

## 目 次

### • 道路与铁道工程 •

- 悬索桥重力式锚碇结构-地基联合承载机制 ..... 尹小涛, 严 飞, 周 磊, 王东英, 邓 琴 (1)  
软土地区地铁高架结构不均匀沉降特征与影响因素 ..... 吴 楠, 肖军华 (12)  
青藏高原高等级道路路面温度变化特征 ..... 权 磊, 田 波, 牛开民, 谢晋德, 何 哲, 张颖辉 (21)  
土基模量对水泥混凝土路面轮载疲劳开裂损伤的影响 ..... 吴 玉, 蒋 鑫, 吴朝阳, 刘竹君, 邱延峻 (31)  
三类勘察场地地裂缝活动对地铁隧道的影响 ..... 孟振江, 彭建兵, 黄强兵, 邓亚虹, 赵林浩, 邢 燕 (41)

### • 载运工具运用工程 •

- Parametric vibration stability of locomotive gear transmission system with tooth surface friction ..... WANG Yan, LIU Jian-xin, LI Yi-fan, YU Da-lian, XIE Ming (52)  
基于边界层控制的高速列车减阻技术 ..... 朱海燕, 张 翼, 赵怀瑞, 邬平波, 邵晓峰 (64)  
基于 STL 模型的船舶静水剪力与弯矩计算方法 ..... 刘春雷, 尹 勇, 孙霄峰, 张秀凤, 神和龙 (73)  
起重船舶压载水调配优化模型 ..... 刘志杰, 刘晓宇, 熊 伟, 林成新 (83)  
并联式混合动力汽车驱动模式切换协调控制方法 ..... 王伟华, 王文楷, 冯 博, 范永凯 (90)

### • 交通运输规划与管理 •

- 飞机过站上客过程持续时间分布 ..... 冯 霞, 张 鑫, 陈 锋 (98)  
出租汽车出行轨迹网络结构复杂性与空间分异特征 ..... 付 鑫, 杨 宇, 孙 皓 (106)  
影响出行决策的交通质量多因素感知特征 ..... 胡 眇, 杨晓光 (117)  
多方综合效益最大化的社会公共停车场停车收费定价方法 ..... 王建军, 金书鑫, 李维佳, 陈法安 (126)  
区域综合客运通道多方式竞争力博弈模型 ..... 刘 帅, 唐伯明, 陈 坚 (136)  
中国交通运输业碳排放驱动因素的通径分析方法 ..... 杜 强, 孙 强, 杨 琦, 冯新宇, 杨 健 (143)

### • 交通信息工程及控制 •

- 基于空域信号分离的多径干扰抑制算法 ..... 贾琼琼, 吴仁彪, 王文益, 卢 丹, 王 璐 (151)

# JOURNAL OF TRAFFIC AND TRANSPORTATION ENGINEERING

Vol. 17 No. 2(Sum 86)

Apr. 2017

## CONTENTS

### • Road and railway engineering •

- Joint bearing mechanism of structure and foundation for gravity anchor block of suspension bridge ..... YIN Xiao-tao, YAN Fei, ZHOU Lei, WANG Dong-ying, DENG Qin (1)  
Uneven settlement characteristics and influence factors of metro elevated structures in soft soil region ..... WU Nan, XIAO Jun-hua (12)  
Temperature variation properties of pavements and subgrades for high-grade roads on Qinghai-Tibet Plateau ..... QUAN Lei, TIAN Bo, NIU Kai-min, XIE Jin-de, HE Zhe, ZHANG Ying-hui (21)  
Influence of subgrade modulus on fatigue cracking damage of cement concrete pavement under traffic load ..... WU Yu, JIANG Xin, WU Chao-yang, LIU Zhu-jun, QIU Yan-jun (31)  
Influence of ground fissure activity on subway tunnel in third-kind surveying site ..... MENG Zhen-jiang, PENG Jian-bing, HUANG Qiang-bing, DENG Ya-hong, ZHAO Lin-hao, XING Yan (41)

### • Transportation vehicle engineering •

- Parametric vibration stability of locomotive gear transmission system with tooth surface friction ..... WANG Yan, LIU Jian-xin, LI Yi-fan, YU Da-lian, XIE Ming (52)  
Drag reduction technology of high-speed train based on boundary layer control ..... ZHU Hai-yan, ZHANG Yi, ZHAO Huai-rui, WU Ping-bo, SHAO Xiao-feng (64)  
Calculation method of still water shear force and bending moment based on STL model ..... LIU Chun-lei, YIN Yong, SUN Xiao-feng, ZHANG Xiu-feng, SHEN He-long (73)  
Optimization model of ballast water allocation for crane ship ..... LIU Zhi-jie, LIU Xiao-yu, XIONG Wei, LIN Cheng-xin (83)  
Dynamic coordinated control method of driving mode switch of parallel hybrid electric vehicle ..... WANG Wei-hua, WANG Wen-kai, FENG Bo, FAN Yong-kai (90)

