

ISSN 1009-6744

CN 11-4520/U

# 交通运输 系统工程与信息

JOURNAL OF TRANSPORTATION  
SYSTEMS ENGINEERING AND INFORMATION TECHNOLOGY

2022年12月  
December, 2022

第22卷 第6期  
Vol.22 No.6

ISSN 1009-6744



9 771009 674226



2001年创刊  
EI Compendex 美国《工程索引》收录  
中国科学引文数据库（CSCD）收录  
《中文核心期刊要目总览》（北京大学图书馆）收录  
中国科技论文与引文数据库（CSTPCD）收录  
中国学术期刊综合评价数据库来源期刊  
《中国学术期刊文摘（CSAC）》收录  
中国核心期刊（遴选）数据库收录  
中国知识资源总库（CNKI）全文收录  
万方数据—数字化期刊群全文收录  
中文科技期刊数据库全文收录  
SCOPUS 文摘引文数据库中国收录  
科技期刊卓越行动计划入选期刊

# 交通运输系统工程与信息(双月刊)

(JIAOTONG YUNSHU XITONG GONGCHENG YU XINXI)

第22卷 第6期 2022年12月(卷终)

## 目 次

### 综合交通运输体系论坛

- 内河航运系统监管技术现状与展望 ..... 陈德山,范腾泽,元海文,严新平(1)  
城市道路交通承载力研究综述 ..... 李小静,王花兰,范媛媛,傅忠宁(15)  
分心驾驶研究文献计量学分析 ..... 郭凤香,曲思柔,万华森,陈瑶,李京阳(26)  
驾驶压力影响因素与识别方法研究综述 ..... 杨柳,杨莹,宋允洲,张宇(40)  
基于可达性的城市群交通网络公平性分析 ..... 马书红,陈西芳,武亚俊,邵恒,张俊杰(51)  
新形势下中欧班列的市场空间及其改善策略 ..... 曾玮,贾晋中(60)  
我国城市轨道交通网络运营盈利能力的实证分析 ..... 彭恺,李夏苗(68)

### 智能交通系统与信息技术

- 智能网联环境下多车道异质交通流建模与仿真 ..... 单肖年,万长薪,李志斌,张小丽,曹昌衡(74)  
一种基于物影匹配算法的道路小目标跟踪方法 ..... 项新建,胡海斌,姚佳娜,丁祎,郑永平,金立(85)  
考虑路面车辙的自动驾驶卡车高速公路车道管理策略研究 ..... 陈丰,赵岁阳,宋明涛(95)  
基于轻量化网络和注意力机制的智能车快速目标识别方法 ..... 陈志军,胡军楠,冷姚,钱闯,吴超仲(105)  
考虑对地航速和航向的船舶典型轨迹提取方法 ..... 刘畅,张仕泽,李倍莹,李波(114)

### 系统工程理论与方法

- 社区建成环境对机动车行驶里程影响的空间异质性模型 ..... 陈坚,刘柯良,李武,邸晶,彭涛(124)  
基于动态分流元胞传输模型的城市道路网络韧性评估 ..... 吕彪,谢智宇,康宇翔,赵雨萌(134)  
考虑用户偏好的共享汽车混合运营模式优化 ..... 柯华,莫雨彤(144)  
基于事故综合强度的公交事故严重程度分析 ..... 刘强,严修,谢谦,解孝民(152)  
重型货运车辆出行时空差异性和影响因素分析 ..... 陈小鸿,刘涵,张华,杨志伟(160)  
考虑驾驶风格差异的高原公路危险路段识别研究 ..... 朱兴林,姚亮,刘泓君,叶拉森·库肯,艾力·斯木吐拉(172)  
基于生存分析的山区双车道公路超车持续时间模型 ..... 耿晓峰,戴秉佑,普永明,郝京京(183)  
基于多层复杂网络的中欧班列运输网络关键节点识别研究 ..... 冯芬玲,蔡明旭,贾俊杰(191)  
融合网络拓扑结构特征与客流量的城市轨道交通关键节点识别研究 ..... 王亭,张永,周明妮,鲁文博,李世豪(201)  
考虑多时间尺度特征的城市轨道交通短时客流量预测模型 ..... 张文娟,杨皓哲,张彬,李秀杰(212)  
基于非均匀发车间隔的大小交路时刻表优化模型 ..... 张海,吕苗苗,倪少权(224)  
灵活检修工艺下地铁车辆架大修作业调度优化方法 ..... 陈绍宽,王丹阳,刘致远,刘葛辉,冯佳(234)  
基于有限穿越可视图的进场航班流量波动特性研究 ..... 张勰,肖恩媛,刘宏志,赵巍飞,王梦琦(244)  
多优先级多车种动态应急交通网络反流策略研究 ..... 刘正,李新刚(258)  
考虑时变特性的海上溢油事故应急物资调度 ..... 张昊,陶宁蓉,杨男(269)

