

<http://www.jrse.cn>

ISSN 1672-7029

CN43-1423/U

# 铁道科学与工程学报

Journal of Railway Science and Engineering

September 2016

Volume 13 Number 9



中南大学  
中国铁道学会 主办

# 铁道科学与工程学报

2016年9月

第13卷第9期

总第78期

## 目 次

### 高速铁路技术

- 高速铁路无砟轨道谱统计分析 ..... 余翠英,向俊,陈涛,毛建红,龚凯(1659)  
双块式无砟轨道温度场监测方法研究 ..... 毕澜潇,赵坪锐,邢梦婷,龚闯(1667)  
基于转换矩阵的新建无砟高铁动静态轨道质量指数关系研究 ..... 谭社会,毛晓君(1674)  
CRTS I型CA砂浆泵送技术研究与应用 ..... 王涛,刘子科,李洪刚,李海燕,邵丕彦(1681)

### 轨道与基础

- 青藏铁路轨道不平顺谱研究 ..... 陈宪麦,徐磊,王卫东,贺天龙,张向民,高尚,陈文韬(1686)  
风荷载与挡风结构开裂关系及试验研究 ..... 田林杰,王起才,王元,杜迎东(1696)  
膨胀力表征非饱和膨胀土强度特性的试验研究 ..... 张金存,程谦恭,李星,姚远,罗浩(1702)  
公路膨胀土分级标准的修正及分级模型的建立与实践 ..... 谢东海,赵伏军,刘泽(1711)  
侧阻软化对摩擦桩承载特性的影响 ..... 张利鹏,周志军,魏进,王端端(1719)  
溶剂型冷补沥青液研制及其沥青混合料路用性能研究 ..... 张争奇,许铖,成高立,宋亮亮(1728)  
软弱地基下深基坑工程的围护结构效应研究 ..... 李志成,王飞龙,张雪松,黄林冲(1737)  
大吨位压路机碾压大粒径填石路基的动力响应 ..... 金书滨,张长胜,刘政,乔世范(1743)

### 桥梁隧道与结构

- 桥面铺装对城市钢箱梁桥面板疲劳性能的影响 ..... 郑中岳,唐冕,吕韶全(1749)

- 考虑拉索局部振动的铁路斜拉桥车桥耦合振动分析 ..... 雷虎军, 李闻秋, 李小珍(1756)  
悬索桥主缆加隙辅助除湿研究 ..... 刘学青, 庄琳, 舒健(1762)  
类矩形盾构隧道纵缝受剪性能试验研究 ..... 柳献, 张维熙, 王东方(1767)  
熵权模糊综合评价法在竖井施工方案比选中的应用 ..... 王炜, 陈建平, 余亚东, 王飞, 陈炎炎(1776)  
近距离下穿施工对既有矩形顶管通道的影响分析 ..... 刘文俊, 傅鹤林, 温树杰, 郭宏霞(1782)  
列车荷载作用下重叠隧道结构动力响应分析 ..... 林志鹏(1789)  
全风向角下二维方柱绕流数值模拟 ..... 邓燕华, 祝志文(1796)

## 机车车辆与设备

- 锅炉钢结构大板梁构造焊接接头的力学和断裂韧性试验 ..... 廖小伟, 王元清, 周晖, 石永久(1803)  
组合式同相供电变电所主接线可靠性评估 ..... 解绍锋, 谭磊, 蔡雨昌, 张晓芳(1810)  
城市轨道交通列车牵引和制动能耗实测分析 ..... 许伶俐, 刘炜, 廖钧, 崔梦雨, 刘聪, 王栋(1818)  
车站信号联锁系统故障诊断系统的研究与实现 ..... 刘伯鸿, 伏玉明, 宋爽(1825)

