



ISSN 1672-7029  
CN 43-1423/U

# 铁道科学与工程学报

Journal of Railway Science and Engineering

July 2019

Volume 16 Number 7



中南大学  
中国铁道学会 主办

# 铁道科学与工程学报

2019年7月

第16卷第7期

总第112期

## 目 次

### 高速铁路技术

- 高速铁路无砟轨道扣件弹条断裂原因分析.....向俊,袁铖,余翠英,林士财,杨海明(1605)  
客货共线铁路桥上减振型CRTSIII板式无砟轨道减振层刚度动力学影响分析  
.....袁菁江,唐进锋,刘文峰,王浩(1614)  
基于粒子群算法的高速列车节能研究.....何之煜,杨志杰,吕旌阳,陈汇远(1622)  
兰新高铁大风区段挡风墙对接触网正馈线气动特性的影响.....张友鹏,王彤,赵珊鹏,王思华(1628)  
正矢差闭合的曲线轨道拨距计算方法.....魏晖,魏昱,朱洪涛(1637)  
基于广义距离变换算法的高铁施工便道智能优化方法研究  
.....赫永峰,黄国富,宋陶然,王青娥,李艳鸽,唐晓莹(1645)

### 轨道与基础

- 基于DIC技术的沥青混凝土开裂特征量化研究.....洪哲,杨树(1652)  
泥皮对灌注桩摩阻性能影响的模型试验研究.....陈咏泉,雷金山,许凌,王冠,代忠(1660)  
高原季节性粗颗粒冻土边坡破坏的现场观测试验.....赵梦怡,谢强,朱磊,任新红,赵文(1666)  
干湿循环作用下红砂岩侧限膨胀率时程模型.....张宗堂,高文华,黄建平,刘一新,欧阳鹏博(1673)  
土石混合体随机结构模型生成与直剪强度数值试验研究.....罗伟,王优,张帅浩,程肖,黄姗,荣耀(1681)  
纤维水泥搅拌桩数值模拟分析.....武朝光,阮波(1690)

### 桥梁隧道与结构

- 移动车辆荷载作用下中低速磁浮大跨度连续梁桥动力响应分析.....朱志辉,胡明勋,冯典瑾,郭向荣,刘澍(1695)

- 钢桥面板肋-面板焊缝疲劳裂纹的三维扩展及寿命分析.....杨雅斌, 石广玉(1704)  
基于实用效应的桥梁加固或拆除重建方案比选.....谢福君, 张家生(1714)  
脉冲型地震动对山区高墩桥弹塑性动力响应的影响分析.....李倩, 杨宁欣, 李晰, 李岩(1719)  
塑性铰区纵筋加密的少筋混凝土桥墩振动台试验研究  
.....李佳文, 丁明波, 鲁景华, 王海雷, 李传喜, 刘正楠(1728)  
注浆饱满度对隧道管棚力学特性影响的试验研究.....石钰锋, 郭杰森, 耿大新, 闵世超(1735)  
地下连续墙槽壁失稳模式及其稳定性计算方法研究现状.....曹豪荣, 彭立敏, 雷明峰, 唐钱龙(1743)  
铁路隧道排水盲管施工质量现状及控制.....黄国富, 陈觅杭, 汪淼, 余扶遥, 郭威, 雷明峰(1751)  
地道桥顶推施工对周边土体影响的数值模拟研究.....黄勇军(1757)  
非黏结混凝土-ECC 复合功能梯度构件弯曲性能研究.....袁化强, 李洪印, 崔志勇, 孙仁娟, 管延华, 葛智(1765)