### 双碳目标下交通运输业减排方法与策略

- 碳排放控制的国际比较及经验借鉴 ..... 关雎文,周琪,毛保华(281)  
中国交通运输业碳达峰时间预测研究 ..... 朱长征,杨莎,刘鹏博,王萌(291)  
中国综合交通运输绿色效率的空间特征研究 ..... 马奇飞,贾鹏,匡海波(300)  
中国货运结构优化的碳减排效应测度 ..... 诸立超,刘昭然,汪瑞琪,熊强(309)  
面向实际交通状态的混合动力汽车能耗和CO<sub>2</sub>排放模型 ..... 彭飞,宋国华,尹航,于雷(316)  
中国系统工程学会第22届学术年会召开 ..... (326)

# TRANSPORTATION SYSTEMS ENGINEERING & INFORMATION TECHNOLOGY (BIMONTHLY)

Vol. 22 (December 2022) No. 6

## CONTENTS

Review and Prospect on System Operation Supervision Technology of Inland River Navigation System .....	CHEN De-shan, FAN Teng-ze, YUAN Hai-wen, YAN Xin-ping( 1 )
Literature Review on Urban Road Traffic Carrying Capacity .....	LI Xiao-jing, WANG Hua-lan, FAN Yuan-yuan, FU Zhong-ning( 15 )
A Bibliometric Analysis of Distracted Driving Research .....	GUO Feng-xiang, QU Si-rou, WAN Hua-sen, CHEN Yao, LI Jing-yang( 26 )
A Review of Influencing Factors and Identification Methods of Driver Stress .....	YANG Liu, YANG Ying, SONG Yun-zhou, ZHANG Yu( 40 )
Equity Analysis of Transportation Networks in Urban Agglomerations Based on Accessibility .....	MA Shu-hong, CHEN Xi-fang, WU Ya-jun, SHAO Heng, ZHANG Jun-jie( 51 )
Market Space and Improvement Policies for China-Europe Railway Express Operations under New Situations .....	ZENG Wei, JIA Jin-zhong( 60 )
Empirical Analysis on Operational Profitability of Urban Rail Network in China .....	PENG Kai, LI Xia-miao( 68 )
Modeling and Simulation of Multi-lane Heterogeneous Traffic Flow in Intelligent and Connected Vehicle Environment .....	SHAN Xiao-nian, WAN Chang-xin, LI Zhi-bin, ZHANG Xiao-li, CAO Chang-heng( 74 )
A Road Small Target Tracking Approach Based on Object-shadow Matching Algorithm .....	XIANG Xin-jian, HU Hai-bin, YAO Jia-na, DING Yi, ZHENG Yong-ping, JIN Li( 85 )
Freeway Lane Management Strategy for Autonomous Trucks Considering Pavement Rutting .....	CHEN Feng, ZHAO Sui-yang, SONG Ming-tao( 95 )
Intelligent Vehicle Target Fast Recognition Based on Lightweight Network and Attention Mechanism .....	CHEN Zhi-jun, HU Jun-nan, LENG Yao, QIAN Chuang, WU Chao-zhong(105)
Typical Ship Trajectory Extraction Method Considering Ground Speed and Heading .....	LIU Chang, ZHANG Shi-ze, LI Bei-ying, LI Bo(114)
Spatial Heterogeneity Model of Impact of Community Built Environment on Vehicle Miles Traveled .....	CHEN Jian, LIU Ke-liang, LI Wu, DI Jing, PENG Tao(124)
Resilience Assessment on Urban Road Network by Dynamic Shunt Cell Transmission Model .....	LV Biao, XIE Zhi-yu, KANG Yu-xiang, ZHAO Yu-meng(134)
Optimization of Hybrid Carsharing Operation Considering User Preference .....	KE Hua, MO Yu-tong(144)
