

# **14th COTA International Conference of Transportation Professionals**

**(CICTP 2014)**

**Changsha, China  
4 - 7 July 2014**

**Volume 1 of 5**

**Editors:**

**Jianming Ma  
Yafeng Yin**

**Helai Huang  
Difu Pan**

**ISBN: 978-1-63266-958-2**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2014) by the American Society of Civil Engineers  
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact the American Society of Civil Engineers  
at the address below.

American Society of Civil Engineers  
1801 Alexander Bell Drive  
Reston, VA 20191

Phone: (800) 548-2723  
Fax: (703) 295-6333

[www.asce.org](http://www.asce.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of Contents

## Aviation, Marine, and Water Transportation

<b>A Fuzzy Control Algorithm on Aircraft Pushback Time Sequence</b>	<b>1</b>
Yaping Zhang, Yu Wei, Zhiwei Xing, and Shaowu Cheng	
<b>A Fuzzy Decision Tree Model for Airport Terminal Departure Passenger Traffic Forecasting</b>	<b>11</b>
Shaowu Cheng, Qiu Mu, Haibo Zhang, and Yaping Zhang	
<b>A Simple Process Simulation Model for Strategic Planning of Airport Airside</b>	<b>18</b>
Xin Chen and Qiang Gao	
<b>A Terminal Departure Passenger Traffic Prediction Method Based on the RBF Neural Network</b>	<b>31</b>
Shaowu Cheng, Ji Xu, Qiu Mu, and Yaping Zhang	
<b>Characteristics Analysis of Guangzhou Waterbus Passengers Based on IC Card Data</b>	<b>39</b>
Jun Li and Sha Huang	
<b>Early Warning Model of General Airport Safety Based on Matter Element Extension Theory</b>	<b>51</b>
Yue-ya Shi and Hong-ye Liu	
<b>Safety Evaluation of Flight Training Airports Based on the Fuzzy Theory</b>	<b>62</b>
Ying Yan	
<b>Genetic Algorithm-Based Container Yard Management Optimization</b>	<b>68</b>
Xuanzhi Tan, Jiaqi Yang, and Long Yang	
<b>Study on Selection of Maritime Supervision Unmanned Aerial Vehicle and Mission Payloads</b>	<b>79</b>
Xue-ying Gao, Xue-dong Mu, Di Sun, and Sheng-li Liu	
<b>Feasibility Demonstration of Container Ship Route from Mainland China to Taiwan</b>	<b>89</b>
Ting Zeng and Jiaqi Yang	
<b>Impact of the Yangtze River 12.5 Meter-Deep Channel Project on Shipping, Ports, Industry, and Economy</b>	<b>98</b>
Changjian Liu	
<b>Analysis of the Rocket Sled Track Irregularity in Time and Frequency Domains</b>	<b>111</b>
Shi-yu Chen, Yue-lei He, and Zai-wei Li	
<b>United Loading and Unloading Truck Routing Problem in a Container Terminal</b>	<b>119</b>
Jun Mao, Zhan Bian, Xi-wen Xing, and Zhi-hong Jin	
<b>Agent-Based Simulation Analysis on the Effect of an LNG Terminal on a Port Transport System</b>	<b>131</b>
Zhuo Fang, Yue Qi, Jun Hao, Jun Huang, and Min Dong	

## High-Speed Rail Safety

<b>Research of Standard Span Integrated Girder for High Speed Maglev System</b>	<b>145</b>
Feng Ye and Guofeng Zeng	

<b>A Kind of Safe and Reliable Power Supply System Used for High Speed Maglev Trains</b>	<b>153</b>
Zhiming Liao and Huahua Zhao	
<b>Aerodynamic Effects of Ravine Wind to Pantograph of High-Speed Train Arriving and Leaving a Tunnel</b>	<b>162</b>
Ji-qiang Niu and Dan Zhou	
<b>Analysis on High-Speed Train Collision Based on Fault Tree</b>	<b>176</b>
Chunming Han, Xiao Zheng, Shan Chang, and Xujiang Luo	
<b>Design and Optimization for Multistage Energy-Absorption Structures in EMUs under Whole Train Collision</b>	<b>186</b>
You-qi Xie, Ping Xu, Yong Peng, and Rui Li	
<b>Effect of Cutting Slope Angle on Aerodynamic Performance of High-Speed Trains</b>	<b>199</b>
Jie Zhang, Guang-jun Gao, and Tang-hong Liu	
<b>New Technologies Make Maglev Guideway Safer and More Comfortable</b>	<b>211</b>
Yihong Yuan, Zhiwei Zhu, Guofeng Zeng, Feng Ye, and Guoqiang Wang	
<b>Sound Barrier Height Optimization of the High-Speed Maglev</b>	<b>216</b>
Yanan Jiang, Mingzhi Yang, and Lei Zhang	
<b>Designing Highway Traffic Safety Facilities Designing Based on Visual Psychology</b>	<b>225</b>
Changheng Cao and Xiaohong Chen	

## **Intelligent Transportation Systems (ITS)**

<b>A Distributed Short-Term Traffic Forecasting System Based on Non-Parametric Regression Approach</b>	<b>233</b>
Shuai Ling, Gang Wu, Shou-feng Ma, and Ning Jia	
<b>A Google Maps-Based Flex-Route Transit Scheduling System</b>	<b>247</b>
Feng Qiu, Wenquan Li, and Chengchuan An	
<b>A Model of Extracting ITS Ontology from Relational Database</b>	<b>258</b>
Ke Zheng, Dunyao Zhu, Lixin Yan, and Hao Cai	
<b>A Monocular Camera Calibration Method for Extrinsic Parameters under Traffic Environment</b>	<b>268</b>
Xuefeng Yang and Yuchuan Du	
<b>A Note on Route Planning in Transportation with Open Sources</b>	<b>277</b>
Jiangshan Ma and Daisuke Fukuda	
<b>A Study on Dynamic Road Network Composition Based on Variable Message Signs</b>	<b>289</b>
Yaona Li, Jing Liu, and Erhui Chen	
<b>A Tensor Completion Based Traffic State Estimation Model</b>	<b>298</b>
Huachun Tan, Li Song, Yang Cheng, Bin Cheng, and Bin Ran	
<b>Agent-Based Modeling Simulation for Economic Evaluation of Parking Guidance Information System in Rest Areas</b>	<b>310</b>
Qian Li, Kakuya Matsushima, Kouji Yamamoto, Hideki Takahashi, Masahiko Miyake, and Kiyoshi Kobayashi	

<b>An Autonomous Vehicle Control Strategy to Imitate Human Behavior Applied in Path Tracking</b>	<b>322</b>
Yun-xiao Shan, Bi-jun Li, Jian Zhou, Yue Zhang, and Teng Li	
<b>An Experimental Investigation of Contact Influences on the RFID Interrogator</b>	<b>334</b>
Xu Xu and Yi Zhang	
<b>Analyses of Factors Contributing to Crashes on Urban Arterial Roads</b>	<b>340</b>
Liang Jiang and Xinping Yan	
<b>Analysis on Road Capacity for Mixed Manual/Automated Traffic</b>	<b>351</b>
Qi Wang, Zhiheng Li, Danya Yao, Yi Zhang, Li Li, and Jianmin Hu	
<b>BRT Space Speed Guidance Method within a VII Environment</b>	<b>359</b>
Jie Shen, Zhizhou Wu, and Bo Su	
<b>Bus Speed Guidance Strategy within Vehicle Infrastructure Integration Environment</b>	<b>367</b>
Zhizhou Wu, Xiaorui Wu, Yujie Fan, and Quan Su	
<b>Collecting Vehicles' Speeds: A Mobile Terminal Approach</b>	<b>379</b>
Weifeng Wang, Jinzhang Ji, Jian Wan, and Qian Dang	
<b>Delay Estimation Model Based on Low-Sampling Rate Floating Car Data</b>	<b>387</b>
Zhao-cheng He and Wei-jia Ye	
<b>Deriving Travel Behavior Data of Urban Subway Passengers from Mobile Phone Network</b>	<b>396</b>
Yongkai Hu, Binbin Yang, Xiangfeng Ji, Jian Zhang, and Jianqiang Nie	
<b>Design of Highway Tunnel LED Lighting Control System</b>	<b>406</b>
Lun-hui Xu, Yong Zhou, and Yan-guo Huang	
<b>Development and Evaluation of IntelliDrive Enabled Emergency Vehicle Preemption Control Algorithm</b>	<b>413</b>
Jiawen Wang, Wanjing Ma, and Xiaoguang Yang	
<b>Effects of Weibo Information on Travel Choice Behavior</b>	<b>426</b>
Xiaowei Jiang, Yanjie Ji, and Wei Deng	
<b>Empirical Investigations on Passenger Car Unit for Urban Freeways in Shanghai</b>	<b>438</b>
Hao Li, Huizhao Tu, Tao Zhou, and Lijun Sun	
<b>Estimation of Travel Time of Different Vehicle Types on Urban Streets Based on Data Fusion of Multisource Data</b>	<b>452</b>
Lingyu Zheng, Hao Ma, Bing Wu, Zhongyu Wang, and Qing Cai	
<b>Grafted Decision Tree for Freeway Incident Detection</b>	<b>467</b>
Jian Lu, Qingchao Liu, Lei Yuan, and Shuyan Chen	
<b>Missing Data Imputation Considering Multi-Mode Variations</b>	<b>478</b>
Huachun Tan, Qi Yao, Bin Cheng, Wuhong Wang, and Bin Ran	
<b>Modeling Predictive and Coordinated Control for Ramp Metering in Incident Congestion Expressway</b>	<b>490</b>
Yihu Wu, Wei Yu, Dan Yu, Tao Qin, and Yifen Li	
<b>Modeling and Simulation of Cooperative Strategies for Vehicle Platoon Longitudinal Control</b>	<b>498</b>