## 机车车辆与设备

- 基于峭度与互相关的 IEWT 轴承故障诊断方法研究.....郭辉, 伍川辉, 刘泽潮, 黄衍, 于昊明(1774)  
欧洲列控系统中 GNSS 应用研究与发展综述.....帅玮祎, 董绪荣, 丛蕾, 张碧秀, 王韦舒, 范祥祥(1781)  
一种改进型 PTP 协议在铁路地面信号设备系统的应用研究.....张友鹏, 邹昕洋, 兰丽(1790)  
DC750V 地铁车辆直供式变频空调电源的轻量化研究.....周卫, 朱俊杰, 龚固丰, 何明芳, 文超民(1800)

## 运输 • 物流 • 工程管理

- 长大货物多式联运路径再利用规划模型与算法.....雷定猷, 曾斌祥, 王哲(1810)  
动车零部件维修配送网络“选址-库存”联合优化.....张得志, 杨舒馨(1820)  
基于排队论的地铁列车运行自动调整优化模型.....宁正, 牛宏侠, 张肇鑫(1826)  
基于机器学习的地铁列车牵引能耗预测研究.....吕欢欢, 张玉召(1833)  
基于 GA-ELM 的城市轨道交通工程投资估算方法研究.....张飞涟, 梁秀峰(1842)  
基于系统动力学的 TBM 隧道施工效率研究.....顾伟红, 刘振奎, 郝伟(1849)  
工程施工班组长异质性特征与岗位胜任力的影响机制研究.....李文华, 彭立敏, 张东兴(1857)

---

责任编辑：阳丽霞 英文编审：杨小礼 封面设计：刘 谊

期刊基本参数：CN43-1423/U\*2004\*m\*A4\*260\*zh\*P\*¥50.00\*1500\*33\*2019-07

# Journal of Railway Science and Engineering

Volume 16 Number 7

(Sum 112)

July 2019

## CONTENTS

### High-speed Rail Technology

- Analysis of elastic bar fracture causes of fasteners in ballastless track of high-speed railway  
..... XIANG Jun, YUAN Cheng, YU Cuiying, LIN Shicai, YANG Haiming(1605)
- Dynamic effect analysis of damping layer stiffness of vibration reducing CRTS III slab ballastless track on mixed passenger  
and freight railway bridge..... YUAN Jingjiang, TANG Jinfeng, LIU Wenfeng, WANG Hao(1614)
- On energy-efficient operation for high-speed trains by particle swarm optimization  
..... HE Zhiyu, YANG Zhijie, LÜ Jingyang, CHEN Huiyuan(1622)
- Influence of wind-break wall on aerodynamic characteristics of positive feeder of overhead contact line of Lanzhou-Xinjiang  
high-speed railway..... ZHANG Youpeng, WANG Tong, ZHAO Shanpeng, WANG Sihua(1628)
- A throw algorithm with versine difference closure for track curve realignment..... WEI Hui, WEI Yu, ZHU Hongtao(1637)
- Methodology for alignment optimization of high-speed railway construction access roads based on a generalized distance  
transform..... HE Yongfeng, HUANG Guofu, SONG Taoran, WANG Qinge, LI Yang, TANG Xiaoying(1645)

### Track and Foundation

- Quantitative research on cracking characteristics of asphalt concrete based on DIC technology..... HONG Zhe, YANG Shu(1652)
- Model test study on influence of mud cake on friction performance of pouring pile  
..... CHEN Yongquan, LEI Jinshan, XU Ling, WANG Guan, DAI Zhong(1660)
- Field observation of slope failure of seasonal coarse grained frozen soil in plateau  
..... ZHAO Mengyi, XIE Qiang, ZHU Lei, REN Xinhong, ZHAO Wen(1666)
- Time-history model of lateral constraint swelling ration of red sandstone under dry-wet cycles  
..... ZHANG Zongtang, GAO Wenhua, HUANG Jianping, LIU Yixin, OUYANG Pengbo(1673)
- A method for generating random structure model of soil-rock mixtures and study of its direct shear strength based on numerical  
test..... LUO Wei, WANG You, ZHANG Shuaihao, CHENG Xiao, HUANG Shan, RONG Yao(1681)
- Numerical simulation analysis of fiber cement-soil mixing pile..... WU Chaoguang, RUAN Bo(1690)

