Transportation Planning

Contents

轨道初步成网后公交线网衔接规划——以昆明市为例

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摘 要：昆明轨道三号线开通运营，昆明轨道交通网络十字骨架基本形成，由单一走廊阶段过渡为初步网络阶段，其进入运营必然对已有公交客流具有分流作用，对现有公交线路带来冲击，对常规公交的流量、流向等必然造成影响，原来运行合理的公交网络需要根据实际进行调整优化。通过对轨道影响区域的常规公交进行运力和线路走向、长度等的调整，以保证整个公交网络的高效性与协调性，通过公交与轨道交通整合，形成城市公交的多元结构，优化调整全市交通方式结构，构筑以常规公交、轨道交通为载体的快捷、高效、方便的城市公共交通体系。

关键词：轨道交通；常规公交；初步成网；公交衔接

Bus Route Network Connection Planning After Rail Transit Preliminary as a Network: Take Kunming as an Example

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Abstract：

Kunming rail line 3 will opening and operation, the basic cross skeleton of kunming rail transit network will forming, rail transit from a single corridor phase to a preliminary network phase, its entry into operation must have a diversion effect on existing bus passenger flow, impact on existing bus lines, inevitably affect the flow and flow direction of conventional buses, the original public transportation network needs to be adjusted and optimized according to the actual situation. Adjustment of capacity, line direction, length of conventional buses in the track-affected area, to ensure the efficiency and coordination of the entire bus network, through integration bus and rail transit, forming a multi-dimensional structure of urban public transport, optimize and adjust the structure of the city's transportation mode, construct a fast, efficient and convenient urban public transportation system with conventional bus and rail transit as the carrier.

keywords: rail transit; bus; preliminary as a network; bus connection

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新时期综合交通运输规划的重点与对策

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摘 要：交通规划是经济社会发展规划的重要组成部分，同时也是空间规划体系的关键环节。我国开展交通规划已经有多年的历史，规划编制有效指导了各层面交通建设，尤其在建成交通基础设施网络发展过程中发挥了重要作用。随着交通由各方式独立发展的初级阶段，进入到了以协调、衔接和服务为主要特征的新阶段，综合交通运输规划的编制工作开始逐渐增多为贯彻落实习近平总书记关于综合交通规划相关指示精神，在建设交通强国背景下更好的开展综合交通规划编制工作，有必要分析新时代的形势要求，结合当前规划工作的问题与不足，有针对性的提出对策建议和实施路径。

关键词：综合交通；交通规划；重点对策

Development Key Points and Countermeasures of Comprehensive Transportation Planning in the New Period

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Abstract：

Transportation planning is an important part of economic and social development planning, but also a key link in the spatial planning system. Traffic planning has been carried out for many years in China. Planning has effectively guided all levels of traffic construction, especially in the process of building transportation infrastructure network. With the initial stage of independent development of transportation from various modes, it has entered a new stage characterized by coordination, convergence and service. The compilation of comprehensive transportation planning has gradually increased to implement General Secretary Xi Jinping's directive spirit on comprehensive transportation planning, which is better under the background of building a strong transportation country. It is necessary to analyze the situation and requirements of the new era and put forward countermeasures and suggestions and implementation paths according to the problems and shortcomings of the current planning work.

keywords: comprehensive transportation; traffic planning; key countermeasures

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基于交旅融合的多层公路网布局规划研究

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摘 要：以"交通+旅游"多层公路网为研究对象，分析普通公路融合旅游、休闲等特色后的新景观特征和经济属性。本文主要研究了旅游公路网规模、景点重要度、串联线路重要度的计算方法。基于连续性、多样性、特色化等原则，将交旅融合公路网划分为四个层次：快进通道、区域环线、通景通畅、特色观光，提出了不同层次旅游公路的规划方法和实施步骤。最后，介绍了该方法的应用实例。

关键词：交旅融合；景点重要度；线路重要度；连续性；多层次

Study on Layout Planning of Multi-Layer Highway Network Based on the Integration of Transportation and Tourism

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Abstract：

Taking the "traffic + tourism" multi-layer road network as the research object, it analyzes the new landscape features and economic attributes of ordinary highways after integrating tourism and leisure features. This paper mainly studies the scale of the tourism highway network, the significance of attractions and the calculation method of series routes importance. In addition, based on the principles of continuity, diversity, and specialization, the "traffic + tourism" highway network is divided into four levels: quick-access channel, regional circle line, unobstructed bypass, and featured sightseeing; and proposed the planning methods and implementation steps of different levels of tourism highways. Finally, an application example of the method is introduced.

keywords: integration of transportation and tourism；significance of attractions；importance degree of lines；continuity；multi-layer

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Study on Evolution Tendency of the Role of Aviation in Passenger Transport System of China

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Abstract：The data of passenger turnover of railway, high way, waterway and aviation from 1985 to 2016 of China were analyzed. The curves of the evolution situation of the passenger turnover and its ratio of the four main mode of passenger transportation were plotted to illustrate the evolution process of passenger transportation system quantitatively. Then, the information entropy and equilibrium degree were introduced as the quantitative evaluation index to analyze the evolution principle of passenger traffic system. Finally, according to the index of equilibrium degree, the structure evolution of passenger transportation during decades can be divided into four stages: fluctuant stage, stable but unbalanced stage, improving stage, approaching balance and rational stage. The positive influence to improve the structure of passenger transport system by the rapid increase of aviation was illustrated. Today, railway, highway and aviation are the three main modes in passenger transport system of China. The civil aviation has become indispensable from insignificant in the passenger transport system of China.

Key words：aviation transport

Air-Rail Connection Quality Based on Commuting Mode Choice-Take Shanghai Hongqiao International Airport and Newark International Airport as Examples

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Abstract：The integration of airport and long-distance rail system could be a stimulus on the development of metropolitan areas, which requires efficient air-rail transfer for large passenger flow. This research aims at investigating the quality of air-rail connection from the perspective of passengers. Shanghai Hongqiao International Airport and Newark International Airport are selected as they represent two types of air-rail connection: direct air-rail connection and indirect air-rail connection. In this research, the connectivity of each airport is defined by the mode choice type. Then, the quality of the air-rail connection for two airports is evaluated through a rating standard on mobility, accessibility and user experience. The result shows that urban rail and taxi transfer perform well in both airports, but inconvenience occurs on bus transfer and walking. The research concludes that urban rail transfer would be the main mode choice in air-rail connection in that it provides the service with the best quality. Road network between the airport and the rail station should be improved to provide better service for taxi and bus. Bus transfer and walking could be a good connection if the ADA accessibility is improved for passengers in need.

Key words： Air-rail Connection; Mobility; Accessibility; User Experience

多式联运背景下最小费用运输方案研究

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摘　要：为降低物流成本以增强汽车生产企业的市场竞争力，从汽车物流和多式联运的基本理论着手，通过运筹学中的网络图理论，提出基于总费用最小的模型，并用 Dijkstra 算法来求解模型，从而确定最佳的多式联运运输组合方式。以重庆太平物流公司为例，设计出其物流的最佳多式联运运输方案，使得在规定的期限内总费用最低。结果表明，多式联运能够减少汽车物流的成本，从而增强企业的竞争力。

关键词：多式联运

Research on the Minimum Cost Transportation Scheme Based on Dijkstra Algorithm in Multimodal Transport

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Abstract：

In order to reduce logistics costs to enhance the automobile manufacturer market competitiveness, commence from the basic theory of logistics and intermodal cars and proceed through operational research network diagram theory. Put forward the models based on the smallest total cost, and use the Dijkstra algorithm to solve the model to determine the best combination of transport multimodal. Finally, based on the given logistics data of the Pacific logistics company to design the best program of its multimodal transport logistics. Making the total cost of the lowest in the range prescribed time limit. The results showed that the cost can be reduced automotive logistics multimodal transport, thereby enhancing the competitiveness of enterprises.

keywords: multimodal transport

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新兴大城市综合交通体系转型发展思考与对策——以昆山市为例

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摘 要：随着区域交通一体化以及城市机动化的发展，昆山面临着区域比较优势削弱、城市交通政策不明晰、绿色交通分担率偏低、城市交通品质有待提升等问题。分析了长三角一体化战略上升为国家战略、沪昆苏同城化战略以及新一轮昆山市总体规划修编带来的机遇与要求，提出了昆山交通发展要转变发展思路、强化规划引领、倡导共建共享、实施公交优先、完善路网结构、推行需求管理等六大发展策略。

关键词：综合交通体系；公交都市；健康路网；对策；昆山

Reflections and Countermeasures on the Transformational Development of Comprehensive Transport System in Emerging Big City-A Case Study of Kunshan City

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Abstract：

With the integration of regional transportation and the development of urban motorization, Kunshan faces some problems such as that regional comparative advantage is weakening, urban traffic policy is not clear, green traffic sharing rate is low, and urban traffic quality needs to be improved. This paper analyzes the opportunities and requirements brought by the Yangtze River Delta integration strategy as a national strategy, the strategy of Shanghai-Suzhou-Kunshan co-urbanization and the new round of revision of urban master planning of Kunshan City . and then puts forward six development strategies for Kunshan transport development, such as changing development ideas, strengthening planning guidance, advocating the co-construction and sharing, implementing public transport priority, improving road network structure and implementing demand management.

keywords: comprehensive transport system; transit metropolis; healthy road network; countermeasure; kunshan city.

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Vehicle Routing Problem of Emergency Logistics Considering the Demand Urgency

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Abstract：Since the 21th century, the world has been frequently attacked by a variety of large-scale emergencies, which have not only caused casualties, but also brought huge economic losses. In order to improve the utility of emergency resources, this paper firstly analyzes the vehicle routing problem of emergency logistics, constructs the evaluation index system of material demand urgency, and introduces demand urgency as the influencing factor of vehicle routing problem. Referring to the standard of logistics industry under development, the total distribution cost of logistics enterprise is constructed, which consists of vehicle running cost, penalty cost of delivery delay and subsidy cost without delay of distribution. Secondly the model of emergency logistics vehicle routing problem is constructed, and the model is solved by using genetic algorithm and example data. Finally, the correctness and validity of the model and algorithm are verified.

Key words : Emergency logistics;Vehicle routing problem;Demand urgency;Genetic algorithm; Analytic hierarchy process

对中小城市客运快递运价水平的影响因素分析——基于结构方程模型的实证研究

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摘 要：客运快递是物流专业细分下的重要快运方式，利用客运班车的行李舱对货物进行"捎载"运输。目前其运价制定较为模糊，特别是在中小城市。基于此，本文选取河南省 5 座中小城市作为案例，以 665 个样本数据库为基础，基于结构方程模型构建了客运小件运价估计模型，并进行验证性因子分析和路径分析，定量分析了市场供给、市场需求、国家管制与政策、运输对象、市场结构与运输成本这六类外生潜变量对客运小件运价的影响程度，并得到其相互关系。结论表明：市场供给与国家政策对客运小件运价影响程度最大，国家管制与政策与运输对象除直接影响运价外，还分别通过市场结构、运输成本间接影响运价。基于以上研究，提出面向"一带一路"战略需求的客运快递运价制定策略。

关键词：结构方程；因子分析；运价策略

Examining the Factors Influencing the Freight Level of Road Passenger Transport Based Express in Small and Medium-Sized Cities with Structural Equation Modeling

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Abstract：

This paper is focus on analyzing what the factors are influencing the freight level of the road passenger transport based (RPTB) express in small and medium-sized cities and what the influence path and intensity of each factor to the freight are. For this purpose, this paper applied the confirmatory factor analysis and path analysis techniques of structural equation modeling (SEM) to analyze questionnaire data which captured many factors influencing freight level of RPTB express. The analysis reveals that the factors influencing the level of RTPB express in small and medium-sized cities mainly includes transportation cost, transportation demand, market structure, state policy, transportation object and market supply. Among them, the state policy and market supply are the most important factors affecting the freight level. Furthermore, the state policy and transportation objects not only affect the freight level directly but also influence the freight level indirectly via the market structure and transportation costs, respectively. Based on these findings, this paper analyzed the cause of the low cost and high freight level of RPTB express in small and medium-sized cities. Then the freight formulation strategy of RPTB express was put forward to seize the great development opportunities brought by booming transportation demand in 'The Belt and Road' strategic construction.

keywords: freight level; confirmatory factor analysis; structural equation modeling

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Dynamic Multi-Objective Optimization for Multi-Period Emergency Logistics Network

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Abstract： In order to solve the problem of multi-stage material supply in emergency logistics network, a dynamic multi-objective optimization mathematical model with constraints is constructed. The model takes the hard time window as constraint, the minimum cost and the maximum fill rate of demands as the objectives, and takes the location of distribution centers and the amount of material as the decision variables. A dynamic self-adaptive multi-objective differential evolution algorithm is proposed to solve the mathematical model, and the feasible non-dominated solutions of the model are obtained. In the improved algorithm, on the one hand, a new environment change detect operator and a new environment change response strategy are adopted so that the traditional static optimization algorithm can be used to solve the dynamic optimization problem. On the other hand, the improved algorithm adopts adaptive mutation strategy to improve the ability of global exploration and local exploitation. Case study shows that the improved strategy greatly improves the performance of the algorithm, and the improved algorithm can solve the dynamic multi-objective optimization problem effectively.

Key words : Emergency logistics network; Multi objective optimization; Dynamic optimization; Evolutionary algorithm; Self-adaption

考虑车辆限速和风险公平性的危险品运输网络双目标优化模型

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摘 要：在危险品运输网络中，对不同路段上危险品运输车辆的最高车速设置不同的限制值，能在很大程度上影响危险品运输商的路径选择，从而导致不同的危险品运输网络总风险和总成本。本文首先基于车辆限速的方法，构建了考虑风险公平性的危险品运输网络优化的双层规划模型，上层规划以网络总风险和总时间成本的最小化为目标，并通过增加路段容量和区域风险约束以确保风险分布的公平性，下层规划以危险品运输企业的总时间成本最小化为目标；然后，采用粒子群优化算法求解了该模型；最后，通过两个算例验证了模型和算法的有效性。计算结果表明，政府部门运用车辆限速的方法，并且考虑风险平等性约束，在兼顾运输企业效益的同时，能有效地降低危险品运输网络的总风险和保证区域风险分布的公平性。

关键词：公路运输；车辆限速；粒子群优化算法；危险品运输；风险公平性；双层规划

The Dual Objective Optimization Model for Hazardous Materials Transportation Network Considering Vehicle Speed Limits and Risk Equity

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Abstract：

In the hazardous materials (hazmat) transportation network, imposing different limits on the maximum speed of hazmat vehicles on different road links can greatly affect the route selection of the hazmat carriers which eventually results in the different total risk and total cost of the hazmat transportation network. Based on the approach of vehicle speed limits, this paper first constructs a bi-level programming model for hazmat transportation network optimization by considering risk equity, in which the upper level aims to minimize the total network risk and total network time cost and ensure the risk equity by imposing link capacity and regional risk constraints, and the lower level focuses on minimizing the total time cost of hazmat carriers. Then, the model is solved by particle swarm optimization algorithm. Finally, two numerical examples are employed to verify the effectiveness of the model and algorithm. The results show that, without sacrificing the most profits of hazmat carriers, the government can effectively reduce the total risk of the hazmat transport network and ensure the regional risk equity to some extent by the method of vehicle speed limits and imposing the risk equity constraint.

keywords: highway transportation; vehicle speed limit; particle swarm optimization algorithm; risk equity; bi-level programming

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基于蚁群算法的多式联运运输方式与路径选择问题研究

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摘　要：多式联运作为一种集约、高效的现代化运输组织模式，在国际上早已得到了广泛的推广应用，目前，多式联运比例的不断增长和发展势头愈加强劲，因此多式联运的运输方式与运输路径的选择优化就愈发重要。分析了多式联运运输方式与路径选择的影响因素，构建了多式联运单任务下运输方式与路径选择模型，随后运用改进后的蚁群算法对该模型进行求解。这可以为多式联运系统的研究提供一些参考价值，并为多式联运的营运人提供一定的建议。

关键词：多式联运；蚁群算法；路径选择

Research on Multimodal Transport Mode and Path Selection Based on Ant Colony Algorithm

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Abstract：

　　Multimodal transport as an intensive and highly efficient modern transport organization mode, has been widely applied in the world, at present, the proportion of multimodal transport of growing and increasingly strong momentum of development, so the mode of transportation of the multimodal transport and the choice of transport path optimization is increasingly important. Analyzed the intermodal transportation way and the factors that influence the path choice of transport under the multimodal transport single task is constructed mode and route choice model, then apply the improved ant colony algorithm for solving the model. This can provide some reference value for the study of multimodal transport system and some Suggestions for the operators of multimodal transport system.

keywords: multimodal transport;ant colony algorithm; path selection

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The Design of Truck-Free Carrier's Credit Management System Under the Big-Data Background

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Abstract：Due to the lack of integrity in China's logistics and transport industry, Chinese Ministry of Communications put forward the concept of a truck-free carrier by drawing on the experience of foreign developed countries. At present, the development of truck-free carrier is still in its infancy, in which credit management is an important part. Therefore, in the development process of truck-free carriers, it is essential to construct an indispensable and operational credit management system. Firstly, this paper established an index system. In the analysis of a large number of domestic and international literature on the integrity of the management, combining with industry-related standards from the identity characteristics, the passage summed up 20 indicators of credit evaluation. With the principal component analysis method, it ultimately established 15 indicators. They were grouped into four key influencing factors. The research of this paper has a certain reference value for the construction of truck-free Carrier's credit management system.

Key words：truck-free carrier; credit management; index system; big data

基于"无车承运+冷链物流"模式的车货匹配研究

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摘 要：针对我国冷链物流的现状，依托"互联网+"理念，提出基于无车承运平台的冷链物流车货匹配运输模式，整合冷链货源资源与冷链物流企业运力资源，实现资源的有效利用，推动冷链物流业健康发展。首先通过对"无车承运+冷链物流"模式下冷链物流企业与货源的匹配流程及运作机理进行分析，并考虑到冷链运输的特点，构建匹配指标体系，建立货源与物流企业的车货匹配模型。最后结合算例，对模型进行了求解，验证了匹配模型对实现货源与冷链物流企业运力的匹配具有有效性，分析了该模式在增加平台业务范围促进冷链物流发展等方面的优势。

关键词：无车承运；冷链物流；车货匹配；匹配度函数

Research on Vehicle - Cargo Matching Based on the Model of "Carrier Broker + Cold Chain Logistics"

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Abstract：

In view of the current situation of cold chain logistics in China, relying on the concept of "Internet +", a cold chain logistics vehicle matching transportation mode based on a carrier broker platform is put forward, which integrates the cold chain source resources and the cold chain logistics enterprise capacity resources, realizes the effective utilization of resources, and promotes the healthy development of the cold chain logistics industry. Firstly, through the analysis of the matching process and operation mechanism between the cold chain logistics enterprise and the cargo source under the mode of "carrier broker + cold chain logistics", and considering the characteristics of cold chain transportation, the matching index system is constructed, and the matching model between the cargo source and the logistics enterprise is established. Finally, a numerical example is given to solve the model. The validity of the matching model is verified. The advantages of the model in increasing the business scope of the platform and promoting the development of cold chain logistics are analyzed.

keywords: carrier broker; cold chain logistics; vehicle - cargo matching; matching degree function

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基于全链条服务的多式联运型物流园区开发模式研究

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摘 要：近年来国家大力鼓励多式联运发展，对多式联运型物流园区建设给予多项政策支持，但多式联运型物流园区往往因为占地规模大、建设费用高、以大宗低附加值货物为主等原因，导致建设时间长、资金回收期长，在一定程度上影响了园区的建设发展。本文基于全链条服务理念，对大型多式联运型物流园的开发模式进行研究，创新提出"1+3W"盈利模式，以及与多式联运物流园区功能特点相适应的融资方式与运营管理模式，能够指导类似的投资规模大、功能多元复杂的园区的建设与发展，更好的发挥多式联运物流园区作为枢纽经济重要载体的集聚辐射作用，推动多式联运发展，促进物流降本增效。

关键词：多式联运；物流园区；开发运营；全链条服务

Research on the Development Mode of Multimodal Transport Logistics Park Based on Full Chain Service

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Abstract：

In recent years, the state has vigorously encouraged the development of multimodal transport and given great political support for the construction of multimodal transport logistics parks. However, its long construction time, long payback period and high construction costs, have greatly affected the construction and development of the logistics park. Based on the concept of full chain service, this paper studies the development mode of large-scale multimodal transport logistics park, and proposes the "1+3W" profit model, as well as the financing and operation mode that are compatible with its functional characteristics. This study can guide the construction and development of similar parks with large-scale investment and complex functions, and helps give full play to the role of multimodal transport logistics parks as an important carrier of hub economy, which leads to the development of multimodal transport and logistics cost reduction.

keywords: multimodal transport; logistics park; development and operation; full chain service

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考虑交通系统和居住环境的物流特色小城镇布局规划研究

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摘　要："产业联动、绿色可持续、供应链一体化、职住一体"的内涵要求为新时期物流特色小城镇的规划建设提出了更高要求。相比以物流生产为主的单一功能的物流园区或物流集聚区，物流特色小城镇还增加了城镇交通系统和居民生活（包括休闲娱乐区）功能；根据国家发改委、交通运输部"推进物流业降本增效"的相关要求，以及人民群众对绿色环保的持续关注，功能区布局应实现物流成本和绿色环保的双重目标。在国内外既有研究的基础上，首先考虑交通系统、居住社区、上游产业集群等对物流园区功能布局的影响，将其作为虚拟功能单元与其他实体功能单元合并分析，并借鉴 SLP 方法构建综合关系网；其次，修正 SLP 方法中的人工布局调整方法，以物流成本最小、能耗和环境污染最低为综合目标，构建功能区布局的多目标数学模型，引入遗传算法求得最优布局方案。最后，应用上述方法对某物流特色小镇进行功能区布局和效果分析，并验证了方法的实用性。

关键词：物流特色小城镇；功能区布局；改进 SLP；遗传算法；虚拟功能区

Research on Layout Planning of Logistics Small Towns Considering Transportation System and Living Environment

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Abstract：

　　Higher requirements for the planning and construction of small towns with logistics characteristics are put forward in the new era according to the concept "industrial linkage, green and sustainable, supply chain integration, occupation and residence integration". Compared with the single-function logistics park, the small towns with logistics characteristics also have functions of urban transportation system and residents system (including leisure and entertainment area). In accordance with the relevant requirements of "promoting the logistics industry to reduce costs and increase efficiency", and the people's continuous attention to environmental protection, the layout of functional areas should achieve the dual goals of logistics costs and environmental protection. On the basis of existing researches at home and abroad, first of all, the impact of traffic system, residential community, upstream industry clusters are considered as virtual functional units. Improved SLP method is used to build a comprehensive network; Secondly, a multi-objective mathematical model of functional area layout is built with the comprehensive goal of minimum logistics cost, energy consumption and environmental pollution. Genetic algorithm is introduced to obtain the optimal layout scheme. Finally, the above method is applied to the functional area layout and the effect is verified.

keywords: small towns with logistics characteristics; functional area layout; Improved SLP;

genetic algorithm; virtual zone

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石家庄市长安区乳制品物流中心选址模型设计及分析

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摘 要：合理的乳制品物流中心选址可有效提高物流系统的效率和降低物流成本。本文以石家庄市长安区为例，运用层次分析法对备选点进行初步评估，并在此基础上，根据实际情况建立混合整数规划模型，求解得出选址方案。最后，对选址方案进行综合评价，确定康达物流处作为最终选址地点。该选址结果对其他区域乳制品物流中心的选址及冷链物流选址模型的建立均具有重要的参考意义。

关键词：选址设计；层次分析法；混合整数规划；LINGO

Design and Analysis of Location Model of Dairy Product Logistics Center in Chang'an District of Shijiazhuang City

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Abstract：

Reasonable location of dairy logistics center can effectively improve the efficiency of logistics system and reduce logistics cost. Taking Chang 'an District of Shijiazhuang City as an example, this paper uses analytic hierarchy process to make a preliminary evaluation of the alternative points, and on this basis, establishes a mixed integer programming model according to the actual situation, and obtains the site selection scheme by solving. Finally, a comprehensive evaluation of the site selection scheme was conducted, and Kangda logistics department was determined as the final site selection location. The site selection results have important reference significance for the location selection of dairy logistics centers in other regions and the establishment of cold chain logistics site selection model.