## 运输·物流·工程管理

- 运能释放条件下既有线货运班列开行方案研究 ..... 陈春晓, 陈治亚, 郭垂江, 韦理云(1833)  
基于时间满意度的供应链金融质押物仓库选址规划 ..... 罗勇, 陈治亚(1841)  
列车晚点条件下城际铁路座席模式对旅客延误的影响分析 ..... 赵莉莉, 聂磊, 付慧伶(1851)  
基于幂函数  $x^{-a}$  变换的 GM(1,1) 模型在货运量预测中的应用研究  
..... 宋建强, 鲍学英, 王起才, 董朝阳(1859)  
客车专用高速公路通行能力研究 ..... 倪娜, 秦建平, 王垒(1864)  
基于风险分析-可靠度混合法预制梁板运、架施工安全评估 ..... 向绿林, 贺国京, 沈晴晴, 易锦(1872)

---

责任编辑：蒋学东      英文编审：肖源杰      封面设计：刘  谊

期刊基本参数：CN43-1423/U \* 2004 \* m \* A4 \* 220 \* zh \* P \* ¥20.00 \* 1500 \* 30 \* 2016-09

# Journal of Railway Science and Engineering

Volume 13 Number 9

( Sum 78 )

September 2016

## CONTENTS

### High-speed Rail Technology

- Statistical analysis on ballastless track spectrum of high-speed railway ..... YU Cuiying, XIANG Jun, CHEN Tao, MAO Jianhong, GONG Kai(1659)
- Monitoring method of temperature field on bi-block ballastless track ..... BI Lanxiao, ZHAO Pingrui, XING Mengting, GONG Chuang(1667)
- Research on transfer matrix between dynamic and static track quality index in newly-build ballastless track of high-speed railway ..... TAN Shehui, MAO Xiaojun(1674)
- Research and application of CRTS I CA mortar pumping technology ..... WANG Tao, LIU Zike, LI Honggang, LI Haiyan, SHAO Piyan(1681)

### Track and Foundation

- Research on track irregularity power spectrum density of Qinghai-Tibet railway ..... CHEN Xianmai, XU Lei, WANG Weidong, HE Tianlong, ZHANG Xiangmin, XIANG Shang, CHEN Wentao(1686)
- Relationship and experimental study of wind load and wind structure cracking ..... TIAN Linjie, WANG Qicai, WANG Yuan, DU Yingdong(1696)
- The experimental study on the expansion force characterizing unsaturated expansive soil strength properties ..... ZHANG Jincun, CHENG Qiangong, LI Xing, YAO Yuan, LUO Hao(1702)
- The comeeTom of classification standard and the tablishment and applicatiow of classificalion modcl modcl forthe hiyhway exparsioon soil ..... XIE Donghai, ZHAO Fujun, LIU Ze(1711)
- Influence of lateral friction degradation on bearing capacity of friction pile ..... ZHANG Lipeng, ZHOU Zhijun, WEI Jin, WANG Duanduan(1719)
- Development of solvent-based cold patch asphalt liquid and study on pavement performance of its mixture ..... ZHANG Zhengqi, XU Cheng, CHENG Gaoli, SONG Liangliang(1728)
- Effects of retaining structure at deep excavation engineering of soft ground ..... LI Zhicheng, WANG Feilong, ZHANG Xuesong, HUANG Linchong(1737)
- The dynamic response of large diameter fill subgrade by large tonnage rollers ..... JIN Shubin, ZHANG Changsheng, LIU Zheng, QIAO Shifan(1743)

### Bridge, Tunnel and Structure

- Influence of pavement on fatigue performance of urban Steel Box Girder Deck ..... ZHENG Zhongyue, TANG Mian, LÜ Shaoquan(1749)

- Analysis of bridge and vehicle coupled vibrations with cable vibration ..... LEI Hujun, LI Wenqiu, LI Xiaozhen(1756)
- Study on the cable dehumidification by clearance assisted of the suspension bridge ..... LIU Xueqing, ZHUANG Lin, SHU Jian(1762)
- Experimental study on shear performance of longitudinal joint in quasi-rectangular shield tunnel ..... LIU Xian, ZHANG Weixi, WANG Dongfang(1767)
- Application of entropy-weight and fuzzy comprehensive evaluation method in the selection of shaft construction schemes ..... WANG Wei, CHEN Jianping, YU Yadong, WANG Fei, CHEN Yanyan(1776)
- Influencing analysis of construction of mining tunnel close crossing underneath the existing rectangular pipe jacking tunnel ..... LIU Wenjun, FU Helin, WEN Shujie, GUO Hongxia(1782)
- Analysis on dynamic response of overlapped tunnel structure under vibration load ..... LIN Zhipeng(1789)
- Numerical simulation of flow around a two-dimensional square cylinder under all wind yaw angles ..... DENG Yanhua, ZHU Zhiwen(1796)

