of Electric Vehicle</b> ·····	ZHAO Yue ( 122 )
<b>Thoughts on Teaching Reform of Single-chip Microcomputer Control Technology in Higher Vocational</b> ·····	Xu Zhong-pui ( 125 )

本期参与校对：刘金旺、张宇翔、刘明伟



网 址：[www.iitr.org.cn](http://www.iitr.org.cn)  
[www.sdgyjszz.com](http://www.sdgyjszz.com)  
地 址：济南市解放路 134 号  
联系电话：0531-82593397  
投稿平台：<http://sdgj.cbpt.cnki.net>  
投稿邮箱：[sdgyjstg@163.com](mailto:sdgyjstg@163.com)