keywords: location design; AHP; mixed integer programming; LINGO

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基于分类模型的多车场车辆路径规划问题

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摘 要：针对多车场车辆路径规划问题，因常规采用聚类分析方法来解决此类问题过于客观，故本文采用非聚类监督式学习方法，结合了数据分析的思想。它区别于传统算法只能一次性解决单个问题，建立了持续优化的算法——即可根据每次结果进行持续优化。具体步骤如下：首先建立分类模型，缩小计算范围，进行逐个决策变量分析，来避免传统算法解决问题的单一性，以便于根据每次的计算结果优化路径选择；其次，利用机器语言设计有效算法；最后引用算例，验证数学模型及算法的科学性和实用性。

关键词：多车场车辆路径

Multi-Depot Vehicle Routing Problem Based on Classification Model

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Abstract：

For Multi-depot Vehicle Routing Problem(MDVRP), it is too objective to use conventional cluster analysis methods to solve such problems. So this article adopts the non-cluster supervised learning method, which combines the idea of data analysis. Different from traditional algorithms, by which only one problem can be solved at one time. The new method establishes a continuous optimization algorithm---continuous optimization based on each result. Specific steps are as follows: Firstly, a classification model is established. This model can narrow the calculation range and analyze the decision variables one by one to avoid the singularity of the traditional algorithm to solve the problem, so as to optimize the path selection according to each calculation result.; Secondly, use machine language to design effective algorithms; Finally, an example is given to verify the scientificity and practicability of the mathematical model and algorithm.

keywords: multi-depot vehicle routing

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中国公路货运效率的区域差异及影响因素分析

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摘 要: 文章运 EBM 模型测算了中国 31 个省份 2008~2016 年公路货运效率并评价了其区域差异。结果表明：我国公路货运效率总体偏低。从空间分布来看，中部最高，东部次之，均高于全国平均水平。西部、东北部地区公路货运效率远低于全国水平。从变化趋势来看，2008~2011 年呈现出下降的态势，2012 后公路货运效率呈现波动上升趋势。从区域差异来看，全国各省份之间的差异较大，呈现先收敛后发散趋势。Tobit 模型分析结果表明产业结构、基建水平和公路货物运距与公路货运效率呈正向关系，是影响公路货运效率的显著因素。

关键词： 货运

Regional Differences of Highway Freight Transportation Efficiency in China and Analysis of Influencing Factors

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Abstract：

This research has evaluated the differences in highway freight efficiency 31provinces in mainland China from 2008 to 2016 by adopting EBM and tobit model. The spatial distribution results show that the central region take the lead, followed by the eastern region, while highway freight efficiency in the western and northeastern regions is much lower than the national level. The road freight efficiency decreased from 2008 to 2011, and demonstrated a fluctuating upward trend and from 2012 to 2016. The regional differences between regions first decreased, and then it increase again. The difference between central and eastern provinces is larger than that between western and northeastern provinces is small. Tobit model analysis results show that industrial structure, infrastructure level and highway freight transport distance positively correlate with highway freight efficiency, which are significant factors affecting highway freight efficiency.

keywords: highway freight Transportation efficiency

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高速铁路对沿线区域经济发展的影响——以沪宁城际为例

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摘　要： 为研究高速铁路对沿线区域经济发展的影响，本文以沪宁城际为例，首先通过灰色预测模型预测"无"高铁时沿线各市 GDP、固定资产投资额、就业人口、一二三产业增值等经济指标值，其次采用有无对比的方法分析沪宁城际对沿线城市各经济指标的贡献率，最后运用层次分析法确定各经济指标的权重，计算综合贡献率；结果分析表明，高铁对沿线区域经济发展有明显的推进作用，其中正面影响是主要的，同时也易造成要素资源"逆向流动"等负面影响；在此基础上，提出了要抓住高铁发展机遇，调整产业结构转型，警惕虹吸效应等政策建议，进而为高铁沿线区域促进经济发展提供实际参考依据。

关键词： 高速铁路；区域经济发展；层次分析；灰色预测模型

The Impact of High-Speed Railway on Regional Economic Development Along the Line - Taking Shanghai-Nanjing Intercity as an Example

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Abstract：

In order to study the impact of high-speed railway on the economic development along the line, this paper takes Shanghai-Nanjing Intercity as an example. Firstly, the Grey prediction model is used to predict the GDP, the fixed assets investment, the employed population, and the value added of the industries of each city along the line.Secondly, using the method of comparison or not to analyze the contribution rate of Shanghai-Nanjing intercity to various economic indicators along the line cities.Finally, the analytic hierarchy process is used to determine the weight of each economic indicator and calculate the comprehensive contribution rate.The analysis of the results shows that the role of high-speed rail in promoting the economic development along the line is obvious, and its positive impact is the main one, but it is also easy to cause negative impacts such as "reverse flow" of factor resources.On this basis, the paper puts forward the policy recommendations for grasping the development opportunities of high-speed rail, adjusting the industrial structure transformation, vigilance and siphon effect, and then providing practical experience for promoting economic development along the high-speed rail region.

keywords: high-speed railway; regional economic development; hierarchical analysis; grey prediction model

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Relationship Between Road Networks and Regional Economic Developments in China

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Abstract：Since the reform and opening of China, a considerable scale of road transportation network has been built and China's highway transportation has achieved leap-forward development. However, China's road networks are still "fragmented" to a certain extent compared with developed country, the United States. To explore that, Cobb-Douglas production function, regression model and transcendental logarithmic model were adopted to investigate the relationships among GDP, highway mileage, urban road length and urban road width. Based on the data of 34 provincial-level administrative regions in China from 2010 to 2016, the relationship between road networks and regional economic developments was empirically analysed. Results indicated that either highway mileage, urban road length or urban road width could positively affect regional economic developments, and they all had U-shaped relationship. It is quite necessary for the government to make overall planning of comprehensive transportation network and pay more attention to quality indicators such as highway lanes and urban road width. Besides, construction of road network should meet local conditions and balance the importance of length and width.

Key words：road network; GDP; highway; urban road; road length; road width

高速公路 PPP 项目资产证券化定价模型分析——基于期权调整利差法

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摘 要：为了充分利用资产证券化的优势促进高速公路 PPP 项目发展，本文基于期权调整利差法的理论构建高速公路 PPP 项目资产证券化定价模型，运用 CIR 单因素模型估算利率波动率、Logistic 模型计算提前偿付率、利率二叉树模型模拟未来利率路径。由于构建的模型考虑了高速公路的特点，定价结果更加接近真实的市场情况。

关键词：高速公路 PPP；资产证券化定价；期权调整利差法

The Study on Asset Securitization Pricing Model of Highway PPP Projects - Based on Option Adjustment Spread Method

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Abstract：

In order to promote the development of highway PPP project by utilizing the asset securitization theory, a pricing model based on option adjustment spread method is proposed in this paper. First, The CIR single-factor model is used to estimate interest rates. Then the Logistic model calculates the prepayment rate, and the interest rate binary tree model simulates the future interest rate path. The result obtained from the proposed pricing model is more practical since the characteristics of highway has been taken into the model.

keywords: highway PPP ; asset securitization pricing; option adjustment spread method

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论建设交通强国公路发展融资来源的战略选择

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摘 要：未来车辆电动化、自动化的发展，将深刻动摇现行"车购税+成品油消费税+通行费"的公路建养融资体系，根据未来公路交通系统的新变革，提出未来公路建养融资来源的四个战略选择方向，并提出战略选择的重点和难点。

关键词：公路；融资；战略

On the Strategic Choice of Financing Sources for Highway Development in Building a Transportation Powerful Country

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Abstract：

The development of vehicle electrification and automation in the future will profoundly shake the current highway construction and maintenance financing system of "vehicle purchase tax + refined oil consumption tax + toll". According to the new changes of the future highway transportation system, four strategic choices of financing sources for future highway construction and maintenance are put forward, and the key and difficult points of strategic choices are put forward.

keywords: highway; financing; strategy

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共享理念下普通国省干线服务区建设的新思路

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摘 要：随着普通国省干线公路在其路网中的作用和地位的变化，作为公路交通运输体系的基本组成部分的服务区，作用更加的多元化。服务区是供司乘人员停留休息的场所，还提供厕所、加油等其他服务。高速公路服务区发展比较成熟，而普通国省干线公路服务区却呈现"建设早、发展慢"的特征。首先对干线公路及其服务区进行了文献查询和实地调研，发现服务区存在功能配置不合理、建设运营困难等问题。其次对现阶段干线公路在路网中定位和功能进行分析，据此对服务区进行了分类。在此基础上引入共享发展理念提出因地制宜分类拓展、共享共建行业推进、移动集约绿色发展的新思路，为普通国省干线公路服务区的新建和改造提供参考。

关键词：干线公路服务区；普通国省干线公路；共享理念；共享共建；绿色发展

New Ideas for the Construction of Common Main Arterial Highway Service Areas Under the Concept of Sharing

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Abstract：

　　With the change of the role and status of common main arterial highway in its network. As a basic part of the highway transportation system, the service area plays a more diversified role. The service area is a place for passengers and crew to stay and rest. It also provides toilets, refueling and other services. The service area of expressway is mature, but the service area of main highway of normal country and province has the characteristics of "early construction and slow development". Firstly, literature search and field investigation were carried out on the main highways and their service areas. Secondly, the positioning and function of main highways in the road network are analyzed, and the service areas are classified accordingly. On this basis, the concept of Shared development was introduced, and new ideas were put forward, such as classifying development according to local conditions, sharing and co-building industry promotion, and mobile intensive green development, so as to provide reference for the construction and reconstruction of service areas of common main arterial highway.

keywords: arterial highway service areas; ordinary national and provincial highways; sharing ideas; sharing to build; green development

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关于上海中运量发展的若干思考

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摘 要：该文以中运量为核心，对国内的中运量定义和发展规模进行解读；以上海中运量发展为例，从建设规划角度，对现状进行梳理分析；从中运量推进工作中归纳出目前存在的主要问题，并对未来中运量发展提出了建议，为下一阶段中运量发展拓宽边界、挖掘纵深。

关键词：中运量

Some Thoughts on the Development of Medium Volume in Shanghai

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Abstract：

The article takes the medium volume as the core, interpreting the definition and development scale of China's medium volume. Taking the development of Shanghai's medium volume as an example, from the perspective of constructing and planning, the article combs and analyzes the status quo. From the progress of the medium volume, the main problems existing at present are summarized. The article also gives some suggestions for the development of future medium volume, to broaden the boundaries and excavate the depth in the next phase.

keywords: Medium Volume

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共享单车接驳城市轨道枢纽出行路径规划研究

于成功

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摘 要：共享单车出行具有健康、绿色、环保等特点，有效解决出行"最后一公里"问题，合理地规划共享单车接驳轨道交通出行路径对于满足出行者需求、引导单车出行具有重要的意义。本文考虑影响接驳路线的骑行舒适度和道路平坦度，以起点在到达轨道重合路径起点的广义出行费用为模型目标，构建了一种共享单车接驳城市轨道枢纽出行路径规划模型；并设计了求解该问题的人工蜂群算法，给出了问题的蜜源编码、适应度函数设计、循环优化的具体原理步骤；以西安市某一出行需求为例进行接驳路线规划，并将本模型规划结果与最短距离接驳路径、百度出行规划路径进行对比，通过计算三种方案的适应度函 fitness 值，证明本模型更具优越性。结果表明：该模型具有考虑影响骑行因素更全面和原理简便的特点，更具可行性，丰富了现有接驳出行路径规划方法。

关键词：轨道交通；路径规划；共享单车；接驳；人工蜂群算法

Study on the Travel Path Planning Model of Urban Rail Transit Hub by Sharing-Bikes

Yu Chenggong

(Chang'an University)

Abstract：

Sharing-bikes travel has many characteristics, such as health, green, environmental protection, effectively solve the "last mile" problem, Shared cycling connects the reasonable planning of its transport travel path to meet the demand of traveler, guide the bike travel has the vital significance. Impact, this paper connects the ride comfort and road flatness of the route, the starting point to reach the orbital overlap the generalized travel cost for the path to the starting point target model, build a Shared bike hub connects urban rail travel path planning model; In addition, an artificial swarm optimization algorithm was designed to solve the problem. To xi 'an a travel demand shuttle route planning as an example, and the planning results of the model and the shortest distance, comparing the shuttle path, baidu travel planning path through calculating the fitness of three ways, functional fitness value, prove that this model has more advantages. The results show that the model is more comprehensive and simple in principle, and it is more feasible, which enriches the existing route planning method.

keywords: rail transit; path planning; sharing-bikes; feeder; artificial swarm algorithm

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共享汽车服务站点的两次选址模型

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摘 要：为了促进共享汽车普及发展，在分析国内选址研究现状的基础上，建立两次选址模型，采用遗传算法求解算例，验证了模型的有效性；选址过程分为 2 个阶段，第 1 阶段利用初始选址模型从所有可能的选址地点中进行筛选，计算每个地址的综合贡献值，初步筛选出备选地址。第 2 阶段是在初次筛选的基础上，从经营者和用户角度出发构建了双层规划选址模型，上层模型以建设成本最低为目标，下层模型力求达到用户满意度最高。针对双层规划选址模型，提出了遗传算法求解流程，并利用算例验证了模型的有效性。结果表明，两次选址模型可以综合考虑各种因素对选址产生的影响，有效地解决共享汽车选址问题，为共享汽车的选址提供理论依据。

关键词：交通规划；道路交通；双层规划选址模型；遗传算法

Two Siting Models of the Shared Car Service Site

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Abstract：

This paper presents the establishment of the location models on the basis of the research of location selections in China. And the validity of models was verified by solving calculation instances of genetic algorithm(GA). There are two phases of the site/location selection process. In phase 1, having taken as much as possible factors into account and calculated their comprehensive contribution value, the alternative locations were selected from all possible locations by using the initial location(s). In phase 2, on the basis of the initial screening, and from the perspective of operators and users, the bi-level programming location model was built. The upper model aims at the minimization of cost while the lower model seeks to the maximization of customers' satisfaction. Furthermore, for the bi-level programming location model, genetic algorithm was put forward and the validity of models was demonstrated by USES examples. It is concluded that taking various factors into consideration, the two location models are able to select Shared cars' sites effectively and also provide a theoretical foundation for it.

keywords: traffic planning; road transportation; the bi-level programming model; genetic algorithm; road transportation

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Deploying Charging Stations for Battery-Powered AGV in Automated Container Terminals

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Abstract： With the rapid development of battery and automated guided vehicle (AGV) technology, many mega ports plan to deploy battery-powered AGVs in the near future. The deploying charging stations for the battery-powered AGV (B-AGV) in terminals concerns a long-term decision on the capacity planning of charging stations and a short-term decision on charging control strategies for B-AGVs. As container terminal is a large-scale complex system, solving mathematical programming model is neither practical nor accurate. Hence a simulation approach is desired, which is easy to evaluate the performance of charging stations for the B-AGVs. This paper presents a simulation framework for deploying charging stations for the B-AGVs in terminals. We first describe the detailed factors in capacity planning of charging stations. Next, we show the framework and main modules in the terminal simulation model. Finally, we present comparison results when number of charging stations varying. The proposed framework helps port managers to deploy the charging stations for the B-AGVs in terminals. Moreover, it also helps evaluate and improve the terminal performance in practice.

Key words： automated container terminals; battery-powered AGVs; capacity planning; simulation optimization

人口-产业-土地三维透视城镇化碳排放系统机理

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摘 要：城镇化急剧发展是全球碳排放的主要诱导因素，因此城镇化碳排效应和低碳发展需求引起全球的广泛关注。"三高一低"粗放的城镇化发展模式，导致了自然资源短缺，资源浪费，引致人类活动特别是燃烧化学能源产生的碳排放的持续增加，严重影响了我国城镇化发展质量。如何降低城镇化过程中的碳排放成为新型城镇化亟待解决的问题。降低城镇化碳排放需要理清城镇化碳排放系统机理，判别和梳理碳排放贡献来源及其关系。本文从人口-产业-土地三维视角构建城镇化碳排放机理分析框架，阐释城镇化下碳排放机理与效应，为合理界定城镇化碳排放核算边界及探究城镇化高碳发展的宗由奠定理论基础，为探寻城镇化低碳发展路径提供理论参考。

关键词：碳排放；碳排放机理与效应；人口-产业-土地三维视角

Systematic Mechanism of Urbanization Carbon Emission from Population-Industry-Land Integrated Perspective

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Abstract：

As the main source that incurs global carbon emission, the urbanization carbon emission issues and low-carbon development need have drawn a wider attention worldwide. The extensive urbanization development model of "three highs and one low" has led to the shortage of natural resources and waste of energy resources. This situation has resulted in continuous increasing of the carbon emissions caused by human activities, and particularly the burned chemical energy that has brought adverse environmental impact on the urbanization development in China. How to reduce carbon emissions in the process of urbanization development has become a pressing challenge in existence of most of urbanizing areas in China. Reducing the urban carbon emission requires better understanding of the urbanization carbon emission mechanism with a clearly clarification of the influence factors. This paper presents a study of the analysis framework for clarifying and understanding the urbanization carbon emission mechanism from the perspective of population-industry-land interaction relationship. In the study he mechanism and effect of carbon emission under the influence of urbanization development are interpreted with relevant national datasets. The result is expected to lay out a rationale foundation for better understanding the systematic relationships of all identified contributing factors and to provide a guiding reference for developing strategies for low-carbon-oriented urbanization development plans.

keywords: carbon emissions; mechanism and effect of carbon emission; population-industry-land three-dimensional perspective

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杭州西湖景区保护与轨道交通建设的博弈

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摘 要：随着杭州西湖景区的知名度不断提升，西湖景区游客的膨胀、交通的拥堵与景区的世界遗产保护形成了一种不容忽视的矛盾。常态化的交通拥堵对景区的生态环境、空气质量、游览舒适度等造成严重影响，不利于对世界文化遗产的保护。而单纯依靠常规地面公交难以有所突破和改善，是否可以通过在西湖景区内部引入轨道交通来缓解景区地面交通拥堵引起了强烈的争议。本文主要对西湖景区的保护与轨道交通的建设两方面展开博弈讨论，认为需要秉承"科学保护论"的态度，对西湖景区轨道交通进行充分论证和慎重决策，实现对西湖文化遗产更好的保护。

关键词：西湖景区；保护；轨道交通；交通拥堵

The Game Between Hangzhou West Lake Scenic Area Protection and Rail Transit Construction

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Abstract：

With the increasing popularity of the West Lake Scenic Area in Hangzhou, the expansion of tourists, the traffic congestion and the protection of the World Heritage of the scenic spot have formed a contradiction that cannot be ignored. Normalized traffic congestion has a serious impact on the ecological environment, air quality and comfort of tourism, which is not conducive to the protection of the world cultural heritage. However, it is difficult to make breakthroughs and improvements simply by relying on conventional ground bus system. Whether it is possible to construct rail transit inside the West Lake Scenic Area has caused a strong controversy. This paper mainly discusses the protection of the West Lake Scenic Area and the construction of the rail transit. It believes that it is necessary to adhere to the "scientific protection theory" attitude, fully demonstrate and carefully decide on the rail transit of the West Lake Scenic Area, to   achieve better protection of the West Lake cultural heritage.

keywords: west lake scenic area; protection; rail transit; traffic congestion

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Urban Rail Transit Development Level Analysis Based on EM-PCA-CA

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Abstract：In order to study the development level of China mainland cities with rail transit, we establish a complete urban rail transit development level index system with 25 quantifiable evaluation indicators, and use the Expectation Maximization (EM) algorithm to process the collected data, using principal component analysis (PCA) and cluster analysis (CA). The integrated analysis method is used to sort and cluster the urban rail transit development level of 29 cities in China Mainland. On this basis, 29 cities are divided into four categories, and corresponding urban rail transit development strategies are proposed for different cities according to different types.

Key words：urban rail transit; expectation-maximization (EM) algorithm; principal component analysis (PCA); cluster analysis (CA); sustainable development; transportation planning

基于道路状态相关性的路径规划研究

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摘 要： 城市道路网络中各路段的运行状态不是相互独立的，存在相关性，路径规划时，若假设路段之间独立，会降低路径选择的准确性，影响路网的运行效率。本文首先基于地图中高峰期间实时路况的运行数据，分析得到主干路上是否发生拥堵的运行速度阈值，并将其作为判断路段是否失效的指标。其次基于主干路间是否产生相关性的判断依据，统计得出了城市道路路网中主干路的拥堵形成时间 t1 的 85%分位值为 2min，拥堵持续时间 t2 的 85%分位值为 12min，拥堵消散时间 t3 的 85%分位值为 2min。然后根据道路的运行状态，判断路段是否拥堵，综合考虑路段相关性，即当平行路段与拥堵路段的间距小于 2.4km 时，路段相关性较大，规划路径时避开此平行路段；同时考虑拥堵的形成时间、持续时间和消散时间，通过 c++编程实现路径规划方法。最后选取郑州市实际路网进行路径规划案例分析，得出了最优路径，与不考虑道路相关性的情况对比，考虑相关性路径的行程时间小于不考虑相关性的情况。

关键词： 城市道路；道路相关性；路径规划

Research on Path Planning Based on Road State Correlation

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Abstract：

The traffic of urban road is dynamic, and there has correlation between the links. If the links are assumed to be independent, the path selection will be misled, which will affect the operational efficiency of the road network. Firstly, this paper analyzed the threshold of operating speed, according to the traffic data from AMAP, which is the standard for judging whether the arterial road is congested. The threshold of operating speed is also used to determine whether the link is invalid. Secondly, based on the standard that is used to determine whether there has correlation between arterial roads, formation time t1, duration time t2 and dissipation time t3 of traffic congestion can be counted. The 85th percentile value of t1, t2 and t3 are 2min, 12min and 2min, respectively. Then, the method of path planning can be achieved by c++, and the correlation of link, formation time t1, duration time t2 and dissipation time t3 are considered. There has correlation when the distance between parallel link and congested link is less 2.4km, therefore this method is to avoid the parallel link that has correlation during path planning. Finally, the road network in Zhengzhou is selected for the path planning analysis. Optimal path is obtained by the method mentioned above. Compared with the case without considering the road correlation, the travel time, which the correlation is considered, is smaller.

keywords: urban road; road correlation; path planning processing

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中部崛起背景下的南昌区域交通发展策略研究

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摘 要：文章首先分析国家战略变化给中部地区发展带来的新形势，并以南昌为例分析其城市发展差距与比较优势。最终得出南昌应充分发挥其在区域地缘、生态资源、空间腹地等方面的优势：对外应发挥区域地理中心优势，国土层面通过高速、航空等交通设施融入国家交通网络，打造全国综合交通枢纽城市；区域层面通过城际铁路等设施，改善南昌在城市群铁路网中的边缘化态势，打造一体化的长江中游城市群；对内则利用广袤腹地，打造"城市群1小时交通圈"实现与省内紧密城镇群的共生发展。

关键词：中部地区；长江经济带；区域交通规划

Study on the Regional Traffic Development Strategy of Nanchang Under the Background of the Rise of Central China

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Abstract：

Firstly, the paper analyzes the new situation brought by the national strategic change to the development of the central region, and takes nanchang as an example to analyze its urban development gap and comparative advantage. Finally, it is concluded that nanchang should give full play to its advantages in regional geography, ecological resources, spatial hinterland and other aspects. Externally, nanchang should give full play to its advantages as a regional geographical center. At the land level, nanchang should integrate into the national transportation network through high-speed, aviation and other transportation facilities to build a national comprehensive transportation hub city. At the regional level, intercity railway and other facilities should be used to improve the marginalization of nanchang in the urban agglomeration railway network and build an integrated urban agglomeration in the middle reaches of the Yangtze river. For the interior, the vast hinterland was utilized to build "1-hour traffic circle of urban agglomerations" to realize the symbiotic development with the provincial city clusters.

keywords: the central region; yangtze river economic belt; regional traffic planning

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城市片区更新项目的交通规划研究——以南京江北新区大厂地区城市更新规划为例