Zichao Huang, Qing Wu, Jie Ma, and Weiliang Tian	
<b>Next Generation Traffic Information Service in the Era of Mobile Internet</b>	<b>513</b>
Ling Sun and Jian Gao	
<b>Real Time Traffic Speed Variability Modeling and Prediction</b>	<b>528</b>
Guogang Shi and Jianhua Guo	
<b>Real-Time Pedestrian-Vehicle Conflict Detection Algorithm Using Video Data</b>	<b>535</b>
Shuai Liu, Tao Zhu, Yingying Zhang, and Danya Yao	
<b>Research on FC' 2013 Vehicles' Qualification Test Principles and Results Analysis</b>	<b>547</b>
Hong-wei Zhang, Hao Zhang, and Sheng Hao	
<b>Research on Unmanned Vehicle Wireless Remote Emergency Braking Performance Detection System</b>	<b>557</b>
Hong-wei Zhang, Hao Zhang, Leilei Zhu, and Sheng Hao	
<b>Revealing Taxi Driver Route Choice Characteristics Based on GPS Data</b>	<b>565</b>
Zhengyu Duan and Yufeng Wei	
<b>Review of Traffic State Evaluation Index Calculation Method Based on Floating Cars</b>	<b>574</b>
Hui Jin and Linan Zhang	
<b>Self-Organization Framework and Simulation Realization of Transportation Cyber-Physical System</b>	<b>584</b>
Yangzhou Chen, Jiang Luo, Wei Li, Erqing Zhang, and Jianjun Shi	
<b>Sensitivity Analysis of Freeway Capacity at a Complex Weaving Segment</b>	<b>596</b>
Xu Wang, Md. Hadiuzzaman, Tony Z. Qiu, and Xinping Yan	
<b>Study on Original Traffic Data Modification Method and Experimental Verification</b>	<b>609</b>
Bin Sha, Zhenzhou Yuan, and Qiang Gao	
<b>Study on the Construction and Operation Mechanisms of the Urban Intelligent Transportation System in China</b>	<b>618</b>
Fengping Zhan and Jian Zhang	
<b>Study on Traffic Characteristics Based on License Plate Data</b>	<b>627</b>
Tianchang Zhang and Xiaofa Shi	
<b>Analytic Hierarchy Process-Based Optimal Forwarder Selection in Multi-Hop Broadcasting Scheme for Vehicular Safety</b>	<b>640</b>
Lixia Xue, Lun Zhang, and Yuchen Yang	
<b>Determination of Vehicular Trajectories Based on Video Image Processing Technology</b>	<b>649</b>
Shuo Li, Xiu-jiang Zhao, and Guo Zhang	
<b>Passenger Flow Estimation Based on Smart Card Data in Public Transit</b>	<b>658</b>
Chang Yu and Zhao-cheng He	
<b>Research on the Fast Handover Process of Vehicle to Infrastructure System Based on IEEE 802.11p</b>	<b>671</b>
Shuai Chen, Yuchen Yang, and Decun Dong	
<b>Traffic Signal Optimization Control Technology Based on the Characteristics of Small and</b>	<b>680</b>

## Mid-Sized Cities

Zhaomeng Chen, Xuexia Yin, and Xiaoming Liu

**Traffic Pattern Recognition of Intersection Based on Rough Fuzzy Neural Network** 689

Meng-Meng Zhang, Fengrui Sun, and Xintong Han

**Traffic State Generation from Loop Detectors Based on Vehicular Trajectory Data** 703

Han Yang, Jian Zhang, and Jianhao Yang

**Travel Mode Recognition Using RBF Neural Network** 711

Lei Wang and Zhongyi Zuo

## Logistics and Freight Transportation

**A Study of Two-Echelon Capacitated Logistics Centers' Location-Allocation Problem** 722

Xi-qiong Chen, Da-wei Hu, and Xuan Deng

**A TDVRP Model for Financial Convoy Service in China** 733

Qiang Li, Guoyin Zhu, and Lixin Miao

**Analysis of Conducting High-Speed Rail Express Business in China** 746

Fangqing Song

**Character and Association of the Commerce and Trade Circulation Industry: A Case Study of Zhejiang** 757

Xiaohong Gao and Guiyun Liu

**Co-Evolutionary Mechanism of the Freight Transport System in China Based on Order Parameter** 769

Qing-ya Zhang and Fen-ling Feng

**Deterministic Inventory Lot-Size Models with Inflation under Low-Carbon Environment** 782

Yin Huang

**Empirical Analysis of Railway Station Freight Safety Evaluation Based on Fuzzy Analytic Hierarchy Process** 793

Zhaoping Tang, Jin Qin, and Xiang Du

**Hinterland Accessibility of Peripheral Ports in the European Hamburg-Le Havre Range** 805

Lin Feng and Shengyu Hao

**Location-Routing Optimization of Cold Chain Distribution Center Based on Hybrid Genetic Algorithm-Tabu Search** 811

Guohua Zheng, Liangxia Liu, and Lichao Deng

**Model and Genetic Algorithms for Resilient Supply Chain under Supply Disruption** 821

Guohua Zheng, Yu'e Yang, and Likun Zhou

**Modeling Railway Service Network for Container Transportation Using Tracing System** 830

Bayogo Yapegue and Boliang Lin

**Robust Overbooking Strategy of Railway Cargo Transport** 842

Fen-ling Feng and Xiao-feng Guo

**Difference and Validation of Cargo Securing Rules for Road Transport in Major Countries** 853

Chengqiang Zong, Hongwei Zhang, and Zhenguo Yi

**Full Truckload Vehicle Routing Problem with Profits** 864  
Jian Li and Wenhua Lu

**Review of Development Process and Typical Patterns of Highway Freight Hubs in China** 876  
Wei Li, Ke Li, Chao Zhu, and Yadi Wang

## **Pavement and Materials Engineering and Highway Construction and Maintenance**

**A Kinematic Approach for Seismic Stability Analysis of Cantilever Retaining Wall** 888  
Qian Su and Xiaoxi Zhang

**Advances in Strengthening Existing Prestressed Concrete Cable-Stayed Bridges** 896  
Hongjiang Li, Xuebin Jia, and Hanwan Jiang

**Analysis of Rutting Index for Pavement Maintenance Based on Driving Safety on Surface Gathered Water Consideration** 909  
Xin-xin Guo, Bo-wen Zhou, and Chi Zhang

**Analysis of Typical Distress and Cause on Asphalt Pavement for Liaoning Highway** 919  
Qiming Yao and Shuo Liu

**Benefit Evaluation of Concrete Pavement with Welded Steel Fabric** 925  
Jian-wei Liu and Jun-min Shen

**Calibration of the MEPDG Resilient Modulus Prediction Model for Subgrade Soils in Shanxi, China** 931  
Xiao Zhang

**Characterization of Stress-Dependent Resilient Modulus of Subgrade Sandy Soils by Two-Dimensional Discrete Element Method** 938  
Xiao Zhang

**Effects of Asphalt-Aggregate Ratios and Compaction Efforts on Horizontal Aggregate Homogeneity in Asphalt Mixtures** 944  
Yong Peng, Liang-ping Fan, Xiao-jian Xu, and Yan-wei Li

**Evaluation of the Micro-Surfacing Rut-Filling Pavement by Accelerated Pavement Testing with MLS66** 957  
Huai-zhi Zhang and Ze-feng Tian