Bus Accident Severity Analysis Based on Comprehensive Accident Intensity .....	LIU Qiang, YAN Xiu, XIE Qian, XIE Xiao-min(152)
Temporal and Spatial Characteristic Differences and Influencing Factors of Heavy Freight Vehicle Travel .....	CHEN Xiao-hong, LIU Han, ZHANG Hua, YANG Zhi-wei(160)
Identification of Dangerous Sections of Highland Roads Considering Different Driving Behaviors .....	ZHU Xing-lin, YAO Liang, LIU Hong-jun, ERASEL · Kuken, ELI · Ismutulla(172)
Overtaking Duration Model of Two-lane Mountainous Highways Based on Survival Analysis .....	JI Xiao-feng, DAI Bing-you, PU Yong-ming, HAO Jing-jing(183)
Key Node Identification of China Railway Express Transportation Network Based on Multi-layer Complex Network .....	FENG Fen-ling, CAI Ming-xu, JIA Jun-jie(191)
Identification of Key Nodes of Urban Rail Transit Integrating Network Topology Characteristics and Passenger Flow .....	WANG Ting, ZHANG Yong, ZHOU Ming-ni, LU Wen-bo, LI Shi-hao(201)
Short-time Passenger Flow Prediction Model of Urban Rail Transit Considering Multi-timescale Features .....	ZHANG Wen-juan, YANG Hao-zhe, ZHANG Bin, LI Xiu-jie(212)
Train Timetable Optimization Model for Full-length and Short-turn Routings with Irregular Departure Intervals .....	ZHANG Hai, LV Miao-miao, NI Shao-quan(224)
Flexible Process-based Optimum Unwheeling and Overhaul Repair Scheduling for Metro Vehicles .....	CHEN Shao-kuan, WANG Dan-yang, LIU Zhi-yuan, LIU Ge-hui, FENG Jia(234)
Fluctuation Characteristics of Arrival Flight Flow Based on Limited Penetrable Visibility Graph .....	ZHANG Xie, XIAO En-yuan, LIU Hong-zhi, ZHAO Yi-fei, WANG Meng-qi(244)
Multi-priority Multi-class Dynamic Emergency Traffic Network with Contraflow Strategies .....	LIU Zheng, LI Xin-gang(258)
Emergencies Materials Dispatching of Offshore Oil Spill with Time-varying Properties .....	ZHANG Hao, TAO Ning-rong, YANG Nan(269)
International Comparison and Experiences of Carbon Emission Control .....	GUAN Ju-wen, ZHOU Qi, MAO Bao-hua(281)
Carbon Dioxide Emission Peak Study of Transportation Industry in China .....	ZHU Chang-zheng, YANG Sha, LIU Peng-bo, WANG Meng(291)
Spatial Characteristics of Comprehensive Transportation Green Efficiency in China .....	MA Qi-fei, JIA Peng, KUANG Hai-bo(300)
Measurement of Carbon Emission Reduction Effect of China's Freight Transportation Structure Optimization .....	ZHU Li-chao, LIU Zhao-ran, WANG Rui-qi, XIONG Qiang(309)
Energy Consumption and CO <sub>2</sub> Emission Model for Hybrid Vehicles in Real Traffic Conditions .....	PENG Fei, SONG Guo-hua, YIN Hang, YU Lei(316)