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摘 要:现阶段大量城市规划重点向存量更新与精细化设计聚焦,作为城市功能的重要支撑,交通系统的优化改善具有重要的意义。用地的更新对城市交通系统而言意味着出行方式结构的重塑,也会带来需求增长的挑战,而更新规划区域往往用地供应不足,无法通过简单扩张增加交通供给,需要充分协调现状交通条件与规划方案,实现交通系统的供需平衡。本文就如何在更新过程中有效博弈,针对不同更新方式的地块采用不同的交通改善方法提出了实践思路,具体到路网优化调整方法、慢行提升改善以及停车挖潜增补方式等内容,精细化挖掘现有交通资源,整治和改善不适应城市发展的交通问题,发挥交通在城市更新实践中的支撑与推动作用,旨在为后续城市更新项目编制提供参考。

关键词：城市更新；交通规划；完整街道

Research on the Transport Planning in Urban Renewal Area

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Abstract：

Nowadays, urban planning tends to focus on updating and refined design of stock construction land. As an important support of urban functions, the optimization and improvement of traffic system are of great significance. The renewal of land use means to remodel the structure of travel modes for the urban transportation system, which brings challenges to the growth of traffic demand. However, in most cases the supplies of land use in the renewal area is insufficient, which cannot be increased by simple expansion. Therefore, it is necessary to fully coordinate the current traffic conditions and planning plans to achieve the balance between supply and demand of the transportation system. This paper puts forward practical methods on traffic improvement measures according to different renewal areas, specific to road network optimization, non-motorized traffic improvement, parking facility supplement. By exploring existing transportation resources and repairing traffic problems, transport system can promote and support the urban renewal practice.

keywords: urban renewal; complete street design; transport planning

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城市人行交通系统规划建设评价指标体系探讨

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摘 要： 步行是短距离的主要出行方式之一，也是各种交通方式的终端接驳，步行交通成为当今受鼓励发展的出行方式，城市步行质量也成为反映城市居民生活质量的一个重要指标。根据步行设施的功能，步行设施分为人行交通、休闲健身、商业三种类型，不同功能对其要求不尽相同，人行交通系统主要是指位于道路两侧的人行道、城市入口广场（车站、码头等交通广场）、交通枢纽（地道、人行横道）、上下交通连接（码头的梯道、上下高层梯道的连接）等地带的步行道，与人的出行息息相关，其规划建设的好坏直接影响人们的出行质量。当前对于如何量化地评价人行交通系统，没有相应的体系系统，构建城市人行交通系统规划和建设的评价指标体系，从设施的配置率和完好率两个方面对城市步行交通系统建设情况进行评价，并提出相应的权重分配及评价方法，包括 8 个分项指标，这些指标易于调查，便于获得，同时以乌鲁木齐市人行交通建设为例进行评价，通过量化指标得到人行交通系统存在的问题，客观评价人行交通规划及建设的合理性，指导规划及建设的优化。

关键词： 人行交通；规划；建设；评价指标体系

Discussion on Evaluation Index System of Urban Pedestrian Transport System Plan and Construction

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Abstract：

Walking is one of the main ways to travel in short distance. It is also the end of various means of transportation. The pedestrian transport has become an important indicator of the quality of life of urban residents. According to the features of pedestrian facilities and pedestrian facilities are divided into three types: pedestrian transport, leisure and fitness, commercial, different functions of the requirements are not the same, pedestrian transport system is mainly located in the road on both sides of the sidewalks, city entrance square, station, wharf and other transport Square), transport hub (tunnels, pedestrian crossing), transport connection (pier stairway, under the road walking tall stairways connected) region, and travel are closely related, the planning construction quality directly affect the quality of people's trip. At present, the evaluation index system of urban pedestrian transport system is constructed, and the corresponding weight distribution and evaluation method are proposed, which includes 8 sub indexes, which are easy to obtain, and the rationality of the planning and construction is evaluated by the quantitative index. The objective is to evaluate the efficiency of the system.

keywords: pedestrian transport, plan, construction, evaluation index system

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基于快销行业的一种循环包装箱的发开与设计研究

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摘 要： 目前我国物流行业高速发展，物流用包装箱的需求量也逐年增大。与之相对的，由于物流过度包装产生的废弃物也在与日俱增。这使得我国的物流行业发展不够绿色环保，不符合国家所倡导提出的绿色环保生产生活发展原则。本文揭示了当前我国快递行业与快销行业的物流包装发展现状与现存问题，并结合现状问题开发设计了一款迎合绿色物流时代的多功能循环运输包装箱。分别从其智能化功能、共享应用场景、经济效益分析以及回收方式对该智能运输包装箱进行介绍，并与现有运输包装箱进行对比分析发现该创意的运输包装箱综合技术指标优良，且其实施的操作性强，性价比高，具有很高的市场前景，是迎接智能物流时代的必然产物。

关键词： 循环包装箱；共享系统；绿色运输

Research on the Development and Design of a Recycling Shipping Box Based on Fast Selling Industry

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Abstract：

At present, China's logistics industry is developing at a high speed, and the demand for logistics packaging boxes is also increasing year by year. In contrast, the waste generated by over-packaging of logistics is also increasing day by day. This makes the development of China's logistics industry not green enough, not in line with the country's advocacy of green production and life development principles. This paper reveals the current development status and existing problems of logistics packaging in express industry and fast-selling industry in China, and develops and designs a multi-functional recycling transport packaging box to meet the green logistics era. This paper introduces the intelligent transportation packaging box from its intelligent function, shared application scenario, economic benefit analysis and recycling mode, and compares it with the existing transportation packaging box. It is found that the comprehensive technical index of the creative transportation packaging box is excellent, and its implementation is operable, cost-effective and has a high market prospect. It is an inevitable product to meet the era of intelligent logistics.

keywords: recycling shipping boxes; sharing systems; green transportation

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Pricing Strategies for Didi-Hailing Platform

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Abstract：This paper discusses the pricing strategy for Didi-hailing platform who provides two types of services: the basic service for free-ride, and the extra service which distinguished between the taxi service and the private car service. The mathematical formulas are mainly presented to model the choice behavior. Based on the analytical model, four main conclusions are found: (1) By decreasing the prices of extra services, the price of the basic service will rise but less than fully. (2) To get the maximized profit, the position of each service in the market and the marginal cost of the service should be considered when setting the price. (3) If the demand of extra services is more concave than that of basic service, then the total production will increase with a small increase in the extra service charges. (4) The socially optimal strategy would be determined by the demand functions of the three services and the marginal cost of extra services.

Key words：pricing; profit; production; welfare; didi taxi

The Vulnerability Formation and Diffusion Mechanism of Complex Commuting Travel Chain P

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Abstract：Urban residents mainly trip to commute, and conducting complex commuter trip chain formed by commuter trips, we have studied complex commuter trip chain from the perspective of vulnerability generation and diffusion. Eight vulnerable points and 19 vulnerability observation indicators were selected to characterize the vulnerability of complex commuter trip chain. Based on reliability theory and BP neural network, a vulnerability measurement expression was derived. Through analyzing the trip investigatio data of residents in Xi'an, the vulnerability generation and Diffusion Mechanism of complex commuter trip chain was obtained. The results show that the residents in Xi'an are more vulnerable to trip, and the innate vulnerability is mainly affected by trip time, personal attributes and trip costs. The acquired vulnerability is mainly affected by traffic points, trip environment and transportation means, and the vulnerability is mainly through traffic points, trip time, and trip costs to diffuse. The government should reduce the vulnerability of residents by providing more comprehensive traffic information, dynamically monitoring the traffic system, and maintaining the stable operation of the traffic system.

Key words：urban traffic; vulnerability; reliability theory; complex commuter trip chain; BP neural network; urban traffic; vulnerability; reliability theory; complex commuter trip chain; BP neural network

Study on the Probability Distribution of Park and Ride Based on the Generalized Cost Model

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Abstract： In order to study the probability distribution of park and ride facilities for different urban rail transit stations, and make the distribution and design of the park and ride facilities more reasonable, this paper put forward a computing method of the probability distribution of park and ride. Firstly, the generalized cost was chosen to describe the travel consumption because of the hierarchy state of the urban road network and the volume of traffic. Secondly, by analyzing the transfer mechanism of the park and ride, the Generalized Cost Model was built. According to the main influencing factors of each part, the Generalized Cost Model was perfected. Finally, using the Generalized Cost Model and the Logit Model, the probability of park and ride of each traffic zone was calculated. The combination of the probability of each traffic zone was the probability distribution of park and ride for a station. By calculating the probability distribution of two different urban rail transit stations(one in city center, the other in urban fringe), the results are that the probability of urban fringe station is high than that of city center station, the park and ride phenomenon hardly happens in city center station and the probability of each traffic zone all lower than 0.005, and the probability distribution of urban fringe station is similar to the Seattle Parabolic.

Key words： Urban rail transit; Park and ride; Car travel; Generalized cost model; Travel cost

新建轨道城市轨道客流预测模型参数取值方法研究

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摘 要：对既往无轨道交通的新建轨道交通城市，进行轨道客流预测时，由于无现状轨道出行数据用于出行方式划分模型的参数标定，因此轨道交通的效用函数无法通过现状调查数据标定获得。目前国内实践中尚无统一解决办法，多直接采用常规公交参数值替代，然而由于轨道交通在可靠性、舒适性等方面与常规公交的差异，表征难以量化因素的常数项参数数值应与常规公交有明显差异。本文以张家港市为例，采用 SP 调查对轨道交通与常规公交的合作竞争情境进行模拟，使用巢式 logit 模型进行标定，得出出行者相对常规公交对轨道交通的偏好值约等效为 5~7 分钟，将该结论应用于张家港市轨道客流预测，对轨道客流预测精度提高明显。该方法有较强实用性，对于国内同类城市的轨道客流预测有借鉴作用。

关键词：轨道客流预测；Logit 模型；出行方式划分；效用函数；SP 调查

Research on Parameter of Subway Passenger Flow Forecast Model in Newly Built Metro City

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Abstract：

For cities without metro in the past, when the orbital passenger flow forecast is made, the utility function of the rail transit is not calibrated by the current survey data because the non-current orbital travel data is used for the parameter calibration of the travel mode division model. At present, there is no unified solution in domestic practice, and many of them are directly replaced by conventional bus parameters. However, due to the difference in reliability and comfort between rail transit and conventional bus, the value of the constant term parameter that is difficult to quantify should be compared with the conventional bus. There are significant differences. Taking Zhangjiagang City as an example, this paper uses SP survey to simulate the cooperative competition situation of rail transit and conventional bus, and uses logit model to calibrate. It is concluded that the preference value of traveler relative to conventional bus to rail transit is equivalent to 5~7 minutes. The conclusion is applied to the prediction of rail passenger flow in Zhangjiagang City, and the prediction accuracy of the orbit passenger flow is obviously improved. This method has strong practicability and can be used as a reference for the prediction of orbital passenger flow in similar cities in China.

keywords: metro passenger flow forecast model; logit model; mode split model; utility function; SP survey

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Capturing Sources of Recurring and Non-Recurring Traffic Congestion: An Integrated Deep Learning and Flow Analysis Framework Using Heterogeneous Data Sources

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Abstract：In recent years, it has become increasingly apparent that urban traffic network managers are aiming to measure and improve the quality of service for congested freeway and atrial streets. Traffic managers are responsible for monitoring the performance of traffic systems using multi-source data and analysing the observed root sources of traffic congestion, especially under the emerging big data environment. This paper proposes an integrated deep learning and flow analysis framework to capture sources of recurring and non-recurring congestion. First, in order to describe the demand fluctuation in multiple time series, we present a combined traffic demand estimation model with a customized demand-delay function to integrate the travel time index and multi-level demand states. Based on a deep learning network framework, the combined model is reformulated as a multi-layer computational graph model and then is solved by the back propagation algorithm using heterogeneous data sources layer by layer. Second, we use a cumulative flow count diagram to capture the variation of travel time and capacity reduction especially in non-recurring congestion. In the end, a series of case studies are implemented to demonstrate the effectiveness and applicability of the proposed methodology.

Key words：traffic congestion; travel demand; multi-source data; computational graph; deep learning

基于改进 LightGBM 模型的公共自行车需求量预测研究

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摘 要：公共自行车作为一种创新型、环保型交通模式，被推广于各大城市，也是提高城市交通运行效率以减少环境污染的有效途径。而公共自行车租赁的合理调度对提高公共自行车的使用效率至关重要，其关键在于对未来公共自行车的需求量进行精准的预测。本文以某城市自行车租赁系统提供的 2011-2012 年按小时记录的自行车租赁数据为例，提出一种基于 LightGBM 模型的公共自行车需求量预测方法，并结合天气、温度、湿度等特征，通过分析历史数据的发展态势预测未来一段时间内的自行车需求量。为了准确的拟合和预测自行车需求量，本文在已提出的 LightGBM 模型的基础上进行改进，通过网格搜索算法优化模型参数，并根据最优参数建立预测模型。结果表明，与其他传统方法相比，基于网格搜索算法的改进 LightGBM 模型有较高的预测效率及准确率，且预测结果可信，可为城市公共自行车管理和使用提供预测的理论与方法。

关键词：公共自行车；LightGBM 模型；网格搜索算法；公共自行车需求量预测

Research on Public Bicycle Demand Forecast Based on Improved LightGBM Model

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Abstract：

As an innovative and environmentally-friendly transportation mode, public bicycles have been promoted in major cities and are an effective way to improve the efficiency of urban traffic operations to reduce environmental pollution. The rational dispatch of public bicycle rental is crucial to improve the efficiency of public bicycle use. The key is to accurately predict the demand for public bicycles in the future. Taking the bicycle rental data recorded by the bicycle rental system in 2011-2012 as an example, this paper proposes a method for predicting the demand of public bicycles based on LightGBM model, and combines the characteristics of weather, temperature and humidity to analyze history. The development of data predicts the demand for bicycles in the future. In order to accurately fit and predict the bicycle demand, this paper improves on the basis of the proposed LightGBM model, optimizes the model parameters through the grid search algorithm, and builds the prediction model based on the optimal parameters. The results show that compared with other traditional methods, the improved LightGBM model based on grid search algorithm has higher prediction efficiency and accuracy, and the prediction results are credible, which can provide prediction theory and method for urban public bicycle management and appliance.

keywords: public bicycle; lightGBM model; grid search algorithm; public bicycle demand forecast

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用于交通需求预测的时空地理加权回归模型及应用

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摘 要： 交通需求预测对交通规划具有重要作用，但当对交通需求进行预测，需同时考虑时空因素对其造成的影响时则具有较大挑战性，本文选取时空地理加权回归模型（GTWR 模型）进行预测，该模型能较好的捕捉交通需求的时空特性以及交通需求与建成环境之间的关系，运用 2016 年杭州市车牌数据验证该模型的精确性，本文运用一般最小二乘回归模型（OLS模型）、地理加权回归模型（GWR 模型）以及 GTWR 模型分别对各个交通小区的交通需求进行预测，结果可以发现：GTWR 模型在需同时考虑时空非平稳性方面有较大优势，且就拟合度方面来说：OLS 模型、GWR 模型以及 GTWR 模型的精度分别为 12.90%，51.04%以及 91.85%，即 GTWR 模型在描述交通需求预测方面优于传统模型。

关键词： 交通需求预测；OLS 模型；GWR 模型；GTWR 模型；时空非平稳性

Geographically and Temporally Weighted Regression Model for Traffic Demand Forecasting and Its Application

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Abstract：

Abstract:Traffic demand estimation is of great importance to transportation planning. Both the spatial and temporal dependences need to be considered simultaneously, which makes traffic demand estimation challenging. This paper introduces a Geographically and Temporally Weighted Regression (GTWR) model to capture the spatiotemporal characteristics of traffic demand and correlations between traffic demand and built environment. Experimental data, the license plate data in Hangzhou, 2016, is utilized to evaluate the accuracy of the GTWR model. This paper uses the global Ordinary Least Squares (OLS) model, Geographically Weighted Regression (GWR) model and GTWR model to predict the traffic demand of each Traffic Analysis Zone (TAZ) respectively. The results show that the GTWR model has substantial benefits in modeling both spatial and temporal non-stationarity simultaneously. In the test sample, in terms of goodness-of-fit, 12.90% of the variation in the traffic demand can be explained by the OLS model, while 51.04% by the GWR model, 91.85% by the GTWR model.That is, the GTWR model is better than the traditional model in describing traffic demand forecasting.

keywords: traffic demand estimation, the OLS model, GWR model, GTWR Model, spatial and temporal non-stationarity

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轨道交通乘客上下车意愿模型

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摘　要：轨道交通飞速发展，为保障行车效率和安全，需对车站站台乘客进行快速疏散。而乘客快速上车是保证站台疏散的关键。本文提出了轨道交通乘客上下车意愿的概念，并建立基于最小二乘的城市轨道交通乘客上下车参数模型，最后根据西安地铁实测数据，计算了西安地铁乘车上车意愿，结果证明乘客上车意愿的存在。最后，为轨道交通站台管理提供依据。

关键词：上下车意愿；参数模型；最小二乘法

Rail Transit Passengers'Willingness to Get On and Off Model

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Abstract：

The rapid development of rail transit, in order to ensure the efficiency and safety of traffic, requires rapid evacuation of passengers at the station platform. Passengers getting on the train quickly is the key to ensuring the evacuation of the platform. This paper puts forward the concept of the willingness of rail transit passengers to get on and off, and establishes the model of urban rail transit passengers getting on and off based on least squares. Finally, according to the measured data of Xi'an subway, the willingness of Xi'an subway to get on the train is calculated. The existence of will is proved. Finally, it provides the basis for the management of rail transit stations.

keywords: willingness to get on and off; parametric model; least squares

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城市空间发展对居民出行特征影响研究

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摘 要：探索和分析居民出行调查的历史数据，归纳城市交通特征演变的特点和规律，以便于更好地了解城市交通的发展全貌。通过对比南昌市 2002 年、2010 年和 2015 年三次居民出行调查的成果，从出行强度、出行结构、出行分布等方面揭示近年来南昌市居民出行特征的演变，反映出城市空间结构是发展、用地模式的演变，对城市居民出行行为特征带来的变化以及对城市交通产生的深远影响，并在相应研究分析的基础上，对未来大中城市交通发展的趋势做出判断并提出交通发展策略。

关键词：居民出行调查；出行结构；出行特征

Impact of Urban Area Development on Residents' Travel Characteristic

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Abstract：

Analyzing present and historical residents' commuting data from the travel survey is very important in understanding the urban transportation developments and their characteristics at different time periods. By comparing their characteristics of travel survey in years 2002、2010 and 2015. this paper summarizes the change of resident's commuting characteristics in the past 30 years in several aspects: travel demand, travel mode share, trip distribution and etc. To reflect that the urban space structure and development of land use pattern how to influence the changing of people traveling and city traffic，and based on the analysis to make judgement and put forward strategy of traffic develop for the city traffic development of those second rank city in the future.

keywords: travel survey of residents; travel mode; transportation characteristics

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基于 Y 型瓶颈模型的高峰家庭出行行为分析

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摘 要：现如今，在许多城市，随着私家车拥有成本提高以及购买数量受限，家庭成员共同出行到达多个目的地的现象越来越普遍。其中，一个典型的情形就是出行者首先开车将孩子送到学校继而前往他们的工作地。本文在 Arnott 提出的 Y 型瓶颈模型基础上，将一个单一的出行终点的工作通勤扩展为具有两个出行目的地的家庭通勤，探讨了不同道路瓶颈设置下家庭成员的不同出发时间选择，出发率和出行费用问题，以便更好地管理早高峰时期的家庭通勤来最大限度地减少总出行费用。

关键词：高峰期通勤；家庭出行；瓶颈排队；汇流

Analysis and Management of Family Travel Behavior at the Early Peak Based on Y-Type Intersection

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Abstract：

　　Nowadays, in many cities, as private car ownership costs increase and the number of purchases is limited, it is increasingly common for family members to travel to multiple destinations together. Among them, a typical situation is that the traveler first sends his child to school and then drives to his work place. Based on the Y-shaped travel corridor proposed by Arnott, this paper expands the work commute with a single travel destination into a family commute with two travel destinations, and discusses the different departure time choices of family members under different road bottleneck settings, so as to better manage family commute during the early peak hours to minimize total travel expenses.

keywords: commuting at the early peak hours; family travel; bottleneck queuing; confluence

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江都区 CBD 地区交通规划策略研究

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摘 要：城市中央商务区高密度的土地利用必然带来高强度的出行需求，高效的 CBD 交通系统是维持其日常交通运行的基础。本文通过对江都 CBD 区域交通系统特征的分析，分析了 CBD 未来交通发展趋势，提出了六大规划策略，以适应于新型城镇化背景下中等规模城市 CBD 地区的交通建设与发展。同时，论文研究也可为其他同类城市 CBD 地区交通系统发展提供一定借鉴与指引。

关键词：CBD；交通系统；规划策略

Research on Traffic Planning Strategy in CBD Area of Jiangdu District

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Abstract：

High-density land use in urban central business districts will inevitably lead to high-intensity travel demand. The efficient CBD transportation system is the basis for maintaining its daily traffic operations. Based on the analysis of the characteristics of the traffic system in Jiangdu CBD, this paper analyzes the future traffic development trend of CBD and proposes six planning strategies to adapt to the traffic construction and development of the medium-sized city CBD area under the new urbanization background. At the same time, the thesis research can also provide some reference and guidance for the development of transportation system in other similar cities.

keywords: CBD; transportation system; planning strategy

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医疗类设施交通影响分析关键问题探讨

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摘 要： 作为城市公共服务资源，医疗类设施具有先天的排他性。对城市医疗类设施进行交通影响分析时，应结合其服务人群，对交通流组成进行分类。本文以扬州市玖龙湖医养健康城项目为案例，从医疗类设施交通流组成入手，通过分析各类交通流交通特性，结合项目吸发交通流规模，提出对医疗类设施进行交通影响分析时，重点考虑项目公共交通设施及慢行设施的便捷服务，同时针对项目基本的停车需求应予以满足，以及针对项目急救类、就诊类、医疗废物运输等车行交通组织的考虑。

关键词： 医疗类设施；交通影响分析；关键问题

Discussion on Key Issues of Traffic Impact Analysis of Medical Facilities

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Abstract：

Medical facilities have inherent exclusivity as city's public service resource. When analyzing the traffic impact of urban medical facilities, the traffic flow composition should be classified according to the service population. This paper takes the Yangzhou Jiu Long Lake Medical and Health City project as an example, starting from the composition of medical facilities traffic flow, analyzing the traffic characteristics of various types of traffic, combined with the scale of traffic flow of the project, and proposing traffic impact analysis for medical facilities. It will focus on the convenient services of the project's public transportation and walking facilities. At the same time, it should meet the basic parking demand of the project, as well as the transportation organization of the project such as first-aid, medical treatment and medical-waste transportation.

keywords: medical facilities; traffic impact analysis; key issues

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基于改进灰色 Verhulst-马尔科夫模型的地铁客流预测

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（长安大学）

摘 要：根据单线地铁客流增长的规律与特征，采用灰色 Verhulst 模型对西安市地铁 2 号线进行客流预测，为了提升原始数据的平滑度，对原始数据进行对数变换处理之后进行预测，得到改进的灰色 Verhulst 模型预测值，将预测结果利用马尔科夫模型进行修正，最终得到误差更小的预测结果。

关键词：客流预测

Metro Passenger Flow Prediction Based on Improved Grey Verhulst-Markov Model Grey Combination Model

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(Chang'an University)

Abstract：

According to the S-shaped characteristics of the passenger flow growth of single-line metro, the grey Verhulst model is used to predict the passenger flow of Xi'an Metro Line 2. In order to improve the smoothness of the original data, the original data are processed by logarithmic transformation, and then the improved grey Verhulst model is predicted, and the predicted results are modified by Markov model. To the prediction result with smaller error.

keywords: passenger flow forecast

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排队等候条件下的网约车出行方式选择博弈分析

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摘 要：为了探究当下网约车平台与乘客之间关系，以排队等候条件下的乘客网约车出行方式以及网约车平台的补贴政策为对象，通过分析各局中人的特点，建立了演化博弈模型，并在进行了演化路径分析。研究结果表明，当乘客使用随机叫车服务的收益大于不使用随机叫车服务时，开展随机叫车服务才具有意义；当机会收益损失大于补贴成本时，平台会进行补贴；当机会收益损失小于补贴成本时，平台不会进行补贴，乘客已形成对平台的认可。最后根据研究结论为网约车平台和乘客提供了相应的建议。

