

### 目 次

#### 智能信息

- 一种基于空间划分树裁剪外包框的空间索引方法 ..... 熊伟, 李瑞清, 陈萃, 曹竞之, 资文杰( 1 )  
考虑杆臂误差的组合导航分离协方差交叉算法 ..... 张大龙, 余刚, 李致远, 韩刚涛( 8 )  
基于波形边缘检测的 Wi-Fi 室内定位信号 TOA 估计 ..... 马栋桦, 李敏, 张端金( 15 )  
新型群体智能优化算法综述 ..... 高岳林, 杨钦文, 王晓峰, 李嘉航, 宋彦杰( 21 )  
基于小波变换共空间模式的脑电信号解码 ..... 曲思霖, 王从庆, 李建亮, 展文豪, 张民( 31 )  
基于 CNN 与 BiGRU 融合神经网络的入侵检测模型 ..... 张安琳, 张启坤, 黄道颖, 刘江豪, 李建春, 陈孝文( 37 )  
基于 DBSCAN\_GAN\_XGBoost 的网络入侵检测方法 ..... 汪祖民, 王冬昊, 梁霞, 邹启杰, 秦静, 高兵( 44 )

#### 土木工程

- 糠醛抽出油再生沥青的流变和感温性能研究 ..... 吴文亮, 代生林, 斯李( 52 )  
水泥土搅拌桩加固黄土路基稳定性研究 ..... 邓友生, 孟丽青, 蔡梦真, 孙雅妮, 李龙, 郑云方( 59 )  
榫卯-灌浆套筒混合连接装配式方墩轴压承载力 ..... 林上顺, 何乐, 夏樟华, 张乐彤, 叶世集, 陈治雄( 67 )

#### 化工与材料工程

- 矿渣硅酸盐水泥除磷性能研究 ..... 李强, 段浩宇, 高镜清, 褚军辉, 周昊昕, 朱桐豆, 金银珠( 73 )  
 $\text{NaHCO}_3$  与典型气体协同灭火效果研究 ..... 梁天水, 张俊格, 毛思远, 张华杰( 81 )  
PEI 改性沙柳对水中酸性铬兰 K 的吸附作用研究 ..... 张晓羽, 郭红博, 邹卫华( 87 )  
水下脉冲放电等离子体系统及其放电特性研究 ..... 李海华, 王魁英, 杨小丽, 王志琛, 张梦梦( 93 )

#### 机械工程

- RV 减速器摆线针轮传动脂润滑弹流分析 ..... 陈江义, 史文华, 秦东晨, 王迎佳( 98 )  
基于轨迹加权预测的主动避撞安全距离模型及算法 ..... 张三川, 马啸( 104 )

## **CONTENTS**

### **[ Intelligent Information ]**

A Spatial Index Based on Clipping Bounding Box of Space Partitioning Tree .....	XIONG Wei, LI Ruiqing, CHEN Luo, CAO Jingzhi, ZI Wenjie ( 1 )
Split Covariance Intersection Algorithm for Integrated Navigation System Considering Lever Arm Error .....	ZHANG Dalong, YU Gang, LI Zhiyuan, HAN Gangtao ( 8 )
TOA Estimation of Indoor Localization by Wi-Fi Signal Based on Waveform Edge Detection .....	MA Dongju, LI Min, ZHANG Duanjin ( 15 )
Overview of New Swarm Intelligent Optimization Algorithms .....	GAO Yuelin, YANG Qinwen, WANG Xiaofeng, LI Jiahang, SONG Yanjie ( 21 )
EEG Decoding Based on Wavelet Transform and Common Space Pattern .....	QU Silin, WANG Congqing, LI Jianliang, ZHAN Wenhao, ZHANG Min ( 31 )
Intrusion Detection Model Based on CNN and BiGRU Fused Neural Network .....	ZHANG Anlin, ZHANG Qikun, HUANG Daoying, LIU Jianghao, LI Jianchun, CHEN Xiaowen ( 37 )
Network Intrusion Detection Method Based on DBSCAN_GAN_XGBoost .....	WANG Zumin, WANG Donghao, LIANG Xia, ZOU Qijie, QIN Jing, GAO Bing ( 44 )

### **[ Civil Engineering ]**

Study on Rheological and Temperature Sensitive Properties of Recycled Asphalt from Furfural Extraction Oil .....	WU Wenliang, DAI Shenglin, SI Li ( 52 )
Research on Stability of Loess Roadbed Reinforced with Cement-soil Mixing Piles .....	DENG Yousheng, MENG Liqing, CAI Mengzhen, SUN Yani, LI Long, ZHENG Yunfang ( 59 )
Tenon-grouting Sleeve Connection Fabricated Square Pier Axial Compression Bearing Capacity .....	LIN Shangshun, HE Yue, XIA Zhanghua, ZHANG Letong, YE Shiji, CHEN Zhixiong ( 67 )

### **[ Chemical Engineering and Material Engineering ]**

Research on Phosphorus Removal Performance of Portland Blast Furnace Slag Cement .....	LI Qiang, DUAN Haoyu, GAO Jingqing, CHU Junhui, ZHOU Haoxin, ZHU Tongdou, JIN Yinzhu ( 73 )
Study on Synergistic Fire Extinguishing Effect of NaHCO <sub>3</sub> and Typical Gas .....	LIANG Tianshui, ZHANG Junge, MAO Siyuan, ZHANG Huajie ( 81 )
Investigation into the Adsorption Mechanism of Acid Chrome Blue K in Aqueous Solution Using Polyethyleneimine Modified Salix .....	ZHANG Xiaoyu, GUO Hongbo, ZOU Weihua ( 87 )
Research on Pulsed Discharge Plasma System Underwater and Its Discharge Characteristics .....	LI Haihua, WANG Kuiying, YANG Xiaoli, WANG Zhichen, ZHANG Mengmeng ( 93 )

### **[ Mechanical Engineering ]**

Elastohydrodynamic Analysis of Grease Lubrication for Cycloid Pin Wheel Transmission of RV Reducer .....	CHEN Jiangyi, SHI Wenhua, QIN Dongchen, WANG Yingjia ( 98 )
A Safe Distance Model and Algorithm for Active Collision Avoidance Based on Weighted Prediction of Trajectory .....	ZHANG Sanchuan, MA Xiao ( 104 )