### Bridge, Tunnel and Structure

- Dynamic response analysis of low and medium speed maglev long-span continuous beam bridge traversed by moving train  
load..... ZHU Zhihui, HU Mingxun, FENG Dianjin, GUO Xiangrong, LIU Shu(1695)

- Fatigue life evaluation of rib-to-deck welded joints of orthotropic steel deck by using 3-D simulation of crack propagation ..... YANG Yabin, SHI Guangyu(1704)
- Scheme comparison of bridges reinforcement or reconstruction based on practical effects ..... XIE Fujun, ZHANG Jiasheng(1714)
- Effect of pulse-like ground motion on elastic-plastic dynamic response of high pier bridges in mountainous areas ..... LI Qian, YANG Ningxin, LI Xi, LI Yan(1719)
- Shaking table test of reinforced concrete pier with longitudinal reinforcement encrypt in plastic hinge area ..... LI Jiawen, DING Mingbo, LU Jinhua, WANG Hailei, LI Chuanxi, LIU Zhengnan(1728)
- Experimental research on effect of grouting plumpness on mechanical properties of tunnel pipe roof ..... SHI Yufeng, GUO Jiesen, GENG Daxin, MIN Shichao(1735)
- Research status of the instability mode and its stability calculation method of underground diaphragm wall ..... CAO Haorong, PENG Limin, LEI Mingfeng, TANG Qianlong(1743)
- Construction quality and control of blind drainage pipe in railway tunnels ..... HUANG Guofu, CHEN Mihang, WANG Miao, YÜ Fuyao, GUO Wei, LEI Mingfeng(1751)
- Numerical simulation of tunnel bridge jacking construction affect surrounding soil ..... HUANG Yongjun(1757)
- The flexural behavior of unbonded concrete-ECC functional composite beam ..... YUAN Huaqiang, LI Hongyin, CUI Zhiyong, SUN Renjuan, GUAN Yanhua, GE Zhi(1765)

## **Vehicles and Equipment**

- Research on fault diagnosis method of IEWT bearing based on kurtosis and cross correlation ..... GUO Hui, WU Chuanhui, LIU Zechao, HUANG Yan, YU Haoming(1774)
- A review of application research and development of GNSS in European train control system ..... SHUAI Weiyi, DONG Xurong, CONG Lei, ZHANG Bixiu, WANG Weishu, FAN Xiangxiang(1781)
- Research of an improved PTP protocol in railway ground signal equipment system ..... ZHANG Youpeng, ZOU Xinyang, LAN Li(1790)
- Lightweight research on DC750V metro vehicle direct supply inverter air conditioner power supply ..... ZHOU Wei, ZHU Junjie, GONG Gufeng, HE Mingfang, WEN Chaomin(1800)

## **Transportation · Logistics · Engineering Management**

- Route reuse planning model and algorithm of multimodal transportation for long and bulky cargo ..... LEI Dingyou, ZENG Binxiang, WANG Zhe(1810)
- Joint optimization of “location-inventory” for maintenance and distribution network of electric multiple units parts ..... ZHANG Dezhi, YANG Shuxin(1820)
- Automatic operation regulation optimization model of metro train based on queuing theory ..... NING Zheng, NIU Hongxia, ZHANG Zhaoxin(1826)
- Research on the prediction of traction energy-consumption of subway train based on machine learning ..... LÜ Huanhuan, ZHANG Yuzhao(1833)
- Research on investment estimation method of urban rail transit project based on GA-ELM ..... ZHANG Feilian, LIANG Xiufeng(1842)
- Study on construction efficiency of TBM tunnel based on system dynamics ..... GU Weihong, LIU Zhenkui, HAO Wei(1849)
- Analysis on the mechanism of the heterogeneity of project construction team leaders affecting post competence ..... LI Wenhua, PENG Limin, ZHANG Dongxing(1857)