关键词：排队等候；网约车平台；出行方式；演化博弈

Game Analysis of the Choice of Ways of Traveling by Online Car-Hailing Under Queued Waiting Conditions

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Abstract：

In order to explore the relationship between the online car-hailing platform and the passengers，based on the passenger car travel mode under the queue waiting condition and the subsidy policy of the online car-hailing platform, an evolutionary game model is established by analyzing the characteristics of players. And the evolution path is analyzed. The research results show that when the benefit of passengers using random car-hailing service is greater than that of passengers not using random car-hailing service, it is meaningful to carry out random car-hailing service. When the opportunity benefit loss is greater than the subsidy cost, the platform will subsidize. When the opportunity benefit loss is less than the subsidy cost, the platform will not subsidize, and passengers have formed the recognition of the platform. Finally, based on the research conclusions, corresponding suggestions were provided for the online car-hailing and passengers.

keywords: queue waiting; online car-hailing platform; travel mode; evolutionary game

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基于灰色关联和 BP 神经网络的公路客运量预测方法研究

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摘 要：为了提高公路客运量预测的准确性，本文首先采用灰色关联分析法，得出公路客运量主要影响因素分别为生产总值、人口数、铁路客运量、水路客运量、航空客运量、城镇人均可支配收入、农村人均可支配收入，然后利用这些主要因素建立 BP 神经网络模型，并将该模型在 MATLAB 上进行编程。最后以陕西省公路客运枢纽规划为实例，选取了 2005 年到 2017 年陕西省公路客运量的相关数据，通过对 2005 年到 2015 年的数据的训练，较为准确的预测了 2016 年到 2017 年公路客运量，研究结果表明，该模型具有较小的误差，能够很好应用于实际。

关键词：公路客运量；预测；灰色关联；BP 神经网络

Prediction Study of Highway Passenger Volume Based on Grey Relational Analysis and BP Neural Network

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Abstract：

In order to improve the accuracy of highway passenger volume forecast, this paper first uses the method of gray correlation analysis to find that the main influencing factors of highway passenger volume are total production, population, railway passenger traffic, water passenger traffic, air passenger traffic, urban per capita disposable income, rural per capita disposable income, and then use these main factors to establish a BP neural network model, and the model is programmed on MATLAB. Finally, taking Shanxi highway passenger transport hub planning as an example, the relevant data of highway passenger traffic in Shanxi Province from 2005 to 2017 was selected. Through the training of data from 2005 to 2015, the highway passenger volume from 2016 to 2017 were more accurately predicted. The research results show that the model has small error and can be applied to the actual.

keywords: highway passenger volume; prediction; grey correlation; BP neural network

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Study on the Resident Travel Mode Choice in the Area of Rail Transit Extension Line Based on Multinomial Logit Model

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Abstract：The resident travel characteristics in the area of rail transit extension line tend to be different from the travel characteristics of urban residents. In order to make the organization and passenger service of rail transit extension line more adaptable to the residents' travel demands in the area of rail transit extension line, this paper designs and carries out a RP survey of residents travel according to Chengdu Metro Line 2 West Extension Line, the resident travel mode choice model based on multinomial logit model is established and the survey data are analyzed. The result shows that fare, in-vehicle time, arrival time, parking time, gender and car owning condition can significantly affect the resident travel mode choice. In addition, through the analysis of the key factors, the conclusion is drawn that the fare is inelastic, the in-vehicle time and the arrival time are elastic. On this basis, some suggestions are put forward for the policy formulation and adjustment of Chengdu Metro Line 2 West Extension Line. It includes promoting seamless transfer and optimizing service quality, changing the departure frequency with time, Optimizing the site connection and shortening the arrival time; improving operational efficiency and increasing travel speed.

Key words： rail transit extension line; travel characteristics; travel mode choice behaviour; logit model

宜昌市绿色交通管理与政策研究

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摘 要：针对宜昌发展绿色交通的契机，有必要系统梳理绿色交通相关的管理与政策，结合宜昌小汽车发展趋势，明确不同发展水平的应对策略。首先梳理宜昌现状绿色交通相关的管理与政策，分析目前存在的问题包括绿色交通发展战略尚不清晰，针对小汽车调控的相关政策不足等。在此基础上系统总结哥本哈根、伦敦、东京、新加坡、香港等国内外城市在绿色交通管理与政策方面的探索，作为宜昌绿色交通管理与政策制定的重要参考。基于宜昌规划城市道路规模，预测小汽车保有量上限，并将小汽车调控划分为三个阶段。结合现状及规划用地类型及城市发展特征等，将中心城区划分为三类绿色交通管理区域。最后针对三个阶段，分别提出相应的管理与政策，如阶段一涉及停车需求管理、加快轨道交通发展、发展自行车交通、推动 TOD 及土地联合开发模式等，相应提出绿色交通管理与政策。

关键词：绿色交通；管理与政策；公交优先

Study on Green Traffic Management and Policy in Yichang City

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Abstract：

In view of the opportunity for Yichang to develop green traffic, it is necessary to systematically sort out the management and policies related to green traffic, and combine the trend of car development to clarify the coping strategies of different levels of car development. Firstly, this paper analyzed the current management and policies related to green traffic in Yichang, and sorted out the existing problems, including the green traffic development strategy was still not clear, and the relevant policies for the regulation of small cars were insufficient. Then this paper summarized the exploration of green traffic management and policies in Copenhagen, London, Tokyo, Singapore, Hong Kong and other domestic and foreign cities, which were used as important reference for Yichang green traffic management and policy formulation. Combined with the scale of Yichang's planned urban roads, the upper limit of car ownership was predicted, and the regulation of cars was divided into three stages. Based on the current and planned land use types and urban development characteristics, the central city was divided into three green traffic management zones. Finally, corresponding management and policies were proposed respectively for the three stages. For example, Stage One involved parking demand management, speeding up the development of rail transit, developing bicycle traffic, promoting TOD and joint land development mode. Proposing corresponding management and policies were provided in the paper.

keywords: green traffic; management and policy; public transport priority processing

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"街区制"路网规划设计创新实践——以西宁市多巴新城为例

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摘 要：街道是城市最重要的公共空间，中央城市工作会议倡导"街区制"，反思道路空间过度机动化，重新认识街道，对提升城市人居环境意义重大。"街区制"创新理念下，从"道路"到"街道"，将道路规划设计理念转向关注人的可移动性、关注人的体验。本文从道路功能组织、街道格局、街道空间预留、街道设计四方面入手，提出道路规划设计思路原则、技术指标、管控要素，在西宁市多巴新城道路网规划中做了初步探索。

关键词：街区制；路网规划；道路功能；街道空间设计

"Block system" Road Network Planning and Design Innovation Practice-Taking Doba New City in Xining City as an Example

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Abstract：

The street is the most important public space in the city. The Central City Work Conference advocates the "block system". Rethinking the excessive motorization of the road space and re-recognizing the streets are of great significance to improving the urban living environment. Under the "block system" innovation concept, from the "road" to the "street", the road planning and design concept is turned to pay attention to the mobility of people and the experience of people. This paper starts from the four aspects of road function organization, "block system" road network innovation key, street space reservation and street design, and puts forward road planning and design ideas, technical indicators and management and control elements, which is done in the road network planning of Duoba New City in Xining City. A preliminary exploration.

keywords: block system;road network planning;road function;street space design

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车站晚点与铁路网拓扑结构的关系研究

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摘 要：本文研究了车站晚点与铁路网拓扑结构之间的关系，针对铁路网拓扑结构采用复杂网络理论分析其度、节点介数、集聚系数的特征，针对车站晚点采用车站晚点次数、车站晚点率、车站晚点总时长作为指标进行分析。利用荷兰铁路网的列车运行数据进行实例分析，研究结果表明车站晚点总时长与节点度数、介数、簇系数显著相关，说明三者对车站晚点严重程度有影响。但根据这三项指标利用 KNN 算法进行易发生晚点车站识别时，判别效果不佳，说明车站在运输网络结构中的特征对车站晚点严重程度的影响较小。

关键词：铁路网拓扑结构；车站晚点；复杂网络；相关性分析 KNN 算法

Research on the Relationship Between Station Delay and the Topology of Railway Network

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Abstract：

In this paper, the relationship between station delay and network topology is studied. For the topology of railway network, complex network theory is used to analyze the characteristics of degree, node number and agglomeration coefficient. For station delays, the number of station delays，station lateness rates and station total delays are used as indicators for analysis. Using the train operation data of the Dutch railway network for example analysis, the research results show that the station total delays is significantly related to the cluster coefficient, node betweenness and degree of the station. However, when using KNN algorithm to identify the stations prone to delay according to these three indicators, the discrimination effect is not good, indicating that the characteristics of the station in the transport network structure have little influence on the severity of the station total delays.

keywords: topology of rail network structure; station delays; complex network; correlation analysis; KNN algorithm

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Optimally Locating Charging Stations for Electric Vehicles in Intercity Highway Networks

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Abstract：It has been widely recognized that electric vehicles (EVs) represent a much more environment-friendly transportation mode than conventional gasoline vehicles (GVs). It is generally believed that, to facilitate the market penetration of EVs, electricity-charging stations must be first established to satisfy the charging demand for commuting and long-haul travels. From the perspective of en-route charging, the location of charging stations should be carefully selected so as to reduce travellers' detour cost as much as possible, when the impact of charging station locations on the individual route choice behavior is considered. This paper focuses on developing an optimal charging station location model and method for locating charging stations for EVs in intercity highway networks with the aim of minimizing the detour cost of the driving population. We first formulate a bi-level mathematical programming model taking into account both the investment budget limit on charging infrastructure construction and the driving distance limit of EVs. This formulation is proposed on the basis of a metanetwork consisting of all candidate station location nodes and feasible shortest subpaths between these nodes. Then we develop an efficient branch and bound method to solve this optimal location problem, in which a label-correcting algorithm is adopted to solve its subproblem—the shortest path problem with relays. Finally, the effectiveness of the model and solution algorithm is demonstrated with a numerical example in an intercity highway network of the Yangtze River Delta region in China.

Key words：facility location problem; electric vehicles; electricity-charging stations; intercity highway networks

基于常态数据的轨道交通突发事件下疏散需求预测

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摘　要：突发事件下历史数据积累较少，导致疏散需求预测困难，影响了应急响应的实施。本文以常态下的轨道交通短时需求为基础，运用理论分析及解析推导，建立全网站点的疏散需求计算公式；结合突发事件下轨道交通中断后的运能，仿真得出各站点疏散需求的时空演化。选取典型突发事件场景，以上海轨道交通网络为背景，采用本方法进行疏散需求预测，结果表明：突发事件下交通疏散需求强度较大的站点主要为折返站、中断站点以及中断区间相临近的换乘站；本方法可实现突发事件下轨道交通全网各站点疏散需求及其演化的预测，给出高峰需求值及其可能出现的时间和地点。研究成果为突发事件下轨道交通疏散需求预测提供了新的手段。

关键词：轨道交通；突发事件；交通预测；疏散需求；时空演化；常态数据

Evacuation Demand Prediction Under Metro Disruptions Based on Conventional Historical Data

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Abstract：

　　Historical data of metro passenger flows under disruptions is relatively rare, leading to the difficulty of predicting evacuation demand under metro disruptions. It becomes the bottleneck of the scientific and systematic emergency response as well. To fill this gap, based on theoretical analysis and mathematical deduction, this paper uses normal historical data to predict the evacuation demand for all stations under metro disruptions. And then the metro capacity under disruptions is used to simulate the space-time evolution of evacuation demand around the whole network. Several typical scenarios from Shanghai metro network is used as example to verify the method proposed. The results show that the most stressed stations under disruption are switchback stations, interrupted stations and the transfer stations near interrupt interval. The method proposed could give the prediction of evacuation demand and its evolvement, along as peak strand passenger volume and its location and time. This paper provides a new insight of evacuation demand prediction under disruptions.

keywords: rail transit; disruptions; travel demand prediction; evacuation demand; spatial-temporal evolvement; normal data

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再提自行车交通的可行性分析

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摘　要：当前我国大中小城镇交通拥堵严重、环境污染问题日益突出，道路交通的出路何在值得每个人冷静思考与探究。我国有着较好的自行车道路交通基础和渊源，然而随着社会的发展，现代交通工具的不断更新迭代，这一节能环保的传统交通工具逐渐被人们所摒弃，在当前形势下，笔者认为再提自行车交通，恢复其原有的地位，使其发挥在中短途出行及接驳交通中的作用非常必要。本文在分析、借鉴荷兰自行车交通成功建设的经验基础上，结合我国实际，对我国恢复自行车交通建设提出了几点思考建议。

关键词：交通拥堵；荷兰经验；启示；自行车文化；自行车交通系统

Feasibility Analysis of Bicycle Traffic Again

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Abstract：

Nowadays, the traffic congestion in China's large, small and medium-sized cities and towns is serious and the environmental pollution in those areas are increasingly severe. The solution to the current road traffic condition worth everyone's calm thoughts and exploration. Our country has a good foundation and origin for bicycles on the roads. However, with the development of the society and modern means of transport, people start to abandon this traditional energy saving and environment-friendly transportation. In the current situation, the author thinks that bringing the bicycle again to the traffic and restoring its original position. It's essential to make the bicycle to play a role in the short-medium term traveling and shuttle transportation.

This paper is based on the analysis and reference of Netherland's successful building of bicycle and combining their experience with the actual situation in China. This paper also puts forward some suggestions for the restoration of bicycle traffic construction in China.

keywords: traffic congestion; dutch experience; enlightenment; bicycle culture; bicycle transportation system

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现代交通工匠精神与交通高质量发展的哲学思考

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摘 要：现代交通工匠精神是我国交通长期实践中孕育、丰富与发展的精神财富，是交通质量文化的重要组成部分，具有普遍的社会价值。本文从哲学视角就现代交通工匠精神敬业奉献、创新包容、精益求精、至臻至美的价值追求与交通高质量发展围绕以下四个方面做了论述。一、推动交通高质量发展是新时代交通发展的必然价值取向；二、我国现代交通发展宏大而生动的实践，为现代交通工匠精神的不断丰富与发展创造了物质条件；三、现代交通工匠精神对交通高质量发展的重要推动作用；四、正确把握辩证关系，推动现代交通工匠精神与交通高质量发展。提出弘扬现代交通工匠精神与推动交通高质量发展的具体建议。现代交通工匠精神与交通高质量发展，二者将是一个相互作用、相互促进、不断创新、向更高层次发展的过程，最终实现交通高质量发展与现代交通工匠精神乃至交通高素质专业技术与优秀服务管理队伍同步向前发展、同步向上提升。

关键词：工匠精神；交通；高质量；发展；哲学思考

Philosophical Thinking of Modern Transport Artisan Spirit and High Quality Transport Development

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Abstract：

Modern transport artisan spirit is the culture and spiritual wealth which pregnant, enriched and developed through long period practice in Chinese transport area, and it is one of the important components of transport quality culture with common social value. The article discoursed modern transport artisan spirit from the perspective of philosophical about the value pursuit and high quality transport development of dedication, innovation tolerance, keep improving; strive for the best around the following four aspects: a) Promote high quality development is the inevitable value orientation for transport development in new era. b) The grand and vivid practice of Chinese modern transport development has provided the material condition for the improvement and development of modern transport artisan spirit. c) The important driving force to high quality transport development by modern transport artisan spirit. d) Grasp correctly the dialectical relationship between modern transport artisan spirit and high quality transport development. Push forward modern transport artisan spirit and high quality transport development. The article raises the proposal of promoting modern transport artisan spirit and high quality transport development. They will be interactions process of mutual promotion, continuous innovation, and to be better and the best. Ultimately achieve the developing and upgrading simultaneously between the high quality development and modern transport artisan spirit as well

as the high quality technicians and excellent service management team.

keywords: artisan spirit; transport; high-quality; development; philosophical thinking

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北美国家综合交通运输发展推动世界现代化进程的实践和思考

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摘 要：美国和加拿大综合交通运输发展是世界现代化中重要的一环。本文阐述北美国家交通运输革命中三次飞跃，论述了北美现代化进程中交通运输发展产生的积极影响，并对我国交通强国战略的启示进行分析。

关键词：北美；交通运输；现代化

Practice and Consideration of North American Countries'Comprehensive Transportation Development Promoting World Modernization

Zhu Hua

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Abstract：

The comprehensive transportation development of the United States and Canada is an important part of the world modernization. This paper expounds the three leaps in the transportation revolution in North America, discusses the positive impact of transportation development in the process of modernization in North America, and analyses the Enlightenment of China's transportation power strategy.

keywords: transportation modernization in North America

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交通工具、交通基础设施和城市化的交互发展历史与启示

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摘 要：交通作为城市运行不可缺少的一部分，其发展是城市化的条件之一。本文的目的是通过比较分析，探索交通发展与城市化进展的关系。城市的交通形态影响城市形态与居民生活。通过分析美国与欧洲国家从工业革命开始的城市发展历程，包括城市经济与基础设施条件的变化、交通工具的演变及市民对各种交通方式的态度，对交通发展与城市化进程之间的关系进行探究。得到以下结论：交通技术的发展是城市半径增大的必要条件；基础设施建设情况在一定程度上会影响当地交通发展，包括主要交通工具类型以及运量。可以为城市的交通规划与治理提供借鉴。

关键词：交通发展；交通基础设施；城市化；汽车化

History of Mutual Development of Transportation Vehicles, Transport Infrastructures and Urbanization, and Inspiration from the Historical Process

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Abstract：

Transportation is an indispensable part of urban operation, with its development important in the process of urbanization. The purpose of this essay is to explore the relation between development of transportation and process of urbanization. The pattern of urban transportation has influence on urban forms and life of urban citizen. Development processes of cities in the United States and European countries since the Industrial Revolution, including changes in urban economies and infrastructures, evolution of transportation vehicles and urban citizens' attitudes to means of transportation, are considered. Conclusions are drawn as below: (1) development of transportation technology is necessary for expansion of urban area, (2) conditions of urban infrastructures have an effect on development of local transportation, including dominant means of transport and traffic volume. The study can be used for reference in urban transportation planning and management.

keywords: development of transportation; infrastructure; urbanization; motorization

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Empirical Analysis of the Impact of High Speed Rail on Tourism Spatiotemporal Behavior-A Case Study in Jiangsu-Zhejiang-Shanghai-Anhui Region

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Abstract： The target of this research is exploring the influence of high speed rail on tourism spatiotemporal behavior and quantitatively analyzing the mechanism of the impact of high speed rail by social media chick-in data from SINA Weibo. The Nanjing-Hangzhou high speed rail, which has put into operation since July 2013, is taken as a case to analyze its effect on tourists' spatiotemporal behavior of Hangzhou Weibo users during the National Day of 2012 and 2013, the holiday before and after high speed rail operation. A systematic analysis method is established to handle social media big data which is relatively sparse in space. First, destination space boundaries are rearranged to maintain evenness of data in each destination. Second, transfer rate is used to characterize the spatial mobility between destinations. Third, spatial network model is established and analyzed by community discovery algorithm. It is found that, high speed rail would promote the reconstruction of tourism circle which indicates the travel range of tourist, and the integration ability of tourism resources is significantly enhanced for the cities along the high speed rail. In addition, from the prospective of microscopic transfer rate, for the cities with different tourism resources, the mechanism of promotion tourism development by high speed rail is different. These analysis confirms the significance of high speed rail to the spatiotemporal behavior of tourist and the research results can provide reference for the planning of high speed rail.

Key words： big data;transfer rate; community discovery; travel behavior; tourist distribution

Study on System Dynamics Model of Urban Agglomeration Transportation Supply and Demand Disequilibrium in Structure

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Abstract：In order to explore the relation between urban agglomeration traffic supply and demand, system dynamics is used to study the problem of urban agglomeration supply and demand disequilibrium from structure standpoint. First, based on the identification of urban agglomeration transportation research scope, the system boundary and research elements are determined. Then, the cause-and-effect relation among each element is studied and the SD flow diagram of urban agglomeration transportation supply and demand structure system is drawn. Efficient function is used to build dynamo equation of the system. Based on this the SD model of urban agglomeration transportation supply and demand structure disequilibrium system is built. At last, taking Hohhot-Baotou-Erdos urban agglomeration as example, analyzing the operation mechanism and development trend of supply and demand structure disequilibrium of the urban agglomeration transportation. The result shows that the development of urban agglomeration transportation supply and demand structure disequilibrium is a dynamic feedback process. And urban agglomeration transportation supply and demand will achieve equilibrium as policies and other variables adjusted.

Key words：urban agglomeration; supply and demand disequilibrium; system dynamics

面向轨道交通的灵活型接驳公交站点选址

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摘 要： 本文探讨了面向轨道交通站点的灵活型接驳公交服务模式。研究中综合考虑该服务系统涉及的乘客、运营公司、政府和社会三个方面的需求，建立了包括小区模型、选择必然响应站点、系统模型三阶段的、多元目标站点选址模型。本文通过算例分析，验证了模型的可行性，针对偏移距离、站点人数和乘客至公交站点与候车时间之和等参数进行敏感性分析。本文研究成果可以为我国开设面向轨道交通站点的灵活型公交接驳服务规划与建设提供运营方案指导以及站点选址理论的研究与实践参考。

关键词： 交通工程；灵活型公交服务系统；轨道交通；站点选址

Locating Flexible Feeder Bus Stations to Connect Urban Railway Systems

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Abstract：

This paper discusses the flexible bus service for rail transit stations. Taking needs of passengers, operation companies, government and society involved into the service system, a multi-objective locating model including three stages of zone model, response stop selection and system model was established. The feasibility of the model is verified by an example analysis. Sensitivity analysis is carried out for parameters such as offset distance, number of stations and the sum of passengers' arrival time and waiting time. The results of this paper can provide guidance for the planning and construction of flexible bus connection service for rail transit stations in China, as well as theoretical research and practical reference for stop locating.

keywords: traffic engineering; flexible transit service; railway transit; stop locating

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Research on Influence Factors of Pedestrian Crossing Speed in Unsignalized Mid-Block Crosswalk

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Abstract：In order to improve traffic efficiency, urban transportation system gives priority to the motor vehicles and ignored the "people-oriented" traffic concept in the most cities. In order to guarantee the security environment of pedestrian traffic and improve traffic efficiency simultaneously, in this paper, 4 unsignalized mid-block crosswalks with strong stream of people in Hohhot city are investigated through video collection and manual survey firstly. Then, the average crossing speeds of different population types are calculated, and the samples are tested by K-S distribution. It is found that the crossing speed in different ages, genders and crossing patterns satisfy the normal distribution. Finally, taking the pedestrian average speed as the dependent variable, individual characteristics such as age, gender and behavior characteristics such as crossing pattern, whether running or not, whether having a conversation or not as the independent variables, the pedestrian crossing speed model is established, and the results show that juvenile, adolescent, having a conversation, direction-and lane-crossing have significant influence on pedestrian crossing speed. A linear regression model between crossing speed and significant influence factors above is established.

Key words：pedestrian; crossing speed; unsignalized mid-block crosswalk; behavior

Mode Choice Among University Students in Beijing as Tourists-High-Speed Railway (HSR) Versus Air Transportation (AT)

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Abstract：The purpose of this study is to investigate the university students' preferred travel mode choice (high-speed railway (HSR) or air transportation (AT)) for tourism and the influencing factors which predict their choices. Moreover, the competition and cooperation relationship between HSR and AT is also studied. A self-reported anonymous questionnaire was distributed among university students in Beijing, China which measures the students demographic characteristics, travel situations, intentions, and travel mode choice, as well as students'intentions regarding tourism. Three hundred and forty-two valid responses were received via a web-based survey. The results of the binary logit model showed that gender, transportation cost, transportation time, the person accompanying the traveller, and sources of funds were found to be significant predictors while choosing HSR as a travel mode. Male participants were found to be more attracted towards HSR as compared to females. Furthermore, choosing HSR as a travel mode was negatively influenced by transportation cost. Results further reveal that travel partners accompanying them and sources of funds plays a significant role while choosing between HSR and AT as a travel mode. The results indicate that university students prefer to travel via HSR with their spouse or lover as compared to traveling alone or with their parents. At last, improvements in different departments are suggested for government officials and related stakeholders to maximize the profits of HSR and AT.