**Harmfulness Evaluation of Uneven Support of Foundation to Cement Concrete Pavement** 969  
Tao Liu and Xi-lan Zhi

**Joint Load-Transfer Capacity Prediction Model of Rigid Pavement Considering Position Deviation of Dowel Bar** 980  
Yan-cong Zhang, Shao-wen Liu, and Ling-ling Gao

**Laboratory Research on Application of Phosphogypsum As Anti-Cracking Agent in Cement-Treated Base** 990  
Jia Li, Yong Zhang, Lei Mao, Jianmin Zi, and Tao Hu

**Mechanical Characteristics Analysis of Cement Concrete Pavement Based on Design Parameter of Base** 1003



Yan-cong Zhang and Ling-ling Gao	
<b>Multi-Dimensional Indicators Evaluation of Rutting Based on Grey-AHP</b>	<b>1011</b>
Meng-hua Ding, Di Wang, and Bing Hui	
<b>Numerical Mechanical Analysis of Concrete Pavement with Dowels in Transverse Joints</b>	<b>1020</b>
Xue Wang and Tian-tian Li	
<b>Research and Development of Stabilized Rubber Modified Asphalt (SRMA) for Stress Absorbing Membrane Interlayer (SAMI) Binder of Asphalt Pavement in Xinjiang Uygur Autonomous Region</b>	<b>1032</b>
Litao Geng, Xiaoying Wang, Ruibo Ren, and Xinlong Yang	
<b>Rheological Properties of Short-Term Aged Foamed Asphalt Modified with Nano Hydrated Lime</b>	<b>1043</b>
Aboelkasim Diab and Zhanping You	
<b>Site Specific Fatigue Load Spectrum for Urban Bridges</b>	<b>1051</b>
Bin Chen, Zheng Zhong, Xu Xie, Jianwei Wang, and Pengzhen Lu	
<b>Study of Seismic Design for Bridges Crossing Fault-Rupture Zones</b>	<b>1061</b>
Yingxin Hui, Kehai Wang, and Chong Li	
<b>Study on Reconstruction Scheme of Expressway in China and Optimization within AHP-Fuzzy Method</b>	<b>1069</b>
Chun-Yi Yuan and Liang-Qing Shi	
<b>Temperature Correction Factor for Pavement Moduli Backcalculated from Falling Weight Deflectometer Test</b>	<b>1080</b>
Liang Zhou	
<b>Testing and Evaluating Fatigue Performance of High-Modulus Asphalt</b>	<b>1091</b>
Yu Sun and Lihan Li	
<b>Effect of Modifying Technologies on Asphalt Pavement Performance</b>	<b>1101</b>
Xili Yan, Xiaoqing Jin, Wei Li, Feng Xiao, and Yiru Zhang	
<b>Tunnel Monitoring Measurement Data Applications for Function Regression Studies Considering Surrounding Security and Stability</b>	<b>1110</b>
Wen-fei Sui and Lei Xiao	

## Public Transit

<b>Dynamic Public Transport Transfer Algorithm Based on Multi-Source Real-Time Information</b>	<b>1121</b>
Fang Miao	
<b>A Method to Evaluate Equity of Bus Spatial Availability Based on the Demand-Supply-Inconformity Indicator</b>	<b>1132</b>
Yuji Wang, Wei Wang, and Xuewu Chen	
<b>A Signal Control Scheme of Green Wave between Bus Stations within High-Density Road Network Areas</b>	<b>1145</b>
Wenping Li, Mingkang Qu, Hong Tao, and Min Chen	
<b>An Optimal Bus Departure Plan under the Condition of Partially Overlapping Routes</b>	<b>1153</b>

Liuyi Gao, Xiaojian Hu, Wei Wang, and Baojie Wang	
<b>BRT Berth Dwell Time Model on Collinear Condition</b>	<b>1164</b>
Fazhi Li, Dongyuan Yang, Xianlong Chen, and Hui Cao	
<b>Bus Green-Wave Band Design Considering the Factors of Queuing Delays</b>	<b>1176</b>
Zhen Yang, Wei Wang, and Shuyan Chen	
<b>Complex Public Transit Network Topology Analysis of Guilin</b>	<b>1185</b>
Jiaxing Deng, Wenyong Li, Xiqi Zhang, and Tao Wang	
<b>Coordinated Operation Model between Urban Rail and Bus Systems Considering Transportation Efficiency</b>	<b>1194</b>
Hua-sheng Liu, Shu-zhi Zhao, Xiao-liang Zhang, Qing-fei Tian, and Xiao-yu Li	
<b>Dallas-Fort Worth TEX Rail Evaluation Based on the FTA New Starts Evaluation and Rating Process</b>	<b>1204</b>
Hua Yang and Arash Mirzaei	
<b>Design of Information Signs of Multi-Modal Travel at the Decision Points in a Comprehensive Transport Hub</b>	<b>1216</b>
Xiaoqing Dai, Huizhao Tu, Huan Yu, and Jianfeng Liu	
<b>Dynamic Optimization of Bus Average Departure Intervals on Network Based on Passenger Flow Information in Time-Space</b>	<b>1228</b>
Haijian Bai, Ruijuan Dong, and Kun Wang	
<b>Dynamic Response of Different Types of Guideway Structures on Shanghai Low-Speed Maglev Test Line</b>	<b>1239</b>
Guofeng Zeng, Zhiwei Zhu, Yihong Yuan, and Feng Ye	
<b>Effect of Subway Operation Load on Cross Section Deformation of Large- Diameter Shield Tunnel</b>	<b>1248</b>
Huanle Zhu, Xiaohui Zhang, Xinwen Yang, and Shunhua Zhou	
<b>Optimizing Departure Intervals for Bus Dispatching System Based on Comprehensive Objective Model</b>	<b>1259</b>
Xue-Wu Zhu, Xian-Fen Meng, and Meng-Meng Zhang	
<b>Public Bicycle Usage Modes Study in the Suburban Area of Shanghai</b>	<b>1269</b>
Ying Hui, Tianyu Sun, Jie Zhao, and Wei Wang	
<b>Requirements and Further Optimization of Low-Speed Maglev System for Application in Densely Built Urban Areas</b>	<b>1277</b>
Guofeng Zeng, Guoqiang Wang, Feng Ye, Yihong Yuan, and Zhiwei Zhu	
<b>Research on Bus Stop Spacing to Decrease Access and Egress Time of Passengers</b>	<b>1287</b>
Guangzhao Xin, Wei Wang, Wanbo Yang, Yunji Chen, and Jie Yu	
<b>Research on Hub Node Identification of Public Transport Network of Guilin Based on Complex Network Theory</b>	<b>1302</b>
Xiqi Zhang, Wenyong Li, Jiaxing Deng, and Tao Wang	
<b>Research on the Key Parameters of Lifting Equipment in a High-Speed Multi-Story Lifting and Sliding Parking System</b>	<b>1310</b>
Zhendong Liu, Xiaoyan Zhu, Wenhua Zhou, Dongxi Lin, Weiya Chen, and Jianguo Zhong	