## **Vehicles and Equipment**

- Experimental study on mechanical properties and fracture toughness of the simulated welded joint of big plate girder employed in boiler steel structure ... LIAO Xiaowei, WANG Yuanqing, ZHOU Hui, SHI Yongjiu(1803)
- Reliability assessment of main electric connection of combined co-phase power supply of substation ..... XIE Shaofeng, TAN Lei, CAI Yuchang, ZHANG Xiaofang(1810)
- The analysis on the measured traction energy consumption and braking energy consumption of urban rail transit ..... XU Lingli, LIU Wei, LIAO Jun, CUI Mengyu, LIU Cong, WANG Dong(1818)
- Development of railway station signaling interlocking system fault diagnosis system ..... LIU Bohong, FU Yuming, SONG Shuang(1825)

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

- Study on the operation scheme of freight block trains on existing lines under the condition of transport capability releasing ..... CHEN Chunxiao, CHEN Zhiya, GUO Chuijiang, WEI Liyun(1833)
- Planning on pledge warehouse location selection in supply chain finance based on time satisfaction ..... LUO Yong, CHEN Zhiya(1841)
- Study on influence of seat mode on passenger delay in intercity railway under train delay situation ..... ZHAO Lili, NIE Lei, FU Huiling(1851)
- GM (1, 1) model based on power function  $x^{-a}$  transformation and its application in freight volume forecasting ..... SONG Jianqiang, BAO Xueying, WANG Qicai, DONG Zhaoyang(1859)
- Research on the capacity of expressway which is dedicated for passenger ..... NI Na, QIN Jianping, WANG Lei(1864)
- Precast beams carrying and erecting construction security assessment based on risk analysis-reliability hybrid method ..... XIANG Lvlin, HE Guojing, SHEN Qingqing, YI Jin(1872)

中国科学引文数据库(CSCD)来源期刊  
中国中文核心期刊 中国科技核心期刊

## 铁道科学与工程学报

(TIEDAO KEXUE YU GONGCHENG XUEBAO)

(月刊,2004 年创刊)

第 13 卷第 9 期(总第 78 期)2016 年 9 月出版

## Journal of Railway Science and Engineering

(Monthly, Started in 2004)

Volume 13 Number 9 (Sum 78), September 2016

主管单位 中华人民共和国教育部

主办单位 中南大学

中国铁道学会

主编 陈春阳

副主编 彭立敏 彭超群

编辑部主任 阳丽霞

出版单位 《铁道科学与工程学报》编辑部

印 刷 湘潭市霞城社会福利印刷有限公司(0731-58282267)

国内总发行 长沙市报刊发行局

国内订购处 全国各地邮局

国外总发行 中国国际图书贸易总公司

(100044 北京 399 信箱)

编辑部地址 长沙市韶山南路 22 号

(邮政编码:410075)

电子邮箱 jrse@mail.csu.edu.cn

网络地址 <http://www.jrse.cn>

电 话 (0731)82655133, 82656100

传 真 (0731)82655133

Administrated by Ministry of Education, P.R.China

Sponsored by Central South University

China Railway Society

Chief Editor CHEN Chunyang

Deputy Chief Editors PENG Limin PENG Chaoqun

Editorial Director YANG Lixia

Published by Editorial Office of Journal of  
Railway Science and Engineering

Distributed Abroad by China International

Book Trading Corporation

(P.O.Box 399, Beijing, China)

Address: 22 Shaoshan South Road,  
Changsha, China, 410075

E-mail: jrse@mail.csu.edu.cn

<http://www.jrse.cn>

Tel: +86-731-82655133 or 82656100

Fax: +86-731-82655133

ISSN 1672-7029

CN 43-1423/U

邮发代号 42-59

国外代号 BM4440

定价:240 元/年

ISSN 1672-7029