Key words：travel market of university students; air transportation; high-speed railway; competition; logit model

线上线下融合的高速公路服务品牌建设创新与实践

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摘 要：为适应国家、首都以及行业发展的形势，首发集团京开分公司在深度识别企业品牌理念、视觉、行为三要素的基础上，建立适合首都高速公路运营企业发展的品牌形象系统，并以此作为框架支撑，以线上"四位一体"的"融媒体"传播运营平台与线下推广活动深度融合为主要手段，打造以点带面，层层递进、多维度、全方位、互联互动互通的裂变式品牌推广传播新模式，进一步丰富了品牌传播模式，有效提升了品牌影响力，在首都高速公路运营系统内形成了一定示范效应。

关键词：高速公路；服务品牌；融媒体；线上线下融合

Innovation and Practice of Expressway Service Brand Construction with Online and Offline Integration

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Abstract：

In order to adapt to the development of the country, the capital and the industry, the first group Jingkai Branch established a brand image system suitable for the development of capital highway operating enterprises based on the deep identification of the three elements of corporate brand concept, vision and behavior. As a framework support, the online "four-in-one" "melt media" communication operation platform and the offline promotion activities are deeply integrated as the main means to create a point-to-face, layer-by-layer, multi-dimensional, all-round, and interactive interaction. The new model of fission brand promotion and dissemination further enriched the brand communication mode, effectively enhanced the brand influence, and formed a certain demonstration effect in the capital highway operation system.

keywords: highway; service brand; red window; new media

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Workers Survived from Commuting Road Crashes: Who Are They?

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Abstract：Commuting road crashes are road traffic crashes that involve workers while traveling in the course of work. Workers are exposed to the risk of getting involved in commuting road crashes. The more worker travels, the higher the probability of the occurrence of commuting road crashes. For global situation, there are differences in the trends of commuting road crashes between countries with a different economic status. Low-and-middle income countries face a higher number of reported commuting road crashes, compared to high-income countries. The aim of this study was to determine baseline sociodemographic, employment and injury and characteristics of injured workers who survived from commuting road crash. Eligible 200 workers who were involved in commuting road crash and agreed to participate in SOCSO RTW Program were identified and invited to be part of this study. Sociodemographic, employment and injury-related questions were distributed to identified and consented injured workers. Majority (79.5%) of the respondents were aged 25 years old or older, male (86.0%), married or divorced (63.5%), and attained secondary and below education level at secondary or below (66.0%). Most of the injured workers consisted of blue-collar workers (69%), had fracture injury (93.0%), and had injury to their lower limbs (48.5%). A higher percentage (63.5%) of injured workers had returned to work compared to those who were still not working (36.5%) after involved in commuting road crash. Commuting road crashes are common to blue collar workers as they are more prone to use motorcycles to commute due to cheaper price compare to other type of transportation such as car.

Key words：commuting road crashes; injured workers;return to work; prolonged absenteeism

基于空间句法的陕西省路网协调性分析

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摘 要：以空间句法为基础，结合 ArcGIS，提出利用地级行政区将较长的轴线打断以生成新的轴线模型，最后对所生成的轴线进行空间分析与计算的方法，对高速铁路、普通铁路和高速公路、普通公路的可达性进行分析。并以陕西省为例，对陕西省各地级行政区的道路交通网络发展水平进行分析，同时，从相关性系数判定路网与地区经济发展的相关关系，评价陕西省路网发展的协调性。结果显示：经济发展"超前"于交通网络发展水平的城市多位于陕北地区，是未来路网建设应关注的重点。

关键词：交通运输经济；空间句法；通达性；协调性；陕西

Analysis of Shaanxi's Road Network Based on Space Syntax

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Abstract：

Based on the spatial syntax and combined with ArcGIS, it is proposed to use the prefecture-level administrative area to break the longer axis to generate a new axis model, and finally to analyze and calculate the generated axis for high-speed railway, ordinary railway and high-speed railway. The accessibility of highways and ordinary roads is analyzed. Taking Shaanxi Province as an example, this paper analyzes the development level of road traffic network in various administrative regions of Shaanxi Province. At the same time, it judges the correlation between road network and regional economic development from the correlation coefficient, and evaluates the coordination of road network development in Shaanxi Province. The results show that the cities with economic development "advanced" in the development level of the transportation network are mostly located in the northern Shaanxi region, which is the focus of future road network construction.

keywords: transportation economy; spatial syntax; accessibility; coordination; Shaanxi

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基于 SERVQUAL(Service Quality)模型的福州交通公共服务质量研究

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摘 要：随着经济的发展，人们对公共服务质量要求愈盛重视。愈来愈多的公共事业通过提升其顾客价值、诚信交易、服务创新等手段来进一步增强其顾客满意度，从而实现企业的长远发展。本文以 SERVQUAL 模型，调查福州市民顾客感知的交通服务质量；以五大构面、二十一项准则为服务质量评估因子，通过层次分析法的权重比较，了解福州市民对交通公共服务质量测重的因素为何，从而对交通公共事业服务管理推出可行性的建议，提高交通服务事业管理者以服务代替营销的意识。

关键词：交通公共服务；层次分析法；服务质量；SERVQUAL

Based on SERVQUAL Model：A Quality Study for Traffic Public Service

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Abstract：

Based on SERVQUAL model, a service quality evaluation system of public service is constructed. Empirical studies have simplified the indicators system and finalized the traffic public service quality evaluation model, and its reliability and validity were also verified. This study has shown the traffic public service into five aspects and 21 objects. Finally, this research applies the indicators system into practice to evaluate the traffic public service in Fuzhu public service center. In the end, the realistic basis of service quality improvement for public service would provide.

keywords：traffic public service; analytic hierarchy process (AHP)；service quality; SERVQUAL

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丝绸之路陆上运输通道风险分析

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摘 要：为定量描述丝绸之路陆上运输通道风险情况，将陆上丝绸之路分为北、西、南三条大通道，7 条单通道，并选取沿线 25 个国家作为研究主体；用文献分析法提取 29 项国家运输风险影响因素，分为经济主权类、政治社会类和交通物流类，利用因子分析法量化国家运输综合风险；基于运输通道风险构成机制，构建三种运输通道风险测度权重：0-1 权重，序权重与值权重；最后分析各运输通道风险特征。结果表明：北向和西 1 通道风险较小，南向通道风险最大；运输通道间风险异质性受国家个数，高稳定性国家和高风险国家影响最为明显；运输通道内部与通道间存在风险不均衡现象。

关键词：丝绸之路陆上运输通道；国家运输综合风险；因子分析法；运输风险测度；不均衡性

Risk Analysis on the Land Silk Road Transport Corridor

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Abstract：

The paper applies a quantitative approach to analyze the risk of the transport corridor of the Land Silk Road. Firstly, 25 countries along the Silk Road are selected as the research subjects, which can be further categorized three main corridors: north, west and south, as well as 7 single corridors. Then, 29 factors affecting the transport risk of countries are extracted by literature review. These factors can be classified into three types: economic sovereignty, political society and transportation logistics, which helps to quantify the national comprehensive transport risks by factor analysis. Finally, the risk of each transport corridor is calculated by three kinds of risk measurement based on the risk composition mechanism of transport corridors. The results show that the risk of North and West 1st corridors are low, and the risk of South corridor is the highest, that the risk of transport corridors is influenced evidently by the number of countries, the high-stability countries and the high-risk countries, and that there is an in-equilibrium between the risks of internal corridors and inter-corridors.

keywords: land Silk Road transport corridor; national transport comprehensive risk; factor analysis; transportation risk measurement; in-equilibrium

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创新规划理念——融合型交通规划的浙江实践

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摘 要：融合型交通规划是新形势下交通创新发展的必然结果，现阶段浙江省交通规划已形成一套多元融合的方法体系。本文通过浙江省三个融合型规划的实践，用交通经济带、交旅融合和交通 IP 打造等三个方面的案例，来阐述区域协同、多元融合、特色提取、品牌塑造的规划方法，同时，提出交通规划在实践中存在的问题和解决思路，以期能为融合型交通规划的发展提供一定借鉴。

关键词：融合型交通规划；实践探索；浙江省

The Method Exploration and Practice of Integrated Traffic Planning of Zhejiang Province

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Abstract：

　　Integrated traffic planning is an inevitable choice for traffic development to adapt to the new situation, Zhejiang province traffic planning has formed a pluralistic method system. This paper is based on the practice of three integrated planning in Zhejiang province which use traffic economic corridor, travel integration and traffic IP to create three aspects of the case who are expounded the planning methods of regional synergy, multiple integration, feature extraction and brand building.At the same time, the paper puts forward the problems and solutions of traffic planning in practice, in order to provide some reference for the development of integrated traffic planning.

keywords: integrated traffic planning; practical exploration; Zhejiang province

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基于取消省界收费站的解决省界拥堵问题的研究

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摘 要：针对当前高速公路省界收费站经常出现的拥堵现象，分别从特殊时段、绿通优惠政策、以及逃费车的处理等方面分析原因，结合国务院常务会议确定将取消高速公路省界收费站的要求。本文运用案例研究和对比研究的方法，从取消省界收费站设计的五个维度—ETC技术、差异化收费、绿通代码、事故处理以及信息联动，对目前实施成功的案例进行梳理，在对比的基础上，总结各个维度的最优选择，最后，结合当前江西省梨园省界站的实际情况，提出取消省界收费站的设计建议。

关键词：省界收费站

The Research of Solving the Problem of Provincial Boundary Congestion Based on Cancelling Provincial Toll Stations: Taking the Jiangxi Provincial Toll Station of Liyuan as an Example

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Abstract：

According to the congestion phenomenon of expressway provincial boundaries toll stations, analyzes the reasons from the special times, the green pass preferential policy, and the handling of the escape car. In conjunction with the requirements which is determined that expressway provincial toll stations will be cancelled on the State Council executive meeting. This article uses case study and comparative research methods, from the five dimensions of the cancelling the provincial toll stations design—ETC technology, differentiation charge, green pass code, accident handling and information linkage, to conduct a comprehensive systematic review of the current successfully case. On the basis of comparison, summarize the optimal choice of each dimension. At last, combining the current situation of the Liyuan provincial boundary Toll Station in Jiangxi Province is to conduct a design proposal on cancelling the provincial toll station.

keywords: provincial boundary toll station

粤港澳大湾区一体化视角下的交通基础设施互联互通研究

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摘　要：交通设施互联互通是区域合作的优先领域和重要基础。针对粤港澳大湾区交通基础设施互联互通存在的问题以及交通基础设施互联互通对粤港澳大湾区一体化影响，结合粤港澳大湾区城际交通出行需求特征分析，提出粤港澳大湾区城市群交通基础设施互联互通的策略，以期为大湾区交通基础设施规划建设提供参考。

关键词：粤港澳大湾区；区域一体化；交通基础设施；互联互通

Transportation Infrastructure Connectivity Under the Integration of Guangdong-Hong Kong-Macao Greater Bay Area

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Abstract：

Transportation infrastructure connectivity is an important basic condition and driving force for the integrated development of Guangdong-Hong Kong-Macao - Great Bay Area. The existing problems of transportation infrastructure connectivity of Guangdong-Hong Kong-Macao Great Bay Area were pointed out. Then the impacts of transportation infrastructure connectivity on the integration of Guangdong-Hong Kong-Macao Great Bay Area were discussed. On this basis, combined with the analysis of the characteristics of inter-city traffic demand in Guangdong-Hong Kong-Macao Great Bay Area, the strategy for Transportation infrastructure connectivity in Guangdong-Hong Kong-Macao Great Bay Area was proposed. This study provided a reference for the planning and construction of transportation infrastructure in Great Bay Area.

keywords: Guangdong-Hong Kong-Macao Greater Bay Area; regional integration; transportation infrastructure; connectivity

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Analysis of Advantages and Disadvantages of Competitive Transport Market and Monopoly Transport Market

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Abstract：With the rapid development of China's economy, the economic scale and total economic expansion are gradually forming a modern city. Transportation plays an important role in the economic development of our country. As a kind of derivative consumables, how to reasonably and adequately allocate transportation resources is particularly important. Transportation market structure is divided into perfect competition market, perfect monopoly market and monopoly competition market. Based on the analysis of the characteristics and structure of transportation market, this paper expounds the advantages and disadvantages of competitive transportation market and monopolistic transportation market. At last, this article is summarized and a conclusion is drawn.

Key words : competitive market; monopoly market; transportation; advantages and disadvantages analysis

基于灰熵法的陕西省运输量影响因素研究

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摘 要：研究了国民经济宏观因素对交通运输需求的影响，分析了陕西省客运需求和货运需求的影响因素。提出基于灰色关联度算法与熵权法相结合的灰熵关联度算法，依照《2018陕西省统计年鉴》近 8 年的数据，对陕西省国民经济宏观因素与货运量、货物周转量、客运量、旅客周转量之间的关联度进行分析。首先，采用灰色关联度算法计算出国民经济宏观因素与 4 个交通运输量之间的关联系数；然后，采用熵权法计算国民经济宏观因素不同年份数据的权重；最后，将关联系数与其权重综合起来进行评价国民经济宏观因素与 4 个运输量之间的关联性，计算得出每个经济因素与运输量的关联度，并根据关联度的大小进行排序。分析结果表明：陕西省货运量与货物周转量同宏观经济因素之间的关联度趋势相同，货运量与工业总产值的关联度最高，为 0.9040，其次是能源生产总量，天然气产量，农林牧渔业总产值，关联度分别为 0.8715，0,8543，0.8514；客运量与旅客周转量同经济因素的关联小于货运量与货物周转量，两者同汽车产量，粮食产量以及天然气产量的关联性较高。

关键词：交通运输；宏观经济因素；运输量；灰色关联度；熵权法；影响因素

Research on Influencing Factors of Traffic Volume in Shanxi Province Based on Grey Entropy Method

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Abstract：

The influence of national macro-economic factors on transportation demand was studied and the influencing factors of passenger and freight demand in Shaanxi province was analysed. A grey entropy relational degree algorithm based on the combination of grey relational degree algorithm and entropy method is proposed, according to the data of the Statistical Yearbook of Shaanxi Province for nearly 8 years, the correlation between the national macro-economic factors of Shaanxi Province and the freight volume, the freight turnover volume, the passenger volume and the passenger turnover volume was analyzed. Firstly, the correlation coefficients between national macro-economic factors and four traffic volumes were calculated by grey correlation degree algorithm. Then, entropy method was used to calculate the weight of national macro-economic factors data in different years. Finally, the correlation coefficient and its weight were combined to evaluate the correlation between national macro-economic factors and four traffic volumes, and the correlation degree between each economic factor and traffic volume was calculated, and the national macro-economic factors were sorted according to the degree of correlation. The analysis results show that the correlation degree between freight volume and national macro-economic factors in Shaanxi Province is the same as freight turnover. The correlation degree between the

freight volume and the industrial output value is highest, which is 0.904, followed by total energy production, natural gas output, total output value of agriculture, forestry, animal husbandry and fishery, the correlation degree is 0.8715,0,8543, 0.8514, respectively. The relationship between passenger volume and passenger turnover with economic factors is smaller than that of freight volume and freight turnover. They are highly correlated with car production, grain production, and natural gas production.

keywords: traffic engineering; macro-economic factors; traffic volume; grey correlation degree; entropy weight method; influence factors

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一款基于移动客户端的航班起飞时刻预测模型

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摘 要：本文基于民航航班过站的不同状态，提出了一个基于航班四个不同状态（前序航班预计到达，前序航班到达，开始登机，舱门关闭）的模型来预测飞机的起飞时间。在充分分析影响航班保障时间的各个因素后，我们为每个状态构建了不同的阶段模型。结合各阶段模型对各自保障阶段的时间预测，最终得到航班的预计起飞时间预测结果。在使用全国 235 个民航机场半年历史数据测试和半年航班实时数据预测之后，该模型展示出其准确性和稳定性。此外，该模型的实时预测结果实时更新至"航旅纵横"移动客户端，为广大民航旅客提供了实时航班信息，结果表明模型预测准确有效。

关键词：航班预测；延误分析；机场；机器学习

A Mobile Client-Based Estimated Time of Departure Model in the Airspace in China

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Abstract：

Based on flight over-station status, a four-status model (Estimated pre-arrival status, Pre-arrival status, Board status, Door-Close status) is presented in this paper to predict the departure time of the flight. After fully analyzing each factor that affects each guaranteed time, we have built new models for each stage. After superimposing the above models, a new Estimated Time of Departure model is obtained. After historical data back-testing and half-year real-time prediction using 235 airports data in China, the model shows its accuracy and stability. Furthermore, the results of the model have been updated to the App of Umetrip for viewing by all travelers in China. The results show that the model is accurate and effective.

keywords: air traffic departure prediction; delays; airports; machine learning

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中国城市物流发展空间结构演化及影响因素

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摘　要：通过研究 2005-2016 年中国 285 个地级及以上城市物流业发展水平异质性在地理空间分布总体态势的动态变化及影响因素，得到以下研究结论：一是我国城市物流发展空间结构呈现"东北—西南"走向且较稳定；二是我国城市物流区域发展不平衡问题突出，空间结构演化呈现区域异质性特征，其中，东部沿海地区城市物流发展呈现多点多级空间格局，中西部地区呈现单点单级空间格局特征；三是东部沿海地区和中部地区核心城市物流业呈现极化发展向均衡扩散发展转变态势，大部分的中、西部地区核心城市物流发展仍处在极化发展阶段或者极化发展阶段向扩散发展阶段转变的过程中；四是中国城市物流发展存在显著的正向空间自相关关系，在地理分布上呈现集聚特征；五是城市物流发展存在显著的正向溢出效应，物流中心城市对周边城市物流发展溢出效应呈现区域异质性特征。

关键词：城市物流；空间结构演化；影响因素；空间杜宾模型

Spatial Structure Evolution of Chinese Urban Logistics Development and Its Influencing Factors

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Abstract：

　　Through the study of the dynamic changes and influencing factors of the overall situation of geographical spatial distribution heterogeneity of 285 cities in China from 2005 to 2016, this paper got the following conclusions. First, the spatial structure of Chinese urban logistics development is "Northeast-Southwest" and relatively stable. Second, the development imbalance of Chinese urban logistics is prominent, and the spatial structure evolution presents regional heterogeneity. Among them, the urban logistics development in the eastern coastal areas presents a multi-point and multi-level spatial pattern, while the pattern of central and western regions is single-point and single-level. Third, in the core cities of the eastern coastal areas and central regions，the development characteristics of logistics industry has changed from polarization development to balanced and diversified development. Most of the core urban logistics development in the central and western regions is still in the process of polarization development or the transition from polarization development to diffusion development. Fourth, there is a significant positive spatial autocorrelation in the development of urban logistics in China, which presents agglomeration characteristics in geographical distribution. Fifth, there is a significant positive spillover effect in the development of urban logistics, and there is regional heterogeneity of logistics center city's spillover effect on logistics development in surrounding cities.

keywords: urban logistics; spatial structure evolution; influence factors; spatial Dubin Model

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老年人公交出行行为分析——以郑州市为例

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摘　要：在当今我国社会老龄化快速发展的背景下，为了解老年人的对象特性及出行特征、改善老年人的出行质量，对郑州市 55 岁以上部分老年人进行出行调查。调查包括个人家庭基本属性、出行情况、、出行意愿等主要内容。通过调查分析得出郑州市老年人的总体出行特征，包括出行目的分布、出行频率、时空分布特征、出行方式选择及其影响因素，同时对老年人错峰出行的意愿进行了调查和分析，提出了错峰出行的具体思路和措施，并根据老年人的需求，分析了老年人期望和可忍受的公交换乘步行距离，以此对公交换乘站布局提出了指标建议。

关键词：综合交通运输；老年人；出行特征；公共交通；出行意愿

Study on the Bus Travel Behavior Characteristics of the Elderly in Zhengzhou

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Abstract：

In China, small and medium-sized cities, especially small cities, for some reason, the disagreement may arise between local governments and the railway sector in engineering design, particularly with regard to the location of the railway station site, the station and the station room type, station room size, integrated hub functional orientation, and these aspects are often important external conditions required prior express when Local governments Make plans for the comprehensive transportation hub at the core of the railway station. With Gaoyou high-speed rail station as an case, the paper introduces the ideas and specific analytical methods about how to determine the significant external conditions of the high-speed rail station comprehensive passenger transport hub in small city, not only referred to construction experience of other cities railway hub, and closely combined with the city's own actual situation, specification and the objective needs, and comprehensive comparative analysis of various factors .It provides theoretical guidance and Experience conducting correlation analysis for other cities.

keywords: integrated transport; the elderly; travel characteristics; public transportation; willingness to travel

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简单回顾世界辅助公交系统发展历史并探讨对中国的启示

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（1.Xi'an Jiaotong-Liverpool University;2.西交利物浦大学城市规划与设计系）

摘　要：本文对欧美以及亚洲地区一些国家辅助公交系统的发展历史和现状进行了梳理和总结，发现欧美地区的辅助公交普遍有着对弱势群体的关注以及制度化体系化的管理，但同时也普遍面临着财政压力以及用户群体流失等问题。东南亚地区的辅助公交多缺少政府监管，主要作为私人的盈利工具，但也加强了当地居民的可达性并逐渐成为一种文化符号。香港公交由私人资本主导，但其辅助公交不仅是作为盈利工具而且受到商会以及政府的监督。中国的辅助公交在近年来也开展了一些实践，主要以国有集团主导，私人企业因为自身运营问题以及法律地位等原因面临着相当的困难。研究认为中国辅助公交在未来的发展需要注意：优化对私有资本的利用；加强对特殊群体的关注；以及探寻与传统公交模式相衔接的特色运行模式。

关键词：辅助公交；公共交通；文献综述

Review of World's Paratransit System Development History and Assessment of Its Implications for China

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Abstract：

This paper reviews the studies on the history and existing status of paratransit systems in America, Europe and Asian areas. It is found that most American and European countries focus on the management and supervision of the paratransit systems. In addition, the concern for the vulnerable groups such as elderly and disabled people is also emphasized by these two areas, which also brings a heavy burden to the local fiscal sustainability. In contrast, the paratransit in Southeast Asia countries usually lacks supervision and is mostly the tool for profit, which, however, finally becomes a cultural icon. The public transport in Hong Kong is dominated by the private capital but its paratransit can be supervised and organized by both the chamber of commerce and the government. There are also some practices of paratransit in China but the private companies usually fail due to the vague legislation and the competition of state-owned enterprises. This study suggests that paratransit in China should optimize the use of private capital, take vulnerable groups into consideration and further develop the operation model that can combine paratransit with conventional public transport network.

Keywords: paratransit system; public transport; literature review

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爱，可以让"出行服务"变得有温度

张瑾

(《交通文化网》编辑部)

摘 要：当前人口老龄化、超高老龄化问题愈发突出，城市如何打造适老的交通和应对体系是值得认真探讨的问题。本文聚焦老龄交通的一些困惑，并探索其出路。这些困惑包括：越来越严格的交通执法与没有优质服务的保证；叫车平台没有资金做宣传；首汽服务同样缺少资金支持宣传。作者认为，老年出行的方式急需认真纳入调研与实施阶段，"适老化"的智能交通与技术创新有待宣传推广，积极推动有关助老服务的创新与尝试等。

关键词：老龄交通；叫车平台；出行方式；适老化

How to Make the Traveling Service for the Elderly Warmer and More Convenient

Zhang Jin

(《交通文化网》编辑部)

Abstract：

This talk gives some viewpoints on the eldly transportation in China from some investigation in Beijing.

keywords: the elderly transportation; taxi platform; travel mode; adapting the aging trend

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Does the High Walk Sore Mean Walkability for Aging People? - Evidence from Xiamen Island，China

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Abstract：Walk Score® was originally developed by Front Seat Management, LLC. The walk score algorithm uses a distance-decay function. If the closest certain type amenity is within 0.25 miles (400m), walk score assigns the maximum points for that type. No points are awarded for destinations more than 1 mile (1.61km) away. Amenities were originally divided into 5 categories and 13 sub categories, but the categories could be changed in different geographical context. In addition, the walk score is often modified according to the intersection density of road network, street block length and other factors. Although walk score has been widely used in the United States, Australia, Canada, Britain, Germany and other countries or regions, it uses the uniform weight for each type of amenity ignoring different population groups. However, different groups of ages and occupations have different needs for amenities.