<b>Research on the Stability of Public Transit Passenger Travel Behavior Based on Smart Card Data</b>	<b>1318</b>
Cheng-liang Cui, Ya-li Zhao, and Zheng-yu Duan	
<b>Research on Traveler Information Need in the Interior of a Large-Scale Multi-Modal Transport Hub</b>	<b>1327</b>
Lijuan Jiang and Minhua Shao	
<b>Roadway Section Bus Stop Capacity Calculation Method Research</b>	<b>1338</b>
Xinkai Jiang, Xiaoguang Yang, and Xi Du	
<b>Site Suitability Model for Park-and-Ride Bus Lots—An Applied Method for the Iowa City Urbanized Area</b>	<b>1350</b>
Jiangping Zhou and Aaron Nelson	
<b>Study of Distribution of Weekly Metro Ridership of Xi'an Metro</b>	<b>1362</b>
Si-ran Tao, Kuan-min Chen, and Chao-qun Ma	
<b>Study of Transit Network Optimization Based on Microscopic Simulation</b>	<b>1374</b>
Li-Hong Chen, Da-Wei Hu, and Hong-Guo Zhu	
<b>Bus Delay Investigations along the Upstream Bus Bay at Signalized Intersections</b>	<b>1385</b>
Yuanyuan Liu, Hangfei Lin, and Can Wang	
<b>Study on Distribution Pattern of Passengers' Waiting Time in Conventional Transit Stations</b>	<b>1397</b>
Shu-zhi Zhao, Xiao-liang Zhang, Dan-fei Yue, Hua-sheng Liu, and Xiao-yu Li	
<b>Study on Hub Siting of Comprehensive Public Transport Based on Travel Time</b>	<b>1404</b>
Qiong Shi and Qunqi Wu	
<b>Study on Influencing Factors of Public Transport Attractiveness Based on the Binary Logit Model</b>	<b>1412</b>
Feng Zhou, Jiajun Huang, and Ruihua Xu	
<b>Study on Transit Management Mode</b>	<b>1421</b>
Huan Ren, Jing Wang, Linbo Li, and Bing Wu	
<b>Analysis of Characteristics of the Passenger Flow of the Original and Terminal Stations of Urban Rail Transit: Take the No. 1 and No. 2 Subway Lines in Xi'an As Examples</b>	<b>1433</b>
Lijie Yu, Kuanmin Chen, Yang Liu, and Chaoqun Ma	
<b>Characteristic Analysis of Bus Travel Speed on Commuting Corridors Based on GPS Data</b>	<b>1443</b>
Ledian Zhang, Jiancheng Weng, and Zhihong Chen	
<b>Research of the Deviation of Passenger Flow Forecast of Urban Rail Transit—A Case Study of Metro Line 2 in Xi'an</b>	<b>1454</b>
Yang Liu, Kuanmin Chen, Lijie Yu, and Chaoqun Ma	
<b>Transfer Scheduling for Metro-Bus Integration in Mega Cities</b>	<b>1465</b>
Jie Li, Dongtao Fan, and Ling Lei	
<b>Understanding Travel Behavior of Special Populations Using Smart Card Data: A Case Study of Suzhou, China</b>	<b>1479</b>
Haibo Li and Xuewu Chen	

<b>Analysis on Inter-City Bus Sustainable Mode during the Process of New-Type Urbanization Evolution</b>	<b>1491</b>
Jia Cao, Yan Qi, and Yi Zhang	
<b>FEPB Analysis—A New Perspective for Humanization Design of Passenger Transport Hub</b>	<b>1503</b>
Guohui Zhan and Yan Qi	
<b>Model and Algorithm of Optimizing Bus Transit Network Based on Line Segment Combination</b>	<b>1514</b>
Guang-ming Xu, Feng Shi, and Pu Wang	

## **Rail Operations, Management, and Control**

<b>Calculation Model on Maximum Number of Assembling Passengers in Railway Passenger Hub Based on Queuing Theory</b>	<b>1526</b>
Hong-fei Jia and Xiong-jiu Cao	
<b>Collaborative Mechanisms in High Speed Rail Hub Design in China: Opportunities and Challenges</b>	<b>1538</b>
Qian Xiong, Grant Johnson, and Xue Li	
<b>Development of the Intelligent High Speed Maglev Switch Controlling System</b>	<b>1552</b>
Yihong Yuan, Guofeng Zeng, Qing Lv, and Chi Zhang	
<b>Evaluation and Empirical Research on Brand Sustainable Growth Ability (BSGA) of Railway Freight Train Based on AHP and FCE</b>	<b>1558</b>
Zheng-Yu Zhao and Jia-Lin Yao	
<b>Evaluation and Empirical Research on Brand Sustainable Growth Ability (BSGA) of Railway Passenger Train Based on AHP and FCE</b>	<b>1571</b>
Jia-Lin Yao and Wen-Cheng Yang	
<b>Evaluation Strategy for the Service Life of Chinese Metro Signal Equipment</b>	<b>1585</b>
Yijun Chen and Yi Yu	
<b>Experimental Analysis of Wheel and Rail Surface Roughness from Rapid Transit Systems</b>	<b>1592</b>
Fang Jian, Lian-Song Liang, and Lei-Xiao Yan	
<b>Fare Optimization for Changsha Metro Line 2</b>	<b>1602</b>
Lianbo Deng, Kangni Liu, Zhao Zhang, and Tianzhen Lai	
<b>Involvement of Urban Rail Transit Operation in the Planning and Design Stage</b>	<b>1613</b>
Tingting Zhang and Jie Ma	
<b>Method Based on RSSI for Preventing Train Collision</b>	<b>1619</b>
Shanshan Wei, Tuo Shen, Lexiang Wei, Qi Deng, and Biyun Jin	
<b>Model and Algorithm for Wagons' Placing-In and Taking-Out Problem in Railway Station</b>	<b>1628</b>
Chuijiang Guo, Dingyou Lei, and Yinggui Zhang	
<b>Optimization of Jin-Shan Suburban Railway Operation Plan Based on Passenger Characteristics</b>	<b>1641</b>
Yeting Gan and Xingfang Xu	
<b>Urban Rail Train Marshalling Optimization Based on Multiple Operation Modes</b>	<b>1652</b>

Xiao-bing Ding and Xing-fang Xu	
<b>Railway High-End Freight Product Positioning Model Based on Co-Benefits</b>	<b>1661</b>
Fen-ling Feng and Ling-ling Xiong	
<b>Toward a Model and Algorithm of Rail Passenger Flow Assignment Based on Train Timetable</b>	<b>1674</b>
Chen-yu Li, Xiao-min Song, and Jun Xu	
<b>Research on the Optimization of Dependent Tasks Scheduling Algorithm in the Cloud</b>	<b>1683</b>
Yanpei Liu, Chunlin Li, Zhiyong Yang, and Lijun Xu	
<b>Scheme Research on Transfer Table for Shanghai Maglev Line</b>	<b>1691</b>
Zhiwei Zhu, Guofeng Zeng, Yihong Yuan, and Feng Ye	
<b>Shanghai Maglev Demonstration Line's Maintenance Management and the Development and Implementation of a Maintenance Management System</b>	<b>1703</b>
Weiqi Cui, Lijun Rong, and Jianjun Yuan	
<b>Strategies on the Improvement of Sea-Rail Container Liner Train</b>	<b>1713</b>
Xian-meng Liu, Xing-fang Xu, and Ye-Ting Gan	
<b>Application of Maintenance Management Systems in Scheduled Maintenance of Maglev Vehicles</b>	<b>1724</b>
Li-jun Rong, Jian-jun Yuan, and Wei-qi Cui	
<b>Construction and Market Application Analysis of Rail Transit Predictive Maintenance Management System</b>	<b>1733</b>
Jianjun Yuan, Weiqi Cui, and Lijun Rong	
<b>Research of Train Turning-Back Simulation Based on Cellular Automata</b>	<b>1742</b>
Jungang Shi and Jing Yang	
<b>Static Mechanical Strength Characteristics and Concrete Cracks Situation of Precast Floating Slab</b>	<b>1753</b>
Zhengqing Huang, Gaofeng Chen, Songliang Lian, and Xin Chen	

## **Road Traffic Operations, Management, and Control**

<b>Safety-Based Improvement Measures and Simulation for Long and Near-Maximum Slope of Expressways in Flat and Rolling Terrains of China</b>	<b>1759</b>
Lu Wang, Jianchuan Cheng, and Jie Chen	
<b>A Graded-Information Feedback Strategy in Two-Route Systems under ATIS</b>	<b>1775</b>
Jian-qiang Wang and Hui-min Niu	
<b>A Multi-Objective Detector Location Optimization Approach</b>	<b>1788</b>
Yang Liu and Ning Zhu	
<b>A New Timing Design and Evaluation Method of Green Wave</b>	<b>1801</b>
Jie Jiang and Yulin Chang	
<b>A Novel Prediction Method of Traffic Flow: Least Squares Support Vector Machines Based on Spatial Relation</b>	<b>1807</b>
Yijiao Yang and Zhengyu Duan	

