

# 华北理工大学学报 (自然科学版)

2017 年第 3 期

第 39 卷第 3 期

(总第 145 期)

## 目 次

### 矿冶工程

- 基于主成分分析的矿区蚀变信息提取 ..... 赵自雨,刘亚静(1)  
林南仓煤矿低温氧化释放 CO 的研究 ..... 朱令起,赵欢欢,赵 阳,等(6)  
污泥流化床焚烧特性数值模拟与分析 ..... 卢 闪,李 文,杨玉滢,等(12)

### 材料、化工

- 透水瓷化砖的制备 ..... 韩瑞祥,安金梦,张 琛,等(21)  
磁性多孔碳复合材料的简易合成及其吸附性能 ..... 麻彬彬,李小刚,金阿伟,等(25)

### 建筑、环境

- 预压装配节点与现浇节点抗震性能试验 ..... 韩建强,齐 凤,王印会,等(32)  
元胞自动机模型用于小区开放问题的分析 ..... 冯献磊,吴燕文,刘 璇,等(38)  
高校火灾预防人员疏散研究 ..... 刘万保,艾晴雪,尹小波,等(46)

### 机械、电子

- 脉冲频率对铸造铝硅合金等离子体电解氧化陶瓷层的影响 ..... 刘 超,蔡玉强(52)  
C# 和 MATLAB 混合编程在连铸坯裂纹检测中的应用 ..... 孙 洁,欧阳亚丽(57)  
学生证自动盖章机设计 ..... 李占贤,田 月,张雅琛,等(63)  
基于轨迹的助行轮椅锻炼装置优化设计 ..... 王立新,张雪雁(66)  
基于 D-S 证据理论的多传感器火灾报警方法 ..... 刘晓悦,马伟宁(74)  
基于微能源收集技术的传感器节点 ..... 郭 颖,张湧涛(82)  
在 Labview 下实现数字信号处理 ..... 赵树忠,李书娜(88)  
基于 S7-200-PLC 的褐煤滚筒干燥控制系统 ..... 王海涛,陈至坤,孟 如(93)  
液体蒸发的数值模拟 ..... 蔡玉强,李亚丛(99)

### 数理科学、计算机

- 基于  $\mu$ - $\sigma$  积分变换的概率问题研究 ..... 马醒花,岳凤桐(105)  
基于 KPCA 遗传算法的预报模型及其应用 ..... 王崇荣,阚海玉,静丽贤,等(109)

基于有限元法的恒温浴缸设计 ..... 张静怡,杨柳丛,阎少宏,等(116)

---

期刊基本参数:CN13-1419/N \* 1979 \* q \* A4 \* 124 \* zh \* P \* ¥ 10.00 \* 700 \* 20 \* 2017-07

**JOURNAL OF NORTH CHINA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**(Natural Science Edition)**

No. 3, 2017

No. 3 Vol. 39

(Sum, 145)

---

**CONTENTS**

**Mining Engineering and Metallurgical Engineering**

- Extraction of Alteration Information in Iron Mine Area Based on Principal Component Analysis ..... ZHAO Zi-yu, LIU Ya-jing (1)
- Releasing of Carbon Monoxide at Low Temperature in Linnancang Coal Mine ..... ZHU Ling-qi, ZHAO Huan-huan, ZHAO Yang, etc (6)
- Numerical Simulation and Analysis of Sludge Incineration Characteristics in Fluidized Bed ..... LU Shan, LI Wen, YANG Yu-ying, etc (12)

**Material and Chemical Engineering**

- Preparation of Permeable Ceramic Brick ..... HAN Rui-xiang, AN Jin-meng, ZHANG Chen, etc (21)
- Facile Synthesis of Magnetic Porous Carbon Nanocomposite and Adsorption Property ..... MA Bin-bin, LI Xiao-gang, JIN A-wei, etc (25)

**Architectural Science and Environmental Science**

- Experiment on Seismic Performance of Prestress Assembled Node and Cast Node ..... HAN Jian-qiang, QI Feng, WANG Yin-hui, etc (32)
- Analysis of Application of Cellular Automate Model in Open Housing District ..... FENG Xian-lei, WU Yan-wen, LIU Xuan, etc (38)
- Research on Personnel Evacuation for Fire Prevention in North China University of Science and Technology ..... LIU Wang-bao, AI Qing-xue, YIN Xiao-bo, etc (46)

**Machinery and Electronics**

- Effect of Pulse Frequency on Plasma Electrolytic Oxidation Ceramic Coating of Al-Si Alloy ..... LIU Chao, CAI Yu-qiang (52)
- Application of Mixed Programming of C# and MATLAB in Crack Detection of Continuously Cast Slab ..... SUN Jie, OUYANG Ya-li (57)
- Design of Automatic Stamping Machine for Student's Identity Card ..... LI Zhan-xian, TIAN Yue, ZHANG Ya-chen, etc (63)
- Optimization Design of Training Function of the Walking Aid based on the Trajectory Mathematical Science and Computer ..... WANG Li-xin, ZHANG Xue-yan (66)
- Multi-sensors Fire Alarm Method Based on D-S Evidence Theory ... LIU Xiao-yue, MA Wei-ning (74)

Sensor Node Based on Micro Energy Collection Technology .....	GUO Ying, ZHANG Yong-tao (82)
Digital Signal Processing with Labview .....	ZHAO Shu-zhong, LI Shu-na (88)
Lignite Roller Drying Control System Based on S7-200-PLC .....	..... WANG Hai-tao, CHEN Zhi-kun, MENG Ru (93)
Numerical Simulation of Liquid Evaporation .....	CAI Yu-qiang, LI Ya-cong (99)

**Mathematical Science and Computer**

Research on Probability Problem Based on $\mu$ - $\sigma$ Integral Transformation .....	..... MA Xing-hua, YUE Feng-tong (105)
Prediction Model Based on KPCA and Genetic Algorithm and Its Application .....	..... WANG Chong-rong, KAN Hai-yu, JING Li-xian, etc (109)
Design of Constant Temperature Bath tub Based on Finite Element Method .....	..... ZHANG Jing-yi, YANG Liu-cong, YAN Shao-hong, etc (116)