This study would investigate the aging population group (age>=65) in Xiamen island (including Siming and Huli districts) based on the walk score map. The calculation of walk score primarily depends on two types of data: road network and point of interest (POI), including road information and all kinds of amenities. Each amenity type is chose and weighted based on the previous researches in Chinese context. The 150mx150m grids are employed for calculating the walk score of single points, considering the distance decay, intersection density of road network and street block length. Finally, the walk score of study area would be achieved through kriging interpolation method using the walk score of single points.

To verify the"real walkabilty"for the aging population, the daily travel survey would be conducted for aging residents in Xiamen island, including 2 districts and 14 sub districts (jiedao). The random sampling is employed in each categorical area based on the walk score："very car-dependent"(below 25)；"car-dependent"(25–49)；"somewhat walkable"(50–69)；"very walkable"(70–89)；and"walker's paradise"(90–100). Pearson correlations would be calculated between the self-report walkability from aging population with the manually calculated walk scores. The results of survey would validate if the aging people feel more walkability in the high walk score areas, while they feel less walkability in the low walk score areas.

Key words：walkability; walk Score; aging People

基于出行幸福感的上海老年综合津贴政策绩效评价

冯苏苇

（上海财经大学）

摘 要：上海是中国率先实施老年综合津贴政策的城市，自 2016 年 6 月起将免费交通卡改为按年龄段发放的老年综合津贴，政策实施三年来效果亟待综合评估。本文首先从老年人公共交通补贴角度入手，通过建立不同补贴方式下老年人经济效用模型，对无补贴、完全补贴和货币补贴等方式的实际效用展开分析和评价。进一步，根据上海老年人出行幸福感问卷调查，对老年综合津贴政策对各个年龄段老年人出行需求满足程度进行分析评价。研究表明，除 65-69 岁组的老人出行效用下降之外，其他各组均较好的达到综合津贴政策目标。在当前不断加深的老龄化社会背景下，本文以期从老年人效用出发来考虑特殊群体的实际出行需要，为未来老年人交通补贴政策提供理论依据，同时也为政策完善提供参考。

关键词：老龄化，交通补贴，老年综合津贴政策，出行幸福感，效用分析

Performance Evaluation of Transportation Subsides to Elderly People in Shanghai, China

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Abstract：

　　In June 2016, the Shanghai Municipal Government became the first city in China to introduce a Comprehensive Old-Age Allowance Policy for the purpose of improving the life quality of the elderly. Unlike giving free-riding cards to the elderly to take buses and metros in most of the cities, this policy allocates special transportation subsides to the elderly in Shanghai according to age groups. After 3 years'implementation, the comprehensive policy effects should be systematically evaluated. This paper first sets up utility models in order to compare the effects of three scenarios, including without subsides, free-riding cards (totally covering the travel cost) and monetary subsides according to different age groups. It further evaluates to which extend the Comprehensive Old-Age Allowance Policy satisfies the travelling needs of the elderly according to their age, life preference and travel mode by conducting a survey on the travel happiness of the elderly in Shanghai. It finds that except the group with the age 60-65, travel utilities of the other groups have been improved by the Comprehensive Old-Age Allowance Policy. Under the background of the deepening process of China's aging degree, these findings emphasize meeting the actual travel need of the elderly by improving their utilities and will give good reference and theoretical foundation to the subside policy of the elderly in the future.

Keywords: aging; transportation subsides; comprehensive Old-Age Allowance Policy; travel happiness; utility analysis

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垂直交通障碍如何影响老年人的户外体力活动

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摘 要：研究目的：本研究以创建老年宜居环境为目标，针对中国城市大量存在的多层无电梯住宅建筑展开研究，探讨攀爬楼梯对老年人出门活动的意愿、以及每日体力活动水平的影响。设计和方法：研究在上海市招募了 75 位居住在普通公共住房（多层无电梯）社区的退休老人佩戴 Fitbit 健康手环，并对他们开展了持续 31 天的体力活动的测量。基于参与者所居住的楼层，对老年人的出门活动频率和户外体力活动水平开展分析。研究结果：结果显示，居住在 4 层以下的老年人在从事户外体力活动方面表现得更为活跃。就出门的活跃程度来看，男性老年人在 3.91 楼以上明显下降（R2 = 42.50%），女性老年人在 4.17 楼以上明显下降（R2 = 46.42%）。就老年人每日体力活动水平而言，显著负面影响出现在 3.46 层以上。研究启示：本研究通过持续测量老年人的出行探讨垂直移动障碍如何影响老年人出门意愿及其体力活动水平。以促进健康老龄化为目标，研究发现对于住宅建设规范等政策的制定、以及既有住区更新过程中居住建筑适老化改造等具有重要参考价值。

关键词：体力活动；积极老龄化；老年居民；垂直接通；公共住房

How Does Vertical Mobility Obstacle Affect the Older Residents' Outdoor Physical Activities?

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（Tongji University）

Abstract：

Purpose of the Study: This study examined how a vertical mobility obstacle, i.e. mandatory stair climbing in residential buildings due to lack of elevators, may impact the seniors' mobility and physical activities. Design and Methods: Seventy-five retired seniors were wearing a fit bit HR wristband with their mobility and physical activity measured for 31 consecutive days. Regressions were performed on the leaving-home or not probability and daily physical activities by the level of obstacles (floors the participants were living on). Results: This study revealed that the Chinese seniors living on moderately higher floor (no more than 4th floor) were found to leave home more often and maintain a higher physical activity level. We observed a quadratic impact of commendatory stair climbing both on the probability whether seniors leave their residence or not (males: peak at 3.91th floor, R2=42.50%, females: peak at 4.17th floor, R2=46.42%) and on their daily physical activities (peak at 3.46th floor, adj R2=27.92% with demographic, health and lifestyle factors controlled). Implications: This study offered an insitu observation on how a vertical mobility barrier may influence seniors' probability of leaving homes and their physical activities. It provides evidence to support policy making on regulations concerning elevators in residential codes and renovations.

keywords: physical activity; active aging; older residents; vertical obstacle; public housing

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我国私人小汽车拥有权管制政策及其绩效分析——以上海为例

冯苏苇

（上海财经大学）

摘　要： 随着中国城镇化和机动化进程加速，已有多个城市实施了私人小汽车拥有权管制政策。为了给政策完善提供有价值的参考，有必要对该政策产生的宏、微观效应进行分析和评估。以上海市为例，基于公共管制理论，综合运用多种经济计量方法，从宏观层面测算额度管制对私人小汽车增长的限制效果，发现政策成熟期之后私人汽车拥有量年增幅约减少 26% ~35%。同时，由年度数据分析拍卖市场中额度投放量、竞拍人数和年均中标价的外部影响因素和内部关联机制。进一步，从微观层面验证月度数据对应的拍卖市场关键变量之间的互动关系，并强调宏微观结论的相互应验和一致性。

关键词： 交通政策；私人小汽车额度；经济计量方法；拥有权管制；政策效应

The Econometric Analysis on Macro and Micro Effects of Car Ownership Control Policy in Shanghai

Feng Su Wei

（Shanghai University of Finance and Economics）

Abstract：

　　With the rapid development of urbanization and motorization in China, several cities have implemented a series of car ownership control policies. It is necessary to assess the effects for policies improvement. Based on the public regulation theories and a couple of econometric methods, this paper discusses the macro and micro effects of the Shanghai quota auction policy on controlling the growth of car ownership. The results show that the policy has decreased annual car increment by 26%~35%. In addition, the paper analyzes the influence of external factors and the mechanism of internal correlation in the quotas, number of bidders, and annual mean winning bids using annual data of the auction market. The monthly data of the auction market is discussed to reveal the mutual relationships of the major factors at micro level, and to verify several rules coherently at macro level.

keywords: transportation policy; quota for private cars; econometric methods; car ownership control; policy effects

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SCM 模型对上海私车额度拍卖政策效果的估测与评价

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（上海财经大学）

摘 要：随着交通拥堵问题日益严峻，我国北上广等特大城市开始实施限制私人小汽车增长的政策。为了给其他城市相关政策的决策和实施提供借鉴，基于合成控制法，本文估算出 2004-2017 年间上海私人小汽车额度拍卖政策所产生的政策效果使人均私人小汽车减少了 47%左右，且通过了安慰剂检验，并与 DID 方法得到的结果及其接近。该结果证实了私车额度拍卖政策的有效性，为相关政策的移植和推广提供了科学依据。

关键词：私车额度；拍卖；合成控制法；绩效评价；上海

SCM Model to Estimate and Evaluate the Effect of Shanghai Auction Policy of Quota of Private Cars

Zhu Linghui, Feng Suwei ,Sun Junxiu

（Shanghai University of Finance and Economics）

Abstract：

With the traffic congestion deteriorating, the Policy restricting the growth of private vehicles is being practiced in developed city like Beijing, Shanghai and Guangzhou, etc. In order to provide reference to other city in policy decisions and implementation, we estimate the effect about the auction policy of quota of private cars in Shanghai during 2004-2017 based on Synthetic control method. The result of estimation reveals that average private vehicles reduced approximately 47% , passed the placebo test and closed to the result of DID method which prove the effectiveness of the auction policy of quota of private cars and provide scientific demonstration for the transplanting and generalizing about correlated policy.

keywords: quota of private cars; auction; Synthetic control method; performance evaluation; Shanghai

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北京 APEC 会议期间空气质量应急管理的补偿效应研究

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摘 要： 本文采用断点回归设计，以 2014 年在北京举办的亚太经合组织（APEC）会议期间空气质量应急管理为例，分析应急管理措施潜在的负面行为激励及其对空气质量的影响，以期为城市空气质量应急管理政策提供决策参考。研究结果表明，应急空气质量保障措施的确在 APEC 期间取得了非常显著的改善效果，但是也导致盛会之前产生了显著的补偿效应，即由于 APEC 会议前后与会议期间的管制压力存在差异，受到应急管制的污染企业在管制压力较小的时段加大生产强度与污染排放强度，导致空气质量恶化的现象。最后基于研究结果提出系统评估应急管理体系的政策效果、合理设计差别化应急管理措施、评估应急管理的环境风险、研究减排企业的经济补偿、完善大气环境应急管理制度等政策建议。

关键词： 补偿效应；应急管理；空气质量

Compensatory Effect of Emergency Management on Air Quality During the 2014 APEC Conference in Beijing

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Abstract：

In recent years, in order to obtain satisfactory air quality, host cities tend to temporarily adopt emergent air-cleaning actions, including odd-even driving restrictions and temporary shutdowns of heavy polluting plants, during mega-events in China. To be characterized by temporary, radical, compulsory and hypernormal features, the use of emergency management measures often obtain remarkable improvement of the air quality during the events. However, whether the hypernormal measures could raise negative behavioral incentives is still left unknown. With reference to the concept of "compensatory effect" in physiology, which is the first time in the research field of environmental emergency management, using regression discontinuity design, we took the 2014 APEC meeting in Beijing as an example and analyzed the potential adverse effect of the emergency measures during mega-events on air quality before and after the events. The results showed that the air quality emergency measures achieved remarkable effect during the APEC meeting on the one hand. On the other hand, it also triggered a negative compensatory increase of emission before the event. Compensatory effect in this case, can be termed as the phenomena that an plant whose manufacturing process thus pollution discharge has been retarded by the emergency measures, when the restriction is not in the place, would develop a rate of production as well as emission greater than the normal progress. An Inference can be drawn from these is that, the longer and the more stringent emergency measures have been implemented, the higher possibility of a negative compensatory effect would be developed. Finally, policy suggestions are

provided based on the results.

keywords: compensatory effect; emergency management; air quality

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从交通概念转型看韩国首尔交通改革

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摘　要：上个世纪中期以来，韩国在短时间内经济取得快速发展，GDP 由 1960 年接近 40 亿美元变成 2004 年 7,600 多亿美元，44 年内 GDP 增长接近 200 倍。随着经济快速发展，更多人口聚居在首尔，韩国变成以首尔为主、人口高度集中的国家。居民出行需求越来越高，首尔亟需提高移动性。1974 年以前，首尔居民的主要出行方式是常规公交车。由于公交公司过度民营化，过于追求公司利润，以至于公交服务质量很差。随着经济发展，更多的居民放弃服务质量差、速度慢的公交车，转而选择私家车，私家车的拥有量急速增加。有限的道路资源上，过度增加的车辆数量引发严重的交通拥挤。并且公交车与新公交方式（地铁）产生竞争关系，公交乘客数量急剧下降，出现恶性循环。公交车行业的恶化带来巨大的外部性，包括道路拥堵、交通事故、环境污染等。因此，首尔市政府 2004 年开始实施公交改革，得到很大成就。

本文通过文献综述方法，了解首尔公交改革背景、改革之前的公交车服务于改革内容，分析公交改革取得成功的主要影响因素。并尝试从"交通（Traffic）"、" 移动性（Mobility）"及" 可达性（Accessibility）" 三个概念的转型来比较各时代的首尔公交政策。本文发现，虽然当前首尔市比 1950 年代增加了很多人口，行政区域也更大了，但是交通的可达性却变得更好，乘客满意度也更高，居民出行也更方便了。通过介绍首尔的经验与成就，以期为中国城市公交改革提供参考和借鉴。

关键词：首尔；公共交通；改革；交通测量方法；转型

From the Concept of Transport Transformation to Review Seoul's Public Transportation Reform

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Abstract：

　　South Korea has had a rapid economic development in a short period of time since the middle of last century. In 1960, the GDP of South Korea was almost 4 billion dollars, which changed to more than 760 billion dollars in 2004. In 44 years the GDP of South Korea grew by nearly 200 times. As the economy grew rapidly, more population were concentrated in Seoul, South Korea became a predominantly populated country. Seoul government needs to provide more quick and convenient mobility as citizens demand more services. Until 1974, Seoul's main travel mode was the regular bus. Due to the excessive privatization of the bus companies and their pursuit of profit, the service quality of Seoul's buses was very poor. With the economic development, more and more citizens are disgusted with the poor service quality and slow bus and use private cars, thus private car ownership increased rapidly. The excessive increase in the number of the limited

road resources caused serious road congestion. Moreover, as buses compete with the new public transport mode (subway), the number of bus passengers decreases even more, which lead to a vicious circle. The deterioration of the bus industry brings about huge externality, such as road congestion, traffic accidents, environmental pollution, etc. As a result, the Seoul city government implemented a bus reform in 2004.

Through literature reviews and personal interviews, this paper has given background of bus reform in Seoul, condition of the bus service before the reform. And it also has introduced in detail the contents of the public transport reform in Seoul in 2004 and analyzed the main factors for its success. Besides, it attempts to compare Seoul＇s public transport policies in different eras with the concepts transition from＂Traffic＂，＂Mobility＂to ＂Accessibility＂. We can find that even though Seoul now has a much larger population and a larger administrative area than it did in the 1950s, transportation is much more accessible, passenger satisfaction is much higher, and transportation is much more convenient. Through the experience and achievements of Seoul, we hope to provide experience and reference for the urban public transportation reform in China.

keywords: Seoul; public transportation; reform; transportation measuring methods; transition

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基于双层目标最优的交通枢纽选址模型

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摘 要: 交通枢纽作为城市运行的动脉, 其位置的选择和布局形式关乎一个城市未来的发展, 本文在分析国内外学者对交通枢纽选址研究的基础上, 通过交通配流法对备选交通枢纽进行确定, 再运用线性规划模型对初次确定的交通枢纽进行再次的筛选。为了与实际情况相结合引入出行成本、土地成本两个约束条件, 建立运输成本、土地建设成本最低的优化模型, 同时基于出行成本和土地利用约束条件的基础上建立枢纽选址总成本最低的优化模型。最后, 通过对西安市交通枢纽的现状分析, 深入剖析其存在的问题, 并运用三次指数平滑的方法对西安市客货运量进行预测, 针对存在的问题, 提出了相关的建议。

关键词: 交通枢纽; 交通配流法; 线性规划模型; 三次指数平滑

Location Model of Transportation Hub Based on Optimal Bi-level Objective

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Abstract：

As the artery of urban operation, the location and layout of the transportation hub is related to the future development of a city. Based on the analysis of the research on the location of transportation hubs by domestic and foreign scholars, this paper determines the alternative transportation hub through the traffic assignment method. Then, using the linear programming model to re-screen the first identified transportation hub. In order to combine with the actual situation, the two constraints of travel cost and land cost are introduced to establish an optimization model with the lowest transportation cost and land construction cost. At the same time, based on the travel cost and land use constraints, the optimization model with the lowest total cost of location choosing is established. Finally, through the analysis of the status quo of Xi'an transportation hub, the problems of the existing problems are deeply analyzed, and the cubic exponential smoothing method is used to predict the passenger and freight volume of Xi'an, and relevant suggestions are put forward for the existing problems.

keywords: transportation hub; traffic assignment method; linear programming model; cubic exponential smoothing method

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共享单车有序停放行为意向研究——基于修正的解构计划行为理论

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摘 要：绿色便捷的自行车对疏通城市交通毛细血管，促进交通微循环有重要意义。但实际中，乱停乱放的自行车也会给城市带来治理难题。从用户角度切入，探究其停放行为的内在动因，对如何做到有的放矢的治理停车有重要意义。本文以数量众多、使用者众的共享单车为研究对象，采用解构计划行为理论框架（DTPB），研究单车用户有序停放行为意向的影响因素。本文结合研究情境，对模型进行了必要的修正，将原框架中的兼容性与感知易用性整合为新变量感知适用性，实证发现：（1）态度、主观规范及知觉行为控制均对行为意向有显著的积极影响，其影响力依次增强；（2）感知易用性及整合后的新变量感知适用性均对态度有显著积极影响；（3）而主观规范和知觉行为控制的解构变量各有一个不显著，分别是同级影响和便利条件。本文讨论了以上结果的现实原因，并基于上述结果提出了促进用户有序停放意向的建议，对城市自行车停放治理有参考意义。

关键词：共享单车；有序停放意向；解构计划行为理论（DTPB）

Research on the Behavioral Intention of Orderly Parking of Shared Bicycles - Based on the Modified Decomposed Theory of Planned Behavior

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Abstract：

The green and convenient bicycle is of great significance to dredge the capillaries of urban traffic and promote the microcirculation of traffic. But in reality, the bicycle parked in disorder also can bring administrative problem. From the user's point of view, to explore the intrinsic motivation of parking behavior, how to do targeted governance of parking has important significance. This paper takes the shared bicycles with a large number of users as the research object and uses the framework of decomposed theory of planned behavior (DTPB) to study the influencing factors of the orderly parking behavior intention of bicycle users. Combined with the research context, this paper made necessary modifications to the model, integrating the compatibility and perceived ease of use in the original framework into a new variable --perceived applicability. The empirical findings were as follows: (1) attitude, subjective norms and perceived behavior control have a significant positive impact on behavior intention, with influence increasing; (2) perceived ease of use and perceived applicability have a significant positive impact on attitude; (3) subjective norms and perceived behavior control each have one insignificant decomposed variable, which respectively are peer influence and facilitating conditions. This paper discusses the practical reasons for the above results, and puts forward suggestions to promote the

orderly parking intention of users, which is of reference significance for the urban bicycle parking management.

keywords: shared bicycles; intention of orderly parking; decomposed theory of planned behavior (DTPB)

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Public Transportation Accessibility Analysis Based on the Two-Step Floating Catchment Area Method (2SFCA) : A Case Study in Xi'an

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Abstract：To explore the accessibility and spatial distribution of various streets in Xi'an and solve the problem of unreasonable distribution of urban public transportation network, using two-step floating catchment area method(2SFCA) to study the accessibility of bus stops in Xi'an from two aspects of supply and demand. The Gaussian distance-decay function is selected to calculate the accessibility of the bus stops under the threshold of 500 meters and 800 meters. The results show that the overall development of bus stops in xi 'an is unbalanced. The areas with high accessibility value of bus stops are mainly concentrated in the central city, while the areas with low accessibility value are mainly concentrated in the fringe areas, showing a pattern of spreading from the core of Lianhu District, Beilin District and Xincheng District to the surrounding areas. By comparing and analysing the accessibility under different distance thresholds, it is found that the average value of the accessibility increases significantly with the search radius increases.

Key words: accessibility

Overview and New Resilience Evaluation Method for Intelligent and Resilience Urban Infrastructures Planning in Smart Cities

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Abstract：Undoubtedly, infrastructure is the backbone of the world's economies. This include transportation networks, such as bridges, tunnels, subways, railways, ship yard cranes; water delivery, utilities, dams, various pipeline networks, power transmission, communication network, government centers, and large business centers. Resilience is fundamentally a theoretical concept. Yet ongoing and warranted reflection regarding this concept in the context of disaster and emergency management and mitigation, crisis management, and the protection of critical infrastructures, for instance, has thrust this concept into the policy making arena, where considerations concerning its practical application are becoming important. While difficult, given the complexity of resilience, and its definitional ambiguity, the ability to assess such a concept helps to bridge the gap between theory and application, between academic and policy circles. This paper introduces an overview of the intelligent and resilience urban infrastructures to support smart cities. It discusses and compares different definitions of the resilience infrastructures and big data (BD) and data mining (DM), methodology of implementation and explores the opportunities, challenges and benefits of incorporating resilience using BD applications for smart cities. In addition it endeavor to identify the requirements that support the implementation of resilience applications for smart city services. The review reveals that several opportunities are available for apply the resilience on infrastructure in smart cities; however, there are still many issues and challenges to be addressed to achieve better utilization of this technology, and the new evaluation methodology for the resilience system used gave specific and satisfied results and completely methodology for resilience evaluation.