<b>A Study on the Highway Network Key Segments Identifying Method Based on Structural Characteristics</b>	<b>1819</b>
Xiaojing Wang, Shuyun Niu, Jian Gao, and Jisheng Zhang	
<b>A Study on Traffic Flow Time-Space Characteristics of an Expressway</b>	<b>1830</b>
Meng Wu and Juan Xiong	
<b>An Algorithm for Maximum Bi-Direction Green Wave Band Based on Boundary Conditions</b>	<b>1840</b>
Jing-xiong Wang, Run-ping Zhai, Dong Liu, Yan Zhao, and Chen Wang	
<b>An Indicator for Determining the Control Timing of Ramp Metering on Urban Freeway Corridors</b>	<b>1849</b>
Zixiang Gao, Huizhao Tu, Yueming Ding, Zhenfei Li, and Lijun Sun	
<b>Analysis of Level of Service of Toll Lane Allocation of the Hong Kong-Zhuhai-Macao Bridge</b>	<b>1863</b>
Liande Zhong, Yongchuan Zhou, and Keman Wu	
<b>Design and Implementation of a Real-Time Optimization System for Traffic Timing Plan</b>	<b>1871</b>
Haifeng Cao, Zhaohui Ye, and Shengchao Yin	
<b>Design of Traffic Organization Program for Expressway Reconstruction Project: A Case Study in Hunan, China</b>	<b>1881</b>
Yong-han Li, Zheng Huang, Bing Xie, Shi-qing Feng, and Jun Li	
<b>Evaluating the Impacts of Travel Information on Urban Traffic Congestion Propagation and Bottleneck Identification</b>	<b>1890</b>
Xiaofei Ye, Shejun Deng, Wanbo Yang, Zhening Bao, and Jun Chen	
<b>Evaluation of Multi-Point Advance Detection Schemes for Dilemma Zone Protection</b>	<b>1902</b>
Zhixia Li, Ken Yang, Heng Wei, Zhuo Yao, Hao Liu, and Haizhong Wang	
<b>Evaluation of Pedestrian Mid-Block Road Crossing Behavior Using an Artificial Neural Network (ANN)</b>	<b>1911</b>
B. Raghuram Kadali, Nivedan Rathi, and Vedagiri Perumal	
<b>Evaluation of Road Traffic Design Based on Multi-Source Real-Time Data Collection</b>	<b>1923</b>
Tao Wang, Linan Zhang, and Xiaoguang Yang	
<b>Exploration of Micro-Reform in Community Traffic Micro-Circulation</b>	<b>1934</b>
Hong Zhu, Ru-hua Zhang, Ma Lin, and Xiang-yu Yuan	
<b>Exploration of the Parking Problems in the Wujiang District</b>	<b>1945</b>
Zhenshan Zu, Zhirong Jin, and Yi Zhao	
<b>Identifying Traffic Features of Braess Links in Road Networks</b>	<b>1953</b>
Jundi Wu and Shunying Zhu	
<b>Managing Regional Congestion in Urban Road Networks: An Approach Based on Fuzzy Control Theory</b>	<b>1966</b>
Zhongyu Wang, Linbo Li, and Bing Wu	
<b>Mode Analysis of Expressway Expansion and Reconstruction</b>	<b>1981</b>
Kuanwu Xi	

<b>Modeling Driver's Tradeoff between Time Benefit and Traffic Conflict Risk in Gap Acceptance at Signalized Intersections in China</b>	<b>1990</b>
Deshi Di, Keshuang Tang, and Keping Li	
<b>Modelling Followup Time at a Single-Lane Roundabout</b>	<b>2002</b>
Xiaobo Qu, Shuaian Wang, and Zhiyuan Liu	
<b>Optimization of Lane Use and Signal Timings for Isolated Signalized Intersections with Variable Lanes</b>	<b>2012</b>
Jing Ding, Hongmei Zhou, and Ronghan Yao	
<b>Optimization of Urban Deformity Intersections</b>	<b>2025</b>
Tianyu Xu, Zhonghua Wei, Wei Zhang, Yan Xiong, and Xia Zhao	
<b>Reliability Simulation and Sensitivity Analysis of Prestressed Concrete Bridge</b>	<b>2036</b>
Xia Xiao, Zhijian Hu, and Jinhua Tan	
<b>Research on an Intelligent Control Strategy of Signalized Intersections for Capacity Enhancing</b>	<b>2042</b>
Xu Li, Ru-hua Zhang, and Hong Zhu	
<b>Research on the Effectiveness of Guidance Information Release Based on the Analysis of Traffic Flow Self-Organization Characteristics</b>	<b>2050</b>
Xia Chen, Liang-jie Xu, and Qing-yuan Liu	
<b>Research on Timing Optimization for Signalized Intersections under Ice and Snowfall Conditions Based on Queue Matrix</b>	<b>2060</b>
Chunxiao Liu, Yaping Zhang, Hong Zhang, and Guozhu Cheng	
<b>Research on Urban Road Network Traffic Simulation Model</b>	<b>2072</b>
Guilin Li, Lin Feng, and Jia Liu	
<b>Stability Analysis for Traffic Flow Based on Molecular Dynamics</b>	<b>2077</b>
Da-yi Qu, Tao Guo, Xiu-feng Chen, and Wen-Jiao Chen	
<b>State Estimation of Unidirectional Pedestrian Flow Based on Particle Filter</b>	<b>2088</b>
Hongfei Jia, Yonghang Li, Lili Yang, and Zhilu Yuan	
<b>Structural Characteristics Comparison between the Provincial Expressway Network and the Trunk Highway Network in China</b>	<b>2096</b>
Xiaojing Wang, Shuyun Niu, Jianping Liu, and Jian Gao	
<b>Study of Pedestrian Crossing Behavior on the Effect of a Right Turn Vehicle in Different Intersection Channelization Mode</b>	<b>2107</b>
Yu Bai and Ming Zhang	
<b>Minimum Inside Shoulder Width of Multi-Lane Freeway Considering the Need for Vehicle Parking</b>	<b>2118</b>
Liande Zhong, Xin Li, Ronggui Zhou, and Tongyan Qi	
<b>Traffic Flow Conditions Associated with Truck-Involved Crashes on the Freeway</b>	<b>2131</b>
Chaofan Bi, Yajie Zou, and Yin Hai Wang	
<b>Traffic Signal Optimization and Simulation Using Fuzzy Dynamic Programming</b>	<b>2140</b>
Fang Clara Fang	

<b>Traffic-Flow Wave Simulation Analysis on Urban Road Incident Congestion</b>	<b>2152</b>
Yihu Wu, Dan Yu, Wei Yu, and Di Li	
<b>Travel Time Estimation of a Single Segment Based on Freeway Toll Data</b>	<b>2161</b>
Xiang Wang and Xiaohong Chen	
<b>Unconventional Impacting Factors of Gap Acceptance at Stop Sign Controlled Intersections</b>	<b>2175</b>
Dabin Liao, Wanjing Ma, and Yu Bai	
<b>Research on the Impact of Flashing Green Lights on E-Bike Drivers' Behavior</b>	<b>2185</b>
Sheng Dong, Feijun Shen, Lihua Jiang, and Kaifeng Ye	

## **Traffic Safety and Human Factors**

<b>A Study of Chinese Professional Drivers' Electroencephalogram Characteristics under Angry Driving Based on Field Experiments</b>	<b>2192</b>
Ping Wan, Chaozhong Wu, and Xiaofeng Ma	
<b>A Comparative Study to Evaluate Short-Term Work Zone Safety Control Measures' Effectiveness Based on Simplified Traffic Conflict Model</b>	<b>2209</b>
Jiao Yan, Qiang-qiang Feng, Chi Zhang, and Jia Yan	
<b>New Methodology for Train Component Crash Dynamic Response by High-Speed Photography 3D Analysis Method</b>	<b>2218</b>
Li-chen Zhao, Yong Peng, Yi-ben Zhang, and Song Yao	
<b>Research on the Correlation between a Driver's Dynamic Visual Field and Driving Speed</b>	<b>2231</b>
Tian-tian Li and Xue Wang	
<b>A Safety Assessment Method Based on Risk Analysis of Urban Rail Transit Signaling System in Operation</b>	<b>2242</b>
Yi Yu, Qing Luo, Qidong Wu, and Yawei Li	
<b>A Simple Method for Evaluating the Impact Velocity in Vehicle-Pedestrian Accidents</b>	<b>2251</b>
Tie-fang Zou, Yuan-xin Chen, and Li-xuan Zhao	
<b>A Speed Study of Mountainous Freeway Combined Alignment</b>	<b>2257</b>
Xiaomeng Wang, Rongjie Yu, and Xuesong Wang	
<b>Adaptive Cruise Control Strategy with High User Acceptance Based on Psychophysical Model</b>	<b>2266</b>
Wei Zhang, Jian Zhang, Wei Wang, Haiyan Gu, and Yongkai Hu	
<b>Addressing the Modifiable Areal Unit Problem in Traffic Safety: Definition, Potential Solutions, and Future Research</b>	<b>2279</b>
Peng-peng Xu, He-lai Huang, Yi-min Cheng, and Ming Ma	
<b>Analysis of Pedestrian Safety at Signalized Intersections Based on Pedestrian Crossing Behavior</b>	<b>2291</b>
Tong-qiang Ding, Wei Li, Jian-feng Xi, Li-li Zheng, and Sheng-li Wang	
<b>An Improved Algorithm of Numerical Simulations of Rear-End Collisions</b>	<b>2304</b>
Jing Zhao, Hong-Yu He, Hao-Jun Yang, and Jin-Liang Pang	
<b>Analysis and Prediction on Combination Patterns of Human Factors for Maritime</b>	<b>2313</b>