### • Transportation planning and management •

- Boarding duration distribution of aircraft turnaround ..... FENG Xia, ZHANG Xin, CHEN Feng (98)  
Structural complexity and spatial differentiation characteristics of taxi trip trajectory network ..... FU Xin, YANG Yu, SUN Hao (106)  
Multiple-factor perceived features of traffic quality influencing trip decision ..... HU Pan, YANG Xiao-guang (117)  
Parking pricing method of public parking lots based on multi-aspect comprehensive benefit maximization ..... WANG Jian-jun, JIN Shu-xin, LI Wei-jia, CHEN Fa-an (126)  
Multi-mode competitiveness game model in regional comprehensive passenger transportation corridor ..... LIU Shuai, TANG Bo-ming, CHEN Jian (136)  
Path analysis method of driving factors of carbon emissions for Chinese transportation industry ..... DU Qiang, SUN Qiang, YANG Qi, FENG Xin-yu, YANG Jian (143)

### • Traffic information engineering and control •

- Multipath interference suppression algorithm based on spatial signal separation ..... JIA Qiong-qiong, WU Ren-biao, WANG Wen-yi, LU Dan, WANG Lu (151)

# 《交通运输工程学报》第五届编辑委员会

THE FIFTH EDITORIAL COMMITTEE OF JOURNAL OF  
TRAFFIC AND TRANSPORTATION ENGINEERING

**名誉主任委员 Honorary Chairmen**

沈志云 SHEN Zhi-yun 田红旗 TIAN Hong-qi 翟婉明 ZHAI Wan-ming

**主任委员 Chairman**

王炜 WANG Wei

**副主任委员 Associate Chairmans**

宁滨 NING Bin 赵祥模 ZHAO Xiang-mo

**主编 Chief Editor**

赵祥模 ZHAO Xiang-mo

**副主编 Associate Editor**

孙守增 SUN Shou-zeng

**委员(以姓氏笔划为序) Members**(Listed in the order of the number of strokes in their surnames)

马 建 MA Jian	王 炜 WANG Wei	王云鹏 WANG yun-peng
王荣本 WANG Rong-ben	邓学钧 DENG Xue-jun	左洪福 ZUO Hong-fu
田红旗 TIAN Hong-qi	史忠科 SHI Zhong-ke	宁 滨 NING Bin
刘正林 LIU Zheng-lin	刘建新 LIU Jian-xin	刘寒冰 LIU Han-bing
许志鸿 XU Zhi-hong	孙立军 SUN Li-jun	杨兆升 YANG Zhao-sheng
杨忠振 YANG Zhong-zhen	李铁虎 LI Tie-hu	严新平 YAN Xin-ping
吴兆麟 WU Zhao-lin	沈志云 SHEN Zhi-yun	陈荫三 CHEN Yin-san
胡明华 HU Ming-hua	赵祥模 ZHAO Xiang-mo	谈振辉 TAN Zhen-hui
蒲 云 PU Yun	翟婉明 ZHAI Wan-ming	LI Zi-li(荷兰)
SUN Xiao-duan(美国)	WANG Jin(英国)	XIA Fu-jie(澳大利亚)
XIAO Bai-chun(美国)	YOUNG Dave(英国)	ZUO Ming-jian(加拿大)

**杂志社社长: 孙守增**

**副社长: 刘桦 茹海田**

**编辑部主任: 赵志宏**

**编辑部副主任: 韩跃杰**

**责任编辑: 孙守增 刘桦 赵志宏 韩跃杰 吴鸣谦 马静 李洋**

---

**交通运输工程学报**

2001年创刊(双月刊)

第17卷 第2期(总第86期) 2017年

2017年4月出版

**主管:** 中华人民共和国教育部

**主办:** 长安大学

**协办:** 国务院学位委员会交通运输工程学科评议组

西南交通大学

东南大学

**主编:** 赵祥模教授

**出版:** 长安大学杂志社

**编辑:** 《交通运输工程学报》编辑部

**地址:** 西安市南二环路中段

**邮政编码:** 710064

**电话:** (029)82334388

**印刷:** 长安大学雁塔印刷厂

**国内发行:** 陕西省邮政报刊发行局

**国外发行:** 中国国际图书贸易总公司

**JOURNAL OF TRAFFIC AND TRANSPORTATION ENGINEERING**

Started in 2001(Bimonthly)

Vol. 17 No. 2(Sum 86) 2017

Apr. 2017

**Responsible Institution:** Ministry of Education of PRC

**Sponsor:** Chang'an University

**Associate Sponsors:** Evaluating Branch of Learning on Traffic and Transportation Engineering of State Council Academic Degree Committee, Southwest Jiaotong University, Southeast University

**Chief Editor:** Professor ZHAO Xiang-mo

**Edited by:** Editorial Department of Journal of Traffic and Transportation Engineering

**Address:** Southern Middle Section of the Second Circular Road, Xi'an 710064, Shaanxi, China

**Tel:** (029)82334388

**E-mail:** jygc@chd.edu.cn

**http://transport.chd.edu.cn**

**Distributed by:** China International Book Trading Corporation