Key words: smart city; urban infrastructures planning; resilience evaluation method; big data

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公交都市理念引导下的新城建设研究

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摘 要：公交都市是应对资源短缺、环境恶化、交通拥堵的一种战略，国内的研究和实践关注公交都市的指标及实施效果，本文探讨公交都市的概念，类型，特征，基于新城城市建设现状（产城状况，城市建设强度，开发模式）和交通现状（出行特征和公共交通症结）分析新城建设公交都市的必要性，倡导以公交都市理念引导新城建设，并就问题提出相应的策略。

关键词：公交都市；新城；公交导向

Research on New Town Construction Under the Guidance of Transit Metropolis Concept: A Case of Nanjing

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Abstract：

Transit metropolis is a strategy which is to deal with the shortage of resources, environmental degradation, and traffic congestion, Domestic research and practice usually focus on indicators and implementation results.This paper Explores the concept of transit metropolis, types and characteristics, based on the construction status of New Town in metropolitan area (production–city conditions, the intensity of urban construction, development mode), and the traffic situation (travel characteristics and transit cruxs) , analysis the necessity of transit metropolis in New city of the metropolitan area, advocates that the new city construction should be guided by the concept of transit, Finally, the corresponding strategies are put forward.

keywords: transit metropolis; new town; transit oriented

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区域高速公路网规模影响因素分析

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摘 要：本文分析发达国家 1963 年至 2007 年的高速公路发展历程，类比 C-D 生产函数理论，建立区域高速公路网发展规模因素影响模型。模型指出，发达国家高速公路的发展历程经历了经济驱动型和人口驱动型两个发展阶段，通过经济分析指出相应的临界点，并通过实例验证。对人口驱动型阶段，本文进一步分析得出是人口中驾驶员数量的增加促进了高速公路的发展。此研究可为国家区域高速公路网规模与人口、经济协调发展提供基础理论。

关键词：高速公路；规模；人口；GDP

Analysis of Factors Affecting the Scale of Regional Expressway Network

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Abstract：

This paper analyzes the development history of highways from 1963 to 2007 in developed countries, analogous to C-D production function theory, and establishes the influence model of regional highway network development scale factors. The model points out that the development of expressways in developed countries has experienced two stages of economic development and population-driven development. The economic analysis shows the corresponding critical points and is verified by examples. For the population-driven phase, this paper further analyzes that the increase in the number of drivers in the population has contributed to the development of the expressway. This research can provide a basic theory for the coordinated development of national highway network size and population and economy.

keywords: highway; scale; population; GDP

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基于行人感知的排队区服务水平评价方法研究

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摘 要：行人排队等候区是一种重要的行人交通设施，排队区的服务水平受到排队区客观环境等多种因素的影响。相对于 HCM2000 中仅仅以排队区人均空间作为服务水平的划分标准，本文从排队区行人的舒适性感知评价出发，结合排队区的客观环境等因素研究高强度客流的室外排队区服务水平评价方法。通过上海世博会场馆排队区游客的问卷调查数据，将排队区分为普通场馆排队区和热门场馆排队区，然后分析对两种排队区感知服务水平产生影响显著的客观环境因素，利用 ordered probit 模型确定两种排队区服务水平划分标准，为提高室外排队区的服务水平提出改善建议。

关键词：行人排队区；服务水平；ordered probit 模型；排队时间

Level of Service Evaluation Method for Pedestrian Waiting Area Based on Pedestrian Perception

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Abstract：

　　The pedestrian waiting area is a kind of important pedestrian traffic facility. The "level of service" (LOS) evaluation of waiting areas is influenced by objective environment. Relative to HCM 2000, which only uses the average space available to each person of the waiting area as the LOS evaluation standards. Based on the pedestrians' perception evaluation of comfort in the waiting area, and combined with the objective environmental factors of waiting area, the article analyzed the LOS evaluation method of high density passenger flow outdoor waiting areas. With questionnaire survey data from Shanghai World Expo waiting area, the pedestrian waiting area was divided into hot pavilion waiting area and normal pavilion waiting area, the paper analyzed the objective environment factors which affect two kinds of waiting area LOS significantly, used the ordered probit model to determine two kinds of waiting area LOS evaluation standards, and gave some recommendations to improve the LOS of the outdoor waiting area.

keywords: pedestrian waiting area; level of service; ordered probit model; waiting time

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江苏省高速公路超低能耗建筑技术途径探讨

赵娜

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摘 要：近年来，我国对超低能耗建筑关注度越来越高，但在江苏省高速公路房建领域还有所欠缺。本文结合江苏省高速公路房建区特点，从被动式节能技术、外围护结构的保温性能、可再生能源利用、智能化设计等方面出发，探索其在具体案例中的应用。希望这一探索能对超低能耗建筑在江苏省高速公路房建区的应用提供参考。

关键词：高速公路房建；超低能耗；技术途径

Exploration of the Approaches of Ultra-Low Energy Consumption Building Construction Technology in Expressway Building Area in Jiangsu Province

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Abstract：

In recent years, there has been increasing attention on ultra-low energy consumption buildings around the world. Based on the characteristics of Jiangsu Expressway housing construction, this article discusses practical applications in Expressway housing construction: passive energy saving technology, insulation performance of the external building envelope, renewable energy utilization, intelligent design. This exploration can assist in the development of ultra-low energy consumption buildings in Jiangsu Expressway housing construction.

keywords: expressway housing construction; ultra-low energy; technical approaches

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共享单车走进新时代

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摘 要： 新时代催生了共享单车。在经历了短暂的暴发式增长之后，共享单车忽遇"封杀令"，蓦然蛰伏。本文认为，共享单车境遇的根源来自城市建成环境排斥、世俗社会偏见、政策管理傲慢等诸多方面，其潜能远没有得到发挥。新时代的改革和创新具有包容性，共享单车为代表的新生事物必将伴随中华文明的崛起走向世界，深刻改变着社会生产生活方式和空间物质形态。

关键词： 共享单车；新时代；公共自行车；官方单车

Shared Bicycle into New Era

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Abstract：

A new era has given birth to shared bicycles. After experiencing a short burst of growth, sharing bicycles suddenly fell dormant under the "blockade order". This paper holds that the root of sharing bicycle situation comes from many aspects, such as urban built environment exclusion, secular social prejudice, policy management arrogance and so on. Its potential is far from being brought into full play. Reform and innovation in the new era are inclusive. The new things represented by sharing bicycles will surely follow the rise of Chinese civilization to the world and profoundly change the way of social production and life and the form of space material.

keywords: public bicycle; shared bicycle; official bicycle; new era

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城市中心城区行人与非机动车交通分区方法初探——以天津为例

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摘 要：本文通过对天津市中心城区步行与自行车交通发展战略中分区方法的介绍，提出了步行和自行车交通分区应该跳出传统交通分区的思维，而更多的参考城市功能和形态分区，利用大数据分析，综合考虑可开发用地、步行与自行车分担率、短距离小汽车出行量、街道指数等影响因子，根据城市不同片区路网密度、慢行交通供给和需求的不同，将天津市中心城区划分6类区域，包括核心区、核心拓展区、孵化区、提升区、潜力区和工业区，并对不同的分区提出有针对性的提升与优化措施。

关键词：步行与自行车交通；步行与自行车分区；绿色交通战略；大数据；天津

Center City Area Pedestrian and Bicycle Zoning Methodology Study: A Case of Tianjin

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Abstract：

The paper presents the zoning method for the pedestrian and bicycle development strategy in Tianjin downtown area, and proposes that the pedestrian and bicycle traffic zoning should think outside of the traditional traffic zoning, and more refer to the city function and form structure, use big data analysis, Considering the impact factors such as available land for development, share of walking and bicycles, distance traveled by small-distance cars, and street index, the city center of Tianjin is divided into 6 categories based on different road network density and slow-moving traffic supply and demand in different areas of the city. Regional, including core region, core expansion region, incubation zone, upgrading zone, potential zone, and industrial zone, and propose targeted improvezment and optimization measures for different areas.

keywords: pedestrian and bicycle; zoning; green transportation; big data; Tianjin

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情景分析方法在天津市中心城区绿色交通发展战略研究中的应用

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摘　要：在天津市中心城区绿色交通发展战略研究中，我们采用情景分析的方法来研究确定适合天津市中心城区绿色交通发展需求的相关政策建议。四个主要的情景要素成为情景搭建的基础，分别是公共交通系统、土地利用策略、步行与非机动车系统、机动车交通发展政策。在每个情景要素中，将具体政策措施分别设定为温和措施和强化措施两大类并进行不同措施的矩阵组合；最终确定五个情景进行测试，分别为基准情景和四个具有代表性的比较情景。情景测试的结果围绕绿色交通分担率等 18 项核心指标展开进行定性与定量结合的分析，确定最优情景，其相关的政策措施也作为天津中心城区绿色交通发展的政策建议。

关键词：情景分析；绿色交通发展战略；天津

The Application of Scenario Analysis in the Study on Green Transport Development Strategy of Downtown Area of Tianjin

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Abstract：

In the Study on Green Transportation Development Strategy of Downtown Area of Tianjin, scenario analysis is conducted to develop policy recommendations for the green transportation development of Downtown Area of Tianjin. Four elements are the basis of scenario building——public transit, land use, non-motorized transportation, and automobile transportation policy. In each of the scenario elements, detailed measures are grouped in intensified and moderate combinations that create the matrix of different measures of four elements; five scenarios are built, including the base scenario and four comparative scenarios. The five scenarios are evaluated by 18 core indicators of green transportation with qualitative and quantitative analysis and the optimum scenario is determined, and the measures of the optimum scenario are recommended for green transportation development policy.

keywords: scenario analysis; green transportation development strategy; Tianjin

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生态城市绿色交通体系规划探索与实践——以新乡生态城为例

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摘　要： 为探索一条适合新乡生态城绿色交通的发展路径，对绿色交通的内涵与理念进行剖析，绿色交通更加注重与生态的协同，更加注重与城市的协同，更加注重人的服务。提出构筑"公交+慢行"主导的绿色交通发展愿景，从目标、策略、体系构建三个层面，探索生态城绿色交通发展模式。系统构建层面，提出慢行交通系统、公共交通系统、道路网系统、停车系统规划的规划思路、要点和方案，为新乡类型城市绿色交通进行探索与实践。

关键词： 生态城；绿色交通；交通规划；交通体系

Exploration and Practice of Eco-City Green Transportation System Planning：Taking Xinxiang Eco-City as an Example

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Abstract：

In order to explore a development path suitable for the green transportation of Xinxiang Eco-city, the connotation and concept of green transportation are analyzed. Green transportation pays more attention to the coordination with the ecology, pays more attention to the coordination with the city, and pays more attention to human service. It is proposed to build a green transportation development vision dominated by"Public transit + slow traffic", and explore the eco-city green transportation development model from the three levels of objectives, strategies and systems. At the system construction level, the planning ideas, key points and schemes of the slow traffic system, public transportation system, road network system and parking system planning are proposed to explore and practice the green transportation of Xinxiang type cities.

keywords: ecological city; green transportation; transportation planning; transportation system

步行与非机动车交通网络规划及建设技术指引——以铜陵市为例

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摘 要：在各类道路相关的规划设计规范与标准中，机动车道路的分类分级标准较为明确，而步行与非机动车交通系统的分类分级，也即网络规划方法却尚未统一，各个地方的不同项目往往会有不同的网络规划结果，从而产生不同的建设技术指引。本文从网络规划的目标与原则入手，选取国内外的典型案例进行研究，提取出网络规划的关联要素与关联因子，并分析与铜陵的关联度，得到铜陵的步行与非机动车交通网络规划，并以列表与图形形式进行表示。在此基础上，对铜陵的步行与非机动车交通的规划建设技术标准进行研究，用以指导下一步道路、市政附属设施规划设计以及街道家具的配置。

关键词：步行与非机动车；网络规划；关联要素；技术指引

Pedestrian and Non-Motorized Vehicle Transport Network Planning and Technical Guidelines for Construction - Taking Tongling City as an Example

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Abstract：

In all kinds of road-related planning and design specifications and standards, the classification and grading standards for motorway are relatively clear, while it for pedestrian and non-motorized vehicle transportation systems, that is, the network planning methods have not been unified. There will be different network planning results in different projects and places, which results in different construction technical guidelines. Starting from the objectives and principles of network planning, this paper selects typical cases domestic and international to study, extracts the related elements and correlation factors of network planning, and analyzes the correlation with Tongling City, and the network planning of pedestrian and non-motorized vehicle transport in Tongling City is obtained. On this basis, the technical standards for the planning and construction of pedestrian and non-motorized vehicle transport in Tongling City are studied to guide the planning and design of the road, municipal auxiliary facilities and the arrangements of the street furniture in next stage.

keywords: pedestrian and non-motorized vehicle transport; network planning; relative elements; technical guidelines

基于 AHP 法的城市慢行交通步行友好性评价

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摘 要：随着城市化进程的发展，交通拥堵、停车难、空气污染、能源过耗等问题日益严重，"以车为本"的交通发展理念逐渐暴露出弊端。同时由于近年来共享单车的广泛推广和应用，慢行交通的发展逐渐被重视起来。本文选择 AHP 评价法，从安全性、舒适性、方便性三个层面建立城市慢行交通步行友好性评价体系，进而确定各指标权重，并对北京市地铁 1 号线、10 号线、八通线地铁站点周边慢行交通步行友好性进行评价，为更好改善城市慢行交通提供理论基础，提高我国城市慢行交通步行友好程度。

关键词：慢行交通；友好性；层次分析法；指标体系

Evaluation of Urban Slow - Traffic Walking Friendliness Based on AHP Method

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Abstract：

　　With the development of urbanization, traffic congestion, parking difficulties, air pollution, energy consumption and other problems are becoming more and more serious. the concept of "car-oriented" traffic development has gradually exposed drawbacks. At the same time, due to the wide promotion and application of shared bicycles in recent years, the development of slow traffic has been paid more and more attention. In this paper, the AHP evaluation method is selected to establish the urban slow- traffic walking friendliness evaluation system from three aspects: safety, comfort and convenience. Then the weight of each index is determined, and the slow traffic walking friendliness around the subway stations of Beijing Metro Line 1, Line 10 and Batong Line is evaluated, which provides a theoretical basis for better improving the urban slow traffic and the friendliness of slow traffic and walking in cities of our country.

keywords: slow traffic; friendliness; analytic hierarchy process; index system

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"城市双修"语境下的城市边缘区步行系统规划

——以宁波市蛟川地区为例

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摘 要：步行系统规划设计是实践"城市双修"的一种方式，本文探讨了步行系统的内容、特征及实施路径，以宁波蛟川地区为例，基于城市建设、居民出行和步行系统的现状特征，从步行分区、步行通廊、步行道路三个维度着手，给出相应的修补策略。

关键词：城市双修；步行系统；城市边缘区；公共活动场所

Pedestrian System Planning in Urban Fringe Under Context of Urban Betterment and Ecological Restoration：A Case of Ningbo Jiaochuan Area

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Abstract：

Pedestrian system planning is a way to practice "urban betterment and ecological restoration". This paper discusses the content, characteristics and implementation path of pedestrian system. Based on current characteristics of urban construction, resident travel and pedestrian system. Moreover，this paper puts forward corresponding restored strategies from the three dimensions of pedestrian zoning, pedestrian corridor and pedestrian road, and chooses Jiaochuan in Ningbo as a case to expand detailed instructions.

keywords: urban betterment and ecological restoration；pedestrian system；urban fringe; public activity space

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共享单车停放乱象的成因及对策研究

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摘　要： 随着共享单车的发展，乱停放问题日益严重，对此问题的专门研究却还尚少。为了提供有价值的对策参考，本文对共享单车停放乱象的成因进行定性分析和因子分析。定性分析从利益相关者的角度分析了政府、企业与共享单车用户三方在停放环节的利益冲突，发现冲突的直接调和点在于降低用户的有序停放成本，促使用户有序停车。据此，本文随后对用户有序停放的影响因素进行探索性因子分析，挖掘停放乱象的深层次成因，发现单车停放环境不友好、硬件设施差是造成用户乱停的主要原因。鉴于此，要解决乱停问题，改善停车环境、降低用户的停放成本是必要之选。

关键词： 共享单车；乱停乱放；利益相关者；因子分析

Research on Causes and Countermeasures of Parking Disorder of Shared Bicycle

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Abstract：

　　With the development of Shared bicycles, the problem of parking disorder is becoming more and more serious. In order to provide valuable countermeasures, this paper makes qualitative analysis and factor analysis on the causes of the disorder of Shared bicycle parking. Qualitative analysis analyzes the interest conflicts among the government, enterprises and users of Shared bikes in the parking link from the perspective of stakeholders, and finds that the direct reconciling point of conflicts lies in reducing users' orderly parking cost and promoting users' orderly parking. Based on this, this paper then conducts an exploratory factor analysis on the influencing factors of users' orderly parking, excavates the underlying causes of the parking disorder, and finds that the unfriendly parking environment and poor hardware facilities are the main reasons for users' disorderly parking. In view of this, in order to solve the problem of parking disorder, it is necessary to improve the parking environment and reduce the user's parking cost.

keywords: shared bicycle; parking disorder; stakeholders; factor analysis

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Travel Impedance for Bicycles: From Physiological and Psychological Perspective

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Abstract：Bicycle travel has attracted increasing attention in recent years. Compared to motor vehicles which typically use distance and time as the key metrics for measuring travel impedance, bicycles are"human-powered"and have very different features. First, the physical energy expenditure of the human body is the main cost for bicycle travelers. Cyclists often prefer to ride on facilities that require lower energy expenditure. Second, cyclists are psychologically more affected by the travel environment, which can be evaluated by bicycle level of service (BLOS). This paper thus proposes a novel method for estimating bicycle travel impedance from the physiological perspective, which integrates the consideration of human energy expenditure and the effects of BLOS. The paper also calibrates the travel impedance function using real-time Global Positioning System (GPS) data and physiological data collected from onsite experiments in Xi'an, China. The method builds a direct connection between travel impedance and environmental factors. These findings will be helpful for traffic operators and policy makers to assess existing transportation services and to design strategies that promote more sustainable transportation activities.

Key words: bicycle; travel impedance; energy expenditure; physiological perspective; bicycle level of service

基于路径识别的上海市典型地区骑行交通环境优化研究

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摘 要： 良好的骑行环境是促进骑行交通发展的重要因素。基于海量数据分析下的骑行路径识别，应用多项逻辑特模型对骑行环境的影响要素进行综合评价，结果表明骑行者重点关注的要素包括机非隔离设施、路内停车、道路两侧绿化、道路机动车流量以及非机动车停放设施等。并选定五类典型区域进行骑行环境要素的综合评价，针对不同的用地特征、不同的用户群体和不同的骑行目的提出因地制宜的骑行交通环境优化改善建议。

关键词： 路径识别；骑行时空特征；骑行交通环境；优化策略

Research on Improvement of Typical Areas Cycling Traffic Environment in Shanghai Based on the Cycling Route Recognition

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Abstract：

Good cycling environment is an important factor to promote the development of cycling traffic. Based on the analysis of massive data, this paper uses multiple logistic models to evaluate the impact factors of cycling environment. The results show that the key factors that cyclists pay attention to include non-isolation facilities, in-road parking, and greening on both sides of the road, road vehicle flow and non-motor vehicle parking facilities. Five typical areas are selected for comprehensive evaluation of cycling environment elements. Suggestions for optimizing and improving cycling traffic environment are put forward according to different land use characteristics, different user groups and different cycling purposes.

keywords: route recognition; spatial and temporal characteristics of cycling; cycling traffic environment; optimizing strategies

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共享单车校园出行行为特征分析

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摘 要：统计分析校园共享单车出行数据，研究校园共享单车独有的出行特征，结合当前存在的主要问题，从车辆设计、网点布局和运营管理的角度出发，提出车辆高强度化设计，简易化设施，便利化借还；网点设施满足大容量停放，批量化调度；运维上允许单车进校园，规律化智慧调度等发展建议，促进校园共享单车有序理性回归。

关键词：共享单车；大学校园；出行特征

An Analysis on Characteristics and Behaviors of College Traveling by Bike-Sharing

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Abstract：

Statistical analysis of campus shared bicycle travel data, research on unique travel characteristics of shared bicycle on Campus. Combining with the main problems at present, from the point of view of vehicle design, network layout and operation management. Suggestions on the development of operation and maintenance, such as the high-strength design of vehicles, simplified facilities and convenient borrowing and repayment ; Network facilities meet large capacity parking, batch scheduling; In operation and maintenance, bicycles are allowed to enter the campus and intelligent dispatching is regularized. Promote the orderly and rational return of bicycle sharing on campus.

keywords: shared bikes; university campus; characteristics of traveling

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影响非机动化交通系统效用的关键因素浅析

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摘 要：非机动化交通作为低碳、健康的出行方式，其有效纾解城市交通拥堵的出行作用日益受到关注。然而，近年来中国许多城市的非机动化交通规划多、建设多，但实际使用过程中却存在各种问题。因此，建立系统效用评估的框架显得尤为重要。本文以城市规划的视角，从纵向的实施步骤与横向的利益相关者两个维度入手，指认出非机动化交通系统实施过程中的的薄弱环节及其成因，以期为系统效用的提升提供规划层面的有效建议。

关键词：平等路权

A Preliminary Discussion on Key Factors Influencing the Utility of Non-Motorized Transport System

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（AECOM）

Abstract：

Non-motorized transport, as a low-carbon and healthy travel mode, was put under more consideration as solution to urban traffic jam. Many cities in China formulated non-motorized transport planning, and put the planning into implementation, however, the obstacles and flaws of the non-motorized transport system became outstanding. Therefore, establishing the framework of system utility assessment would be a start toward solution. The paper integrated the analysis of vertical steps from planning to implementation, and the horizontal functions of stakeholders, aimed at identifying the weakness and cause in different steps, and proposing practical advice from the planning aspect.

keywords: equal road rights

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轨道站点周边地区步行环境评价

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摘 要：近年来，我国大力发展轨道交通，TOD 发展理念也越来越受到重视，特别是对步行交通的鼓励。本文选取具有典型特征的静安寺地铁站作为研究对象，并展开了深入的调研。在步行环境调查方面，针对影响可步行性要素，共设计了 19 个可量化的建成环境指标。然后，利用 Google 地图和三维街景地图、建筑测绘资料、实地调研等方式对 103 个街道段进行指标统计，并将街道实景制作成卡片供被调查者评分。由于每个人的日常活动范围和特定路径不同，针对片区的感知评分不能用于回归模型的因变量，所以选择以街道段为单位，来研究影响可步行性的建成环境因素，采用逐步回归法，得到可步行性整体回归模型的解释度为 0.652，得到结论：人行道有效宽度越宽、机非分离、街道两侧没有围墙、缓冲区宽度越宽，则可步行性得分越高。

关键词：轨道交通； TOD；可步行性；可持续发展

Evaluation of Pedestrian Environment Around Railway Stations

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Abstract：

In recent years, China has made great efforts to develop rail transportation, and the development concept of TOD has been paid more and more attention, especially for pedestrian traffic. Jing'an Temple subway station was selected as the research object and 19 measurable indexes that affect the walking and riding has been designed. Then, with the help of Google maps and three-dimensional street map, building data and field research, indicators of street sections were collected. Take the street section as a unit, regression model's interpretation of the walkable is 0.652. Effective width of sidewalk, motor-no-separation, no walls on either side of the street and buffer width have significant effects on walking ability. Among them, effective width of sidewalk is decisive factor in influencing the walkability score.

keywords: rail transit; TOD; walkability

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新城区绿道规划设计研究——以扬州生态科技新城为例

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摘 要： 本文以扬州生态科技新城为例，对城市绿道规划进行了深入研究。基于扬州生态科技新城绿道规划，介绍绿道规划的背景，分析绿道系统的现状问题；结合新城现状，遵循绿道功能，确定城市内部绿道建设的主要脉络，进行绿道系统结构性布局，最后得出整体规划方案。结合"系统性、生态性、协调性、特色性、人性化"原则，因地制宜的打造城市绿道系统，支撑新城"水岸绿城"的发展定位，满足城市居民休闲慢行交通需求，为当地生态旅游、生态农业及城市未来大型活动提供交通条件。

关键词： 绿岛

Research on Greenway Planning and Design for New Urban District -Taking Yangzhou Ecological Science and Technology New City as an Example

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Abstract：

Eco-city is the goal of continuous exploration in order to achieve sustainable development, and the green way can meet the needs of urban environment, economic and social ecological development, and has become one of the hot spots in the construction of eco-city at present. Taking Yangzhou Ecological Science and Technology New City as an example, this paper makes an in-depth study on urban green road planning. Based on the Green Road Planning of Yangzhou Ecological Science and Technology New City, this paper introduces the background of the Green Road Planning and analyzes the current situation of the Green Road system. According to the present situation of the new city and following the function of green way, the main context of the construction of green lane in the city is determined, and the structural layout of the green way system is carried out. Finally, the overall planning scheme is obtained. Combination of "systematicness, ecology" The principle of "nature, coordination, feature, humanization", to build urban green road system according to local conditions, to meet the urban residents' leisure traffic needs, to provide transportation conditions for local eco-tourism, eco-agriculture and large-scale events in the city in the future.

keywords: Greenway

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Will They Ride Them Back? User Behavior on Public Bikesharing Schemes: A Case Study of Hangzhou, China

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Abstract：Bikesharing is evolving and experimenting with different schemes including Station-based Bikesharing Systems (SBS) and Free-floating Bikesharing Systems (FBS). These different schemes can be found operating at the same time in the same city. To support the management of these different systems, factors that influence bikeshare-user patterns of one-way trips or round trips are examined in this study. Questionnaires were developed and distributed to collect user's socio-demographic information and their travel behaviors. Based on the data collected, descriptive analysis finds that the user structures for both systems are similar. To detect the factors associated with cycling for a round-trip or not, four variables concerning use frequency, age, departure time and travel purpose were tested to examine their main effects and interaction effects by analysis of variance. By applying a general linear model, parameters are estimated for every category of every variable and further significant outcome shows more detailed relationships. SBS round-trip users are from 30 to 59 years old riding bikes in the morning peak hours and 40 to 44 years old riding bikes in the evening peak hours. FBS round-trip riders are 30 to 34 years old during the time of 0:00 to 7:00 and 50 to 54 during 9:00 to 16:30. These users are mostly using the bikes several times a month. Finally, recommendations are given for operators of both schemes and government organizations responsible for supervising these schemes.