## Accidents

- Li-li Zhang, Jing Lu, and Yun-fei Ai
- Analysis of Truck Safety Standards Based on Chinese In-Depth Accident Study** 2323  
Qiang Chen, Miao Lin, Lei Yan, and Yan Mao
- Analysis on Recognition Sight for Main Line Restricted Exit of Expressway** 2337  
Qiangru Shen, Yifei Zhao, Hui Cao, and Haifang Li
- Assessing Road Safety Performance by Data Envelopment Analysis—The Case of Brazil** 2344  
Jorge Tiago Bastos, Yongjun Shen, Elke Hermans, Tom Brijs, Geert Wets, and Antonio Clóvis Ferraz
- Assessing the Overall Driving Performance of Older Drivers** 2357  
Seddigheh Babaei, Yongjun Shen, Elke Hermans, Tom Brijs, Geert Wets, and Ariane Cuenen
- Critical Walking Space Requirement for Collision Avoidance of Pedestrians: An Experimental Study** 2369  
Xiaonian Shan, Jianhong Ye, and Xiaohong Chen
- Developing a Cluster-Based Algorithm for Collision Hotspot Identification** 2381  
Chaofan Bi, Xiaolei Ma, Yingying Zhang, and Yinhai Wang
- Developing an Optimized Artificial Neural Network to Predict Traffic Crash Injury Severity** 2396  
Qiang Zeng, He-lai Huang, Peng-peng Xu, and Ming Ma
- Driving Behavior in the Case of Haze: A High Fidelity Driving Simulator Study** 2408  
Huizhao Tu, Zhenfei Li, Yifan Sun, and Xiaoqing Dai
- Traffic Crash Modeling and Driver Behavior Analysis on Mountainous Highways in China** 2422  
Ying Chen
- Evaluating the Safety Performance of Freeway Traffic Safety Facilities** 2433  
Qiyu Liang, Qian Wan, Baoli Zheng, Tao Yang, and Yanyong Guo
- Experiences and Insights of Transportation Safety Planning in the United States** 2441  
Jian Peng and Xue-song Wang
- Exploring Contributing Factors to Driver Injury Levels during Nighttime at Local Collectors** 2455  
Hongyun Chen
- Eye Indicators and Driving Fatigue Research Based on Driving Simulator** 2463  
Feihu Li and Xuesong Wang
- Factor Analysis for Characterizing Angry Driving Behaviors of Chinese Drivers** 2472  
Hu Lei, Xinping Yan, Chaozhong Wu, Ming Zhong, and Yuqian Qi
- Impact Evaluation of Vehicle Bumping at Bridge-Head on Traffic Safety** 2488  
Si-tao Hu and Yan-ru Zhu
- Impact of Chevron Alignment Sign on Driver Stress on Horizontal Curves: A Simulator Study** 2494  
Xiaohua Zhao, Jinghao Chi, Yiping Wu, Jian Rong, and Jianming Ma
- Introducing Behavior to Road Safety Predictions: Case Study of a Problematic Road** 2506

## Stretch

Yue Wang and Ke Tao

### **Investigation on Traffic Organizational Model of Old Districts in Jinan: Seven Mile Hill East Community Example** 2518

Yun-xia Xie and Ru-hua Zhang

### **Pedestrian Evacuation Simulation Software** 2525

Chixin Wang

### **Ranking and Causal Relationship Analysis of Incentive Factors of Driving Anger: A Case Study from an On-Road Experiment in China** 2534

Lixin Yan, Dunyao Zhu, Chaozhong Wu, Ming Zhong, and Ke Zheng

### **Research of Driver Automatic Alarm Decision-Making Optimization Models with Precision Clock Scanning** 2548

Feng-yuan Jia, Zhi-chao Guan, Lian Huang, Hai-xiang Zou, and Chun-yan Li

### **Research on Movement of Vehicle Impacting Safety Barrier** 2558

Qiming Yao

### **Research on Traffic Guidance System in Underground Parking Lots Based on Visual Driving Adaptability** 2564

Meng Xu, Xiaorong Chen, Xiaodong Pan, and Feng Chen

### **Risk Status Identification of Bus Driving Behavior Based on Clustering Analysis** 2576

Zhizhou Wu, Tianzi Chen, and Quan Su

### **Safety Evaluation Index System of Harbor-Shaped Bus Station Based on Experimental Data** 2586

Xiaofeng Ma, Wei Zhang, and Chaozhong Wu

### **Safety Evaluation of Highway Alignment Based on Driving Simulator** 2595

Qiming Yao, Shuo Liu, and Shouen Fang

### **Severity Analysis of Motor Vehicle-Bicycle Crashes** 2605

Ming Ma, Yanjun Ma, Limei Liu, and Liangqing Shi

### **Study of Road Capacity Considering the Influence of Driving Psychology** 2614

Yan-ming Ren, Tie-zhu Li, Xu-dong Chen, and Qian Yu

### **Study on Influence Factors and Strategies of Pedestrians Running Red Lights** 2631

Xu-xin Zhang, Zhong-xiang Feng, Ying-jie Du, and Jian Long

### **Study on Pedestrian Crossing Behavior at Signalized Intersections** 2641

Marisamynathan and Vedagiri Perumal

### **Quantitative Evaluation of the Position of an Interchange Advance Guide Sign Based on Traffic Simulation Technology** 2653

Yucai Song, Huixue Liu, and Shufang Ge

### **Subway Station Operational Safety Analysis Method Based on Spatial and Temporal Resource Analysis** 2660

Xiao-min Song and Chen-yu Li

### **Difference and Similarity Comparisons of Traffic Accident Characteristics in China and** 2666

## Europe

Zhong-xiang Feng, Shi-sheng Lu, and Wei-hua Zhang

**Differences of Influence Factors for Pedestrian Running a Red Light** 2677

Zhe Hu, Zhong-xiang Feng, Fei-yu Meng, and Qu Huang

**Long Tail Theory in Road Safety Reconstruction** 2688

Wei-yang Wu

**Research of Road Safety Evaluation Based on Driving Simulator** 2697

Jian Liao, Junhua Wang, Shuo Liu, and Yang Liu

**Influence of Weather and Climate on Electric Bicyclists' Crossing Behaviors at Signalized Intersections** 2708

Tao Wang, Jun Chen, and Xiaojun Shen

## Transportation Energy, Environment, and Sustainability

**An Optimization Model on Fleet Size and Mixed Vehicle Routing Problem Considering CO<sub>2</sub> Emissions Cost and Its Algorithm** 2715

Dezhi Zhang, Xi Lu, Shuanyan Li, and Fangpin Jin

**Analysis and Research of the Social Cost of Traffic Congestion in Beijing** 2726

Li-zeng Mao, Xiao-liang Zhang, and Li-ren Duan

**Analysis of Instantaneous Vehicle Emissions Models Based on Speed and Acceleration** 2736

Qian Rao, Lun Zhang, Wenchen Yang, and Bisheng Fang

**Chemical Compositions of PM<sub>2.5</sub> near a Major Ring Road in Beijing before, during, and after the 2008 Summer Olympic Games** 2748

Liu Yang and Ye Wu

**Controversies and Policy Considerations Regarding the Promotion of New Energy Vehicles in China** 2757

Jianhong Ye and Xiaohong Chen

**Development and Application of Link-Level Vehicle Emissions Inventory for a Metropolitan Area** 2769

Madhusudhan Venugopal and Hua Yang

**Environmental Impact of Electromagnetic Emissions of High-Speed Maglev Transportation System** 2782

Wan-ming Liu, Pei-liang Yan, and Yu-chao Wang

**Estimation of Air Pollutant Emissions from Vehicles in the Beijing-Harbin Highway** 2788

Jicheng He and Ping Zhong

**Fog Visibility Based on Neural Network Algorithm Research** 2798

Yi-De He, Hong-Yu He, Yuan-Yuan Guo, and Jia-Teng Shen

**Green Transportation Policy and Practice in China: Progress and Perspective** 2809

Jianhong Ye

**Impacts of China's National Highway Network Plan on Ecologically Sensitive Areas** 2821

Ping Zhong

<b>Influence Analysis of Structure Parameters on the Road Adaptability of Double Semi-Trailer Road Trains</b>	<b>2830</b>
Gang Zhou, Hongwei Zhang, Mingqi Liu, and Qingfeng Lin	
<b>Intersection Signal Control Multi-Objective Optimization Based on Genetic Algorithm</b>	<b>2837</b>
Zhan-hong Zhou and Ming Cai	
<b>Modeling the Reductions in Carbon Emissions Resulting from Public Bicycles</b>	<b>2846</b>
Shinan Shu, Jiachuan Wang, Yang Bian, Chun'an Chen, and Jian Rong	
<b>Onsite Electromagnetic Field Measurement of the Power Supply and Propulsion System in High Speed Maglev Transportation and the Evaluation of Its Effects on Human Health</b>	<b>2857</b>
Hua Fang, Yu Jin, and Kaixian Chen	
<b>Performance Evaluation of Arrival Time Prediction Models</b>	<b>2867</b>
Bin Li and Mei Liu	
<b>Research on Braking Energy of High-Speed Maglev Transportation System</b>	<b>2874</b>
Yu Jin, Hua Fang, and Ying Lin	
<b>Research on Multiple-Mode Freight Transport Flow Assignment Optimization with Consideration of Carbon Emissions Cost</b>	<b>2883</b>
Shuang-yan Li, De-zhi Zhang, Xiao-hong Liu, and Xi Lu	
<b>Review on Energy Conservation of Highway Engineering in China</b>	<b>2894</b>
Jian Gao, Chunlei Meng, and Ling Sun	
<b>Sensitivity Analysis for MOVES Running Emissions: A Latin Hypercube Sampling-Based Approach</b>	<b>2907</b>
Zhuo Yao, Heng Wei, Harikishan Perugu, and Hao Liu	
<b>Simulation of the Effect of Transport Policy on Energy Consumption Based on a Microeconomic Model</b>	<b>2919</b>
Linna Luo, Zhuoyu Wang, and Yanhong Yin	
<b>Study on Intersection Energy Consumption and Emissions under Various Bus Station Locations</b>	<b>2930</b>
Lei Bao, Ye Li, Yu'ao Wei, and Wenxiang Li	
<b>Study on the Energy Consumption and Emission Characteristics of Urban Two-Lane System</b>	<b>2940</b>
Sheng-ping Wang and Rui-juan Dong	
<b>Study on Vehicle Cumulative Energy Consumption at Signalized Intersections</b>	<b>2950</b>
Wen-juan Huang, Rong-guo Ma, Heng Ding, and Hai-jian Bai	
<b>Bio-Fuels Sustainable Development Quantitative Evaluation Based on DPSIR Model with Jiangxi Province As an Example</b>	<b>2961</b>
Jianping Sun, Zhaoping Tang, and Yiping Luo	
<b>Improved Socio-Economic Impact Comprehensive Evaluation Method of Tourism Highway</b>	<b>2971</b>
Juan Han, Xiaowei Hu, and Yang Cao	
<b>Inclusive Design in Urban Rail Transit Information Service: Framework, Design, and Evaluation</b>	<b>2983</b>

Lun Zhang, Meng Zhang, Wenchen Yang, and Qian Rao

**Method for Determining Vehicle's Fuel Consumption and Exhaust Emissions under Different Traffic Conditions** 2995

Jianzhen Zhao, Meiping Yun, Zhenhuan Chen, and Hankang Mo

**Urban Commuter Traffic Carbon Emissions Model Based on Life Cycle** 3007

Jun Zeng, Zhenjun Zhu, and Jiaqi Meng

**Validating MOVES PM<sub>2.5</sub> Emissions Factor Empirically by Considering Accumulative Emissions Effect** 3017

Hao Liu, Heng Wei, and Zhuo Yao

## Transportation Planning and Modeling

**A Binary Logit Model for Commute Mode Choice: A Case Study of Hefei** 3029

Kang Jiang, Nannan Zhang, and Zhongxiang Feng

**A Hybrid Automata Model for Signalized Intersections Based on Traffic Shockwave Theory and Improved CTM** 3041

Yangzhou Chen, Wei Li, Jiang Luo, Erqing Zhang, and Jianjun Shi

**A Utility-Based Method for Urban Transportation System Multi-Modal Level of Service Evaluation** 3052

Zhong Wang, Meng Zhang, and Huiyuan Liu

**An Analysis of Time Choice Behavior of Drivers: Data and Model** 3066

Liang Pu and Hong-zhi Guan

**Analysis on Choice Behavior of Walking Travel Groups Based on a Preference Survey** 3078

Huanmei Qin, Hongzhi Guan, Xianglong Ao, Yunqiang Xue, Liu Tong, and Liyuan Gong

**Application of Entropy Theory for Analysis of Mode Choice Decisions** 3088

Qian Wan, Wenyong Li, Qiyu Liang, Hao Wang, and Zhibin Li

**Application of the Abstract Mode Model in Passenger Flow Forecast** 3095

Yi-fei Geng and Xiao-yan Xiao

**Comparison of the Latest Comprehensive Transportation Plans' Goals of International Metropolitan Areas** 3105

Jian Peng and Xue-song Wang

**Empirical Evidence on Taxis' Route Choice Set Using GPS Data** 3117

Jianjun Dai and Xiaohong Chen

**Evaluation of Travel Time at Conventional Bus Stops** 3127

Guangzhao Xin, Wei Wang, Xuewu Chen, Yanjie Ji, and Jinlin Chen

**Idea and Strategy Research of Scenic Transport Plan: A Case Study of Sanqing Mountain Scenic** 3139

Qingfeng Kong, Yingjun Xu, and Bo Han

**Import Volume of Expressway's Merge Area Based on Double GamPDF** 3143

Zhe Cui, Xi Xie, and Jia-qi Meng

<b>Integration and Optimization of Quay Cranes and Trucks at Container Terminals</b>	<b>3151</b>
Qing-yu Zhao, Jin-xin Cao, and Li-hua Chen	
<b>Layout Planning Research on Comprehensive Transportation Hub of Rizhao City</b>	<b>3158</b>
Chang-Di Chen, Ru-Hua Zhang, and Jin-Ping Wang	
<b>Location Model of Long-Distance Passenger Transport Shuttle Nodes</b>	<b>3167</b>
Xuan Deng, Dawei Hu, and Xiqiong Chen	
<b>Location-Based Route Choice Model under Random Regret Minimization</b>	<b>3177</b>
Xiangfeng Ji, Jian Zhang, Yongkai Hu, and Bin Ran	
<b>Modeling and Analysis Method of Network Nodes for Pedestrian Facility Layout Scheme Selection in Urban Rail Transit Station</b>	<b>3185</b>
Changgong Guo and Baonan Gu	
<b>Modeling and Simulation for Pedestrian Crossing Based on Modified Social Force Model</b>	<b>3194</b>
Gang Ren, Hui-ying Li, Li-li Lu, and Teng Zhang	
<b>Optimizing Average Spacing of Arterial Road Networks for New Towns in Large Cities</b>	<b>3206</b>
Fengjun Yin, Mao Ye, Xiucheng Guo, and Miao Yu	
<b>Passenger Flow Forecast in Tourism Traffic Based on Expanded Four-Stage Method</b>	<b>3217</b>
Lixin Zhu, Yu Yuan, and Wei Yuan	
<b>Problems and Suggestions of Walking in Resident Trip Survey</b>	<b>3225</b>
Kai Wang, Xiucheng Guo, and Ning Zhang	
<b>Questionnaire Survey and Analysis Based on Old Community Transformation of Jinan</b>	<b>3238</b>
Lin Ma, Ru-hua Zhang, and Xu Li	
<b>Research and Development of Simulation System for Layout of High-Speed Maglev Transportation System</b>	<b>3248</b>
Guoqiang Wang, Feng Ye, Ying Lin, and Jingyu Hung	
<b>Research on Airline Network Design under Hub Airport Capacity Uncertainty</b>	<b>3254</b>
Weiwei Wu and Songlin Zheng	
<b>Research on Restrained Study Areas for Effective Activity-Based Travel Demand Forecasting</b>	<b>3267</b>
Qiong Bao, Yongjun Shen, Bruno Kochan, Tom Bellemans, Davy Janssens, and Geert Wets	
<b>Six Kinds of Bidding Risk Prediction Models Based on Multiple Attribute Decision Making Theories and Their Application</b>	<b>3280</b>
Fangwei Zhang, Wei Wang, and Shihe Xu	
<b>Standard Deviation of Travel Time in a Freeway Network—A Mathematical Quantifying Tool for Reliability Analysis</b>	<b>3292</b>
Ning Wu and Justin Geistefeldt	
<b>Statistical Validation of Proportionality Condition in Traffic Assignment</b>	<b>3304</b>
Yucong Hu and Jian Ouyang	
<b>Study on Commuting Trips and Job Accessibility for Commuters with Different Residential Locations—A Case Study of Shanghai</b>	<b>3316</b>
Chen Zhu and Dongyuan Yang	

<b>Study on Travel Characteristics of Public Bicycles in Beijing</b>	<b>3331</b>
Yang Bian, Dongdong Wu, Shinan Shu, Jian Rong, and Yan Tang	
<b>Synthetic Matrix Representation Method Research on Urban Road Networks</b>	<b>3344</b>
Yongjie Zhang, Wenyong Li, Yuanyuan Qin, and Yunfeng Zhang	
<b>Division Method of Urban Non-Motorized Traffic Analysis Zone</b>	<b>3354</b>
Ye Li and Buyuan Zhang	
<b>Research on the Mode Split of Freight about the Mountain Resources City—An Example of Qinshui City</b>	<b>3362</b>
Peiyu Feng and Wenquan Li	
<b>Study of New Toll Station Based on VISSM</b>	<b>3372</b>
Xin-ya Niu and Ru-hua Zhang	
<b>Study on Spatial Factors of Urban Trips and Land Use</b>	<b>3380</b>
Yunfei Lv	
<b>Tradable Credit Schemes in Managing Network Mobility: Brief Review and New Developments</b>	<b>3388</b>
Zhaoming Chu, Lin Cheng, Hui Chen, and Senlai Zhu	
<b>Understanding Trip Misreporting in Household Travel Surveys by Comparing GPS-Assisted and Diary-Based Samples</b>	<b>3401</b>
Xia Jin, Hamidreza Asgari, and Md. Sakoat Hossan	
<b>Research on the Scheduling of Trunk Highway Based on Spatial Interaction Model and Network Topology Structure</b>	<b>3413</b>
Yi Liu, Liang-qing Shi, and Shu Cui	

## **Transportation Policy, Economics, and Education**

<b>A Triple-Level Effectiveness Evaluation Procedure for Multi-Modal Public Transit Networks</b>	<b>3425</b>
Guangzhao Xin, Wei Wang, Yanjie Ji, De Zhao, and Linna Zhao	
<b>An Integrated Model of Parking Pricing and Cruising for Parking</b>	<b>3441</b>
Jingnan Zhou	
<b>Characteristics of the Electric Bicycle: A Comparative Analysis of Bicycles and Public Transit</b>	<b>3450</b>
Yitong Ye, Feifei Xin, and Longyu Wei	
<b>Congestion Pricing with Distance Tolls: A Review and New Developments</b>	<b>3459</b>
Zhiyuan Liu, Shuaian Wang, Xiaobo Qu, and Nirajan Shiwakoti	
<b>Evaluation of Transport Enterprises' Brand Value Using Fuzzy-AHP Model</b>	<b>3470</b>
Yanru Zhu, Sitao Hu, and Shutang Cui	
<b>Index Design and Connotation Analysis of Transportation Project Social Assessment</b>	<b>3476</b>
Kuanwu Xi	
<b>Quantitative Research of Evaluation Index System for TOD and Application in the Tianjin Eco-City</b>	<b>3485</b>

Mingqiao Zou, Xi Lin, Cheng Wan, and Meng Li	
<b>Research on Effect Evaluation Index System of Traffic Safety Education</b>	<b>3501</b>
Wenjun Du, Xiaodong Pan, and Feng Chen	
<b>Research on Railway High Value-Added Freight Market in China Based on System Dynamics</b>	<b>3513</b>
Ling-ling Xiong and Fen-ling Feng	
<b>Research on Road Passenger Transportation Intensive Development</b>	<b>3526</b>
Qiong Shi, Luyang Gong, Qingfeng Kong, and Boli Cheng	
<b>Review on the Theory and Planning Principle of Transit-Oriented Development</b>	<b>3532</b>
Mingqiao Zou, Xi Lin, Chao Mao, Ke Zhang, and Meng Li	
<b>Segmenting Business Travellers in the Yangtze River Delta Urban Agglomeration Based on Individual Attitudes</b>	<b>3548</b>
Zhi Dong, Xiaohui Zhao, Bing Wu, and Linbo Li	
<b>Some Understanding and Thinking on the Promotion of Basic Public Transport Services</b>	<b>3557</b>
Qingfeng Kong and Xiaonian Sun	
<b>Study on the Acceptability of Congestion Pricing in Shanghai</b>	<b>3561</b>
Kexin Chen, Zhongyu Wang, and Bing Wu	
<b>Study on the Development of Levels of American Transport Service in Bridges</b>	<b>3573</b>
Yi-Shun Tian and Liang Cheng	
<b>Technical Economic Analysis of Urban Transportation Systems</b>	<b>3580</b>
Lin Mao and Yu-ming Wang	
<b>Enlightenment of International Industrial Transfer and the Traffic Congestion Problem Being Improved in Developed Countries to China</b>	<b>3588</b>
Weikang Fan and Baorui Han	
<b>Opportunities and Challenges for the Application of New Transportation Technology</b>	<b>3600</b>
Yu-chao Wang and Wan-ming Liu	
<b>Quantitative Analysis of Transportation's Impact on National Economy Based on Input-Output Method</b>	<b>3607</b>
Yujiao Cao and Huiyuan Jiang	
<b>Study of Traffic Information Publicity for the 2nd Asian Youth Games</b>	<b>3617</b>
Wenjun Zhang, Xiaojian Hu, Hongtong Qiu, and Jian Lu	
<b>Study on Key Factors Influencing Public Transport Share Rate Based on a Disaggregate Model—Jinan As an Example</b>	<b>3628</b>
Yunqiang Xue, Hongzhi Guan, Huanmei Qin, Tong Liu, and Liyuan Gong	
<b>Theory to Identify the Influencing Factors of Staffing in Road Transportation Authorities</b>	<b>3641</b>
Wenqiang Xu and Qunqi Wu	
<b>Inter-City Urban Traveler Behavior Characteristics and Travel Demand Analyses: A Case Study of the Yangtze River Delta Urban Agglomeration</b>	<b>3654</b>
Fengjiao Zou, Zhi Dong, and Bing Wu	
<b>Overview and Development of Key Transport Policies of Beijing</b>	<b>3666</b>



## Transportation Security and Emergency Responses

<b>A Hybrid Meso-Microscopic Model for Catastrophic Event Management</b>	<b>3678</b>
Evangelos I. Kaisar, William Degnan, James Coolahan, and Roy P. Koomullil	
<b>A Multiple-Source Nearest-Destination Shortest Path Problem in Evacuation Assignments</b>	<b>3691</b>
Wei Lu, Lee D. Han, Cheng Liu, and Kejun Long	
<b>Analysis of the Delays in Urban Rail Transit Operations and Risk Prediction</b>	<b>3703</b>
Yuanchun Huang, Jian Li, and Zhigang Liu	
<b>Analysis of Uncertainty Associated with Response Time in Work Zone Traffic Accidents</b>	<b>3710</b>
Shan Xue and Jinxian Weng	
<b>Considering Temporal Correlation in Crash Data Analysis</b>	<b>3723</b>
Qian Wan, Qiyu Liang, Baoli Zheng, Hao Wang, and Zhibin Li	
<b>Developing a Conceptual Framework to Evaluate the Effectiveness of an Emergency Response System for an Oil Spill</b>	<b>3731</b>
Haiyan Wang, Jun Ren, Jin Wang, and Jiaqi Yang	
<b>Dynamic Speed Control to Improve Freeway Safety in Bad Weather</b>	<b>3743</b>
Qian Wan, Wenyong Li, Qiyu Liang, Hao Wang, and Zhibin Li	
<b>Implementing and Interpreting a Data Envelopment Analysis Model to Assess Safety and Security of Intermodal Facilities</b>	<b>3752</b>
Evangelos I. Kaisar, Elisabeth Gunderson, and Ramesh Teegavarapu	
<b>Organization of a Shuttle Bus under the Condition of Operation Interruption to Urban Rail Transit</b>	<b>3764</b>
Wangrui Liu, Jing Teng, Shuyang Zhang, and Yuyi Chen	
<b>Research on Tractor-Semitrailer Roll Stability Analysis in Cornering</b>	<b>3777</b>
Hao Zhang, Hong-wei Zhang, and Xian-dong Liu	
<b>Study on Fire Characteristics of Subway Train Running with Fire</b>	<b>3785</b>
Dan Zhou, Xin Yan, and Jin-li Zheng	
<b>Traffic Organization and Simulation Evaluation outside an Urban Rail Transit Station in Emergent Events</b>	<b>3797</b>
Chuanyong He and Jing Teng	