Key words: public bikesharing; user behavior

基于个人特征的老年人出行频率分析研究 ——以杭州市为例

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摘 要：随着经济水平和人民生活质量的提高，人口老龄化趋势也越来越明显。本文基于杭州市老年人出行行为问卷调查，以老年人个人特征和出行信息为研究对象，并从年龄、性别、受教育程度、月收入、健康状况、居住方式和私家车出行停车是否困难 7 个方面着手，考虑这些因素对老年人出行行为（出行频率）的影响。通过 SPSS 软件建立多项 logistic 回归分析模型，结果表明年龄、身体状况、月收入、居住方式对老年人出行频率影响非常显著，性别和私家车出行停车是否困难也对老年人出行频率有一定的影响，受教育程度对出行频率无显著性影响。模型同时分析了各影响因素不同分类（如不同年龄、不同性别）在出行频率选择上的差异性。研究结果为满足老年人出行需求的城市交通服务体系的完善和老年人出行政策的制定提供了理论依据。

关键词：个人特征；出行频率；影响因素；多项 logistic 回归分析模型

Analysis of Frequency of Elderly Travel Based on Personal Characteristics：A Case Study of Hangzhou City

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Abstract：

With the improvement of the economic level and the quality of life of the people, the trend of population aging is becoming more and more obvious. This paper is based on the questionnaire survey of the travel behavior of the elderly in Hangzhou, with the personal characteristics and travel information of the elderly as the research object, and from the seven aspects of age, gender, education level, monthly income, physical condition, living style and whether it is difficult to travel by private car to start, consider the impact of these factors on the travel behavior of the elderly (frequency of travel) . Establishing multiple logistic regression analysis models by SPSS , the results show that age, physical condition, monthly income, living style have a significant impact on the frequency of travel of the elderly, gender and whether it is difficult to travel by private car also have a certain impact on the frequency of travel for the elderly, education level has no significant effect on travel frequency. The model also analyzes the differences in the choice of travel frequency between different influencing factors (such as different ages, genders). The research results provide a theoretical basis for the improvement of the urban transportation service system to meet the travel needs of the elderly and the formulation of the travel policy for the elderly.

keywords: personal characteristics; travel frequency; influencing factor; multivariate logistic regression analysis model

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共享单车停车行为的有效监管：基于助推理论的实地实验研究

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摘 要：行为经济学的研究成果已经被运用在医疗健康、投资储蓄、环境卫生、慈善捐赠等方面，对人们的行为产生了潜移默化的影响，但目前在交通领域尤其是在共享单车出行停放上鲜有研究。本研究基于行为经济学助推理论，利用提醒和社会规范的干预方式开展共享单车停放的实地实验，分别给予被试者正负面的框架效应提醒信息，并对他们的行为结果进行观察。实验结果表明，不管是正面的还是负面的描述性社会规范提醒信息，均显著提高了规范停车的比率。特别的，正面框架效应要比负面框架效应更能积极有效地引导人们规范停车，这些结果说明了理解和把握社会规范内容本身的重要性。同时天气情况、性别、高低峰出行对于人们的行为也有一定影响，启示了共享单车停车行为整治政策的研究进路。

关键词：助推理论；框架效应；实地实验；共享单车

Effective Supervision of Shared Bicycle Parking Behavior: A Field Experimental Study Based on Nudge Theory

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Abstract：

The study of behavioral economics has been used in many areas such as health care, investment savings, environmental health, charitable donations, and it has exerted a subtle influence on people's behavior, however, so far there are few studies on transportation and especially on the sharing of bicycle travel. Based on the nudge theory, this study carried out a field experiment of Shared Bicycle Parking by activating norms with deliberate reminders. The positive and negative frames were presented to the subjects and the results of their behaviors were observed. The results showed that both positive and negative framing significantly increased the rate of regulated parking. Particularly, positive framing proved itself to be more effective than negative framing regarding the task of guiding people to regulate parking. These results demonstrate the importance of understanding and grasping the content of social norms. At the same time, the weather conditions, gender, high and low peak travel also has a certain impact on people's behavior, which enlightens the research approach to the regulation policy of Shared Bicycle Parking Behavior.

keywords: nudge theory; framing effect; field experiment; shared bicycle

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Cycling Impedance Models Based on the Loading Perception of Cyclists

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Abstract：Bicycle is a green, healthy and sustainable travel mode. It has attracted Chinese authority's attention to give a priority to its development, as the rapid increase of motor traffic has led to numerous traffic problems in China. The construction of cycling system should be supported by related planning theories. However, there are few researches or results available that can be applied directly to the planning of cycling system. Cycling impedance is an essential coefficient for bicycle facilities' planning, but the characteristics of cycling distinguish its impedance perception greatly from other travel modes. This paper introduces the term of effective perceived time (EPT) to quantify cyclist's perceived impedance, based on the idea of time dimensional expansion. In order to figure the rules of cyclist's impedance perception, a cycling experiment is designed and implemented. Three loading perception models, in physical and mental aspects, are built by using the experimental data. Then two other EPT impedance models are proposed to calculate the value of EPT, as the term of EPT is integrated with the loading perception models. Finally, the proposed EPT models are tested by predicting the route choice results. By comparing the predicted route choices to the empirical results, it can be validated that the proposed EPT impedance models have an overall good capability to forecast cyclists' impedance perception.

Key words: traffic planning; cycling; impedance function; physical and mental; route choice

Impact of the Built Environment on the Vehicle Emission Effects of Road Pricing Policies

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Abstract：In order to develop a road pricing policy that is effective in reducing vehicle emissions, this paper explores the relationship between road pricing, the urban built environment, and vehicle emissions. Existing studies generally tend to choose a city or an entire region as the research object. For this reason, these kinds of studies can neither analyze the differences in the vehicle emission effects of road charging on regions with different built environment attributes, nor distinguish how different built environment attributes affect the vehicle emission effects of road user charging. To fill in the research gap, this paper focuses on the influences of road charging on the vehicle emissions of regions with different built environment characteristics. In order to achieve the above mentioned goal, this paper first applies a method which combines the land use and transport interaction model with a vehicle emission model to simulate the automobile emissions under different road pricing schemes. Then, using multiple regression analysis, this paper establishes the association between the built environment attributes and the vehicle emissions under different road charging levels. Additionally, using factor analysis and cluster analysis, this research further distinguishes the vehicle emission effects of road pricing based on attributes of the built environment. The results confirmed that road pricing affects vehicle emissions in different regions differently. More importantly, not every region will experience decreases in vehicle emissions after the implementation of a road charging policy. The presence of retail amenities, good street design, and public transportation, the more significant the effect of road pricing in reducing vehicle emissions. Furthermore, a healthy jobs-housing balance is also conducive to the decline of regional automobile emissions as well.

Key words: vehicle emissions; road pricing; built environment characteristics

助推理论在交通领域的应用国际案例分析

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摘 要：随着行为经济学受到越来越多的关注，助推理论在交通领域中的应用成为了各国学者研究的焦点。助推理论的应用可以归纳为十个助推工具，本文选取交通领域实验涉及较多的三种工具：社会规范、信息披露、提醒，通过案例分析总结其在实验中的具体实施方法，同时结合助推有效性的争议，分析提高助推工具实施效果的方法，为政府出台相关政策提供建议。

关键词：助推理论；社会规范；信息披露；提醒；助推有效性

Case Studies of Nudge Theory in Transportation

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Abstract：

With more and more attention paid to Behavioral economics, the applications of Nudge Theory in the field of transportation have become the focus of scholars all over the world. The application of Nudge Theory can be summarized into ten Nudging Tools. This paper chooses three kinds of tools which are most involved in traffic experiments: social norms, disclosure and reminders. Through case analysis，we summarize their specific implementation methods in the experiments. Besides, we combine the controversy of nudging effectiveness, analyzing methods to improve the implementation effect of the Nudging Tools, so as to provide suggestions for the government to promulgate relevant policies.

keywords: nudge; social norms; disclosure; reminders; effectiveness of nudge

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基于扩展计划行为理论的公交选择意向研究

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摘 要： 为了探究行人出行时选择公交出行行为的心理影响因素对该选择行为的影响，本文基于计划行为理论（TPB），扩展计划行为理论，增加出行成本作为新的潜变量来提高原有模型的拟合度，研究行为态度、主观规范、知觉行为控制和出行成本四者与公交选择行为意向之间的模型。运用 AMOS 求解基于计划行为理论的公交选择意向模型，描述变量间的因果关系，定量描述各个因素对选择行为的影响。以西安市例进行实证分析。结果表明，所建模型的拟合度和解释能力较好，四个潜变量对西安市公交选择意向解释度为 76%，公交的行为态度、主观规范、知觉行为控制和出行成本对公交选择意向有着正向影响，其中对模型影响较大时知觉行为控制因素和出行成本因素。

关键词： 计划行为理论；公交出行；选择行为意向；扩展变量

Research on Bus Choice Intention Based on the Extended Theory of Planned Behavior

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Abstract：

In order to explore the influence of psychological influence factors of public travel behavior on the choice behavior during pedestrian travel, this paper based on the Theory Of Planned Behavior (TPB), extended plan behavior theory, and increased travel cost as a new latent variable to improve the original model. The degree of fitness is a model for studying behavior attitude, subjective norms, perceptual behavior control, travel cost and travel behavior intention. AMOS is used to describe the causal relationship between variables, and the public transport selection intention model based on the planned behavior theory is solved to quantitatively describe the influence of various factors on the selection behavior. An empirical analysis was conducted in Xi'an City. The results show that the model has good fitting and interpretation ability, and the four latent variables have an interpretation degree of 76% for Xi'an public transportation. The behavioral attitude, subjective norms, perceptual behavior control and travel cost of public transportation are in the intention of public transportation. There is a positive influence, in which the behavioral control factors and travel cost factors are influenced when the model has a large influence.

keywords: theory of planned behavior; bus travel; choice behavior intention; extended variable

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土地利用类型与出行资源配置的时空关系

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摘 要：近年来，以拼车服务为基础的交通方式已经在生活中起到了重要作用。然而，拼车服务与各种潜在决定因素之间存在不同的联系，由于土地利用类型会影响到出行资源的产生和吸引，将其作为一个关键因素来进行分析研究具有实际意义。本文以中国成都市的数据集为研究对象，运用可视化技术、数据挖掘技术和统计分析技术，研究了成都市出行资源配置与土地利用之间的关系，重点分析了学校、商业、工业、医院、休闲和住宅六种主要土地利用类型的时空动态资源配置模式。分析结果表明，成都市在上午高峰时段呈现典型的集聚出行模式，在午后高峰时段至夜间呈现典型的辐射格局，不同的土地利用类别与时间分布以及距离等因素有关。这项研究的结果有助于初步了解土地利用与出行资源之间的相互作用，并为相关资源平台和城市规划者在出行资源再分配、时空关系优化和土地利用规划方面提供有价值的信息。

关键词：出行资源

Understanding the Spatial and Temporal Interaction Between Land Use and Ridesourcing

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Abstract：

Abstract: In recent years, the mode of transportation based on ridesourcing has played an important role in life. However, there are different links between ride-sharing services and various potential determinants. Since the type of land use will affect the generation and attraction of travel resources, it is of practical significance to analyze and study it as a key factor. Chengdu in China based on the data sets the research object, using visualization technology, data mining and statistical analysis techniques, study the travel resource configuration and the relationship between the land use of Chengdu, analyzed university, commercial, industrial, medical, entertainment, and lives of six major land use type of space-time dynamic resource allocation model. The analysis results show that Chengdu city presents a typical cluster travel pattern in the morning peak period, a typical radiation pattern in the afternoon peak period to the night, and different land use types are related to time distribution, distance and other factors. The e results of this study are conducive to the preliminary understanding of the interaction between land use and travel resources, and provide valuable information for related resource platforms and urban planners in the aspects of travel resource redistribution, spatio-temporal relationship optimization and land use planning.

keywords: travel resources

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Explore the Public Attitude for Implementing Congestion Charging Policy in China and Find out How Different Factors Influence Public Choice

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Abstract：The research aims to explore the public attitude of congestion charging policy implementation in China and find out how different factors influence the public choice through analyzing questionnaire data. By using electric questionnaire, general information of respondents and their opinions of congestion charging policy were collected. Crosstab analysis method was used as the analysis method to crosstab analysis the interrelationship between different variables and public attitude. Gender, age, income level, occupation, education background and private car ownership were crosstab analyzed with public attitude. Based on the research result, residence held a positive attitude to the development of congestion charging policy. The most considered factors were the charging method, charging time and charging time. The top three reason that why people do not support the development of congestion charging policy were (1) worry that the congestion charging cannot reduce traffic congestion (2) worry that the charging fee would not be used for public development (3) worry that the charging fee or charging method cannot be reasonable. Based on the crosstab analysis, gender, age, income level and private car ownership would have influence on public attitude. On the contrast, education background and occupation do not have too much influence on the public attitude.

Key words：public attitude for congestion charging policy

共享单车停车监管案例分析

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摘 要：随着共享单车的迅猛发展，人们的出行变得更加便捷，然而其乱停放问题却日益严重，为社会带来多重负面影响。本文着重研究国内地方政府及相关部门在停车监管方面政策措施的案例，参考并对比国外措施，分析两者的特点及差异，以此得出借鉴建议，为政府提出更加有效的监管措施。

关键词：共享单车

Case Analysis of Shared Bicycles Parking Supervision

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Abstract：

With the rapid development of Shared bicycles, people's travel has become more and more convenient. However, the problem of disorder parking has become worse and worse so that it has brought many negative effects to the society. This paper attaches importance on the study of domestic local government and relevant departments' policies and measures about parking supervision. By referring and comparing foreign measures, we analyze the characteristics and differences between domestic and abroad in order to offer some referential suggestions which can help governments make more efficient supervision measures.

keywords: shared bicycles

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The Morning Commute Problem Under Flat Toll with Mass Arrival

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Abstract：This paper studies the morning commute problem under a single-step coarse toll, based on mass arrival behavior assumption. All possible departure time choices under various toll levels and tolling windows are examined, and the optimal coarse toll pattern is obtained by minimizing total system cost. Although the optimal coarse toll scheme cannot fully eliminate congestion, we prove that under the optimal coarse toll, there is no capacity waste and no queue at both the starting and ending point of tolling period, commuters are better off than No-toll equilibrium (NTE) and the flat toll is easy to implement in practice. The optimal toll pattern can reduce up to half of queuing delay and is in general pareto-improving. Also, we prove that the revenue collected by the optimal flat toll is not sufficient to fund total construction cost under constant returns, thus external financing resources are needed.

Key words：morning commute; bottleneck model; flat toll; mass arrivals

京沪通道旅客出行方式选择研究

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摘 要：本文选择京沪通道，从行为角度分析旅客对于高铁、普速铁路、民航三种出行方式的选择意愿。通过问卷调查、收集数据，建立了多项 Logit（MNL）模型进行分析。结果表明：（1）年龄对出行方式选择影响显著。当旅客的年龄小于 60 岁时，对出行方式的选择没有明显的差异。但当旅客的年龄为 60 岁至 80 岁之间时，其在普铁和高铁的系数为正数，民航为负数。（2）月收入对出行方式选择影响显著。随着人们月收入的提高，人们对于普铁的选择需求降低。而对于民航的选择则随着收入的增加而增加，直到收入达到 20000 元/月以上时，对民航的需求降低。（3）旅途中的车外时间对出行方式选择影响显著。在三种交通方式中，尤其以普铁受候车/候机时间长短的影响最大。并且随着等待时间的增加，该因素所占的权重越大。与之类似的，从出发到到达机场/车站所花费的时间也对选择有着重要影响，并且以高铁受这一因素的影响最为明显。

关键词：出行方式；MNL 模型；京沪通道

Study on the Choice of Passenger Travel Modes in Beijing-Shanghai Passage

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Abstract：

This paper selects the Beijing-Shanghai channel and analyzes passengers' willingness to choose the three modes of travel for high-speed rail, universal railway and civil aviation from the perspective of behavior. Through the questionnaire survey and data collection, a number of Logit (MNL) models were established for analysis. The results show that: (1) age has a significant impact on the choice of travel mode. When the age of the passenger is less than 60 years old, there is no significant difference in the choice of travel mode. However, when the passenger's age is between 60 and 80 years old, the coefficient of the passenger and the high-speed rail is positive, and the civil aviation is negative. (2) Monthly income has a significant impact on the choice of travel mode. As people's monthly income increases, people's demand for Putie's choices decreases. The choice of civil aviation increases with the increase of income, until the income reaches 20,000 yuan / month, the demand for civil aviation is reduced. (3) The time outside the car during the trip has a significant impact on the choice of travel mode. Among the three modes of transportation, especially the length of the waiting time/waiting time is the largest. And as the waiting time increases, the weight of this factor is greater. Similarly, the time it takes to travel from the departure to the airport/station has an important impact on the choice, and the high-speed rail is most affected by this factor.

keywords: travel modes

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Chaos and Disruption as Challenge to Urban Transportation in Tanzania

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Abstract：It is estimated that most daily trips in urban cities like Dar- es-Salaam in Tanzania are using public transport (61%), while only (10%) take private cars and the remainders are through walking and bicycling. However, public transport which serves many people is not given any attention in Tanzania.

Transportation is a key to the economy and production; it makes mobility more accessible and enhances the social and economic interactions. On the other hand, the increase of urban population, pollution and other negative impacts directly compromise the existing transportation systems and endanger the future transportation systems in developing countries. This paper examines chaos as the challenge facing urban transportation in Tanzania cities and provides some suggestions to reduce the existing problem. This has been done by looking at the design and plan of the Tanzania cities, coordination of transportation systems and car dependency. Environmental and social impacts which include congestion's, air pollution, traffic accidents and energy consumption have been described. Suggestions for addressing the challenges facing urban transportation in developing countries like Tanzania have been examined by adopting the holistic approach. Such approach has shown to be effective in solving the challenges facing urban transportation in the cities of developing countries such as improving public transport, provision of off-street parking, enforcement of traffic laws and regulations and restrict car use.

Moreover, approaches to alleviate challenges facing urban transportation should be designed for specific cities and urban transport planners must understand that models and solutions used for cities in the developed countries may not be applicable to cities of developing countries.

Key words：chaos; disruptions; urban; transportation

基于大数据研究的轨道交通与滴滴联合出行可行性分析

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摘 要：近年来随着我国交通的飞速发展，城市轨道交通越来越成为分担大运量的交通工具，与此同时，轨道交通的接驳方式也越来越多样。而随着智能交通的迅速发展，滴滴出行从中脱颖而出，两者的联合出行不仅可以节省出行时间，还可以提高出行速度。轨道交通和滴滴出行的有效衔接受多种潜在因素的影响，其中，土地利用类型作为出发地以及目的地会对出行动机产生巨大的影响。本论文以成都市的轨道交通和滴滴出行大数据作为研究对象，通过聚类分析首先将轨道交通站点分为住宅、商业、娱乐、学校以及医院五种主要土地利用类型，然后对滴滴出行大数据进行筛选，得到站点周围 200m 范围内的出行数据并对其进行深度挖掘，得出不同土地利用类型站点早晚高峰的上下车情况。

关键词：滴滴出行；轨道交通；接驳方式；土地利用类型

Feasibility Analysis of Combined Rail Transit and Didi Travel Based on Big Data Research

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Abstract：

In recent years, with the rapid development of China's transportation, urban rail transit has become more and more of a means of transport to share large volume of traffic. At the same time, rail transit connections are becoming more and more diverse. With the rapid development of intelligent transportation, Didi Chuxing stands out from others. The combination of the two can not only save travel time, but also improve travel speed. The effective connection between rail transit and Didi Chuxing is affected by a variety of potential factors, among which land use type as the starting point and destination will have a huge impact on the travel motivation. This thesis with orbit traffic of Chengdu and drabs travel big data as the research object, through clustering analysis of rail transit site first divided into residential, commercial, entertainment, schools and hospitals, five main land use types and then drops travel big data filtering, get the site around 200 m within the scope of the travel data and carries on the depth of mining, different land use types hop on and off the site in the morning and evening peak.

keywords: Didi Chuxing; rail transit; connection mode; land use type

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共享出行环境下青年群体购车影响因素研究

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摘 要：网约车、共享单车等共享出行方式逐步渗入居民生活，并影响着人们的购车意愿。18-35 岁青年群体作为购车核心群体，本文基于扩展计划行为理论对影响青年群体购车行为的因素进行研究。模型改进主要是在计划行为理论的基础上，引入"网约车感知服务质量"、"公共交通感知服务质量"和"感知风险"三个解释变量，构建扩展计划行为理论模型来研究青年群体购车行为意向受各因素影响程度以及因素之间的相关关系。研究发现态度是影响购车意向的主导心理因素，主观规范对态度的正向影响效应显著高于知觉行为控制；网约车感知服务质量、公共交通感知服务质量和感知风险主要通过影响青年群体的主观规范、态度等心理来间接抑制购车意向；提升网约车服务质量对购车意向的抑制作用明显低于提升公共交通服务质量和增大购车感知风险。另外，本文对年龄、网约车使用频率、网约车使用距离进行多群组分析，以期更加精细化分析不同影响因素的效用，为制定政策做基础性研究准备。

关键词：共享出行；青年群体；购车意向；计划行为理论

The Impact of Carsharing on Car Ownership Towards Young Adults

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Abstract：

   The shared travel modes such as net-cars and shared bicycles gradually infiltrate residents' lives and affect people's willingness to buy cars. This paper focuses on the core group of car buyers, the 18-35-year-old youth group, to study the willingness to buy a car. The extended plan behavior theory was applied to study the factors affecting the vehicle purchase behavior of young adults. The contribution of the model improvement is mainly to introduce three explanatory variables, which are "network-aware vehicle-aware quality of service", "public transportation-aware quality of service" and perceived risk. The study found that attitude is the dominant psychological factor affecting car purchase intention, and the positive influence effect of subjective norms on attitude is significantly higher than that of perceived behavior. The perception of service quality, public transportation perceived service quality and perceived risk mainly affect the car purchase intention by influencing the subjective norms and attitudes of the youth group. The improvement of the quality of the network car service on the car purchase intention is significantly lower than the improvement of public transport service quality and increase the perceived risk of car purchase. In addition, this paper conducts multi-group analysis on age, usage frequency, and travel distance, in order to further analyze the effects of different influencing factors and prepare for basic research.

keywords: car sharing; young adults; car purchase; theory of planned behavior

基于移动互联的公交车厢城市客厅服务平台的研究

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摘 要：公交车是城市公共交通运输的重要组成部分，在居民的公共出行中发挥了巨大作用。本文主要介绍了基于移动互联网的公交车厢城市客厅服务系统平台的构建，对该系统平台的四个功能模块进行了详细介绍，为城市公交服务的未来发展指明了方向。

关键词：公交车；城市客厅；服务平台；移动互联

Study on Urban Living Room Service Platform Based on Bus

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Abstract：

The bus is one of the important parts of urban public transportation, which plays an important role in public transport-tation. This paper mainly introduces the construction of the urban living room service system platform based on bus and mobile Internet. The four functional modules of the service system platform are displayed in detail. It also indicates the future developing-direction of urban public transport service.

keywords: bus; city living room; service platform; mobile internet

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基于高速公路收费数据的疑似非法营运车辆辨识方法研究

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摘 要：目前我国公共交通制度不完善，不能满足居民出行的灵活性需求，给非法营运车辆创造了市场机会。非法营运现象越来越严重，严重影响了交通安全，扰乱了社会治安秩序，使公众权益受损。而传统的辨识非法营运车辆的方法效率低下。为提高执法效率，本文根据高速公路收费数据以及对非法营运车辆的认识，提出了非法营运车辆的 3 个出行特征指标，结合数据特征以及聚类算法建立了疑似非法营运车辆的辨识方法，并通过实例分析验证了方法的有效性，结果表明本文提出的辨识方法精确度达到了 80%，能有效辨识非法营运车辆。

关键词：高速公路收费数据；非法营运；聚类算法；辨识方法

Research on the Identification Method of Suspected Illegal Operation Vehicle Based on the Highway Toll Data

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Abstract：

At present, the public transportation system in China has many defects, which is unable to meet the flexibility needs of residents' travel and creates market opportunities for illegal operation vehicles. The phenomenon of illegal operation has become too serious to seriously affect traffic safety, disrupt public order and impair public interests. But the traditional method of identifying illegal operation vehicles is inefficient. In order to improve the efficiency of law enforcement, three characteristic indicators of illegal operation vehicles based on the highway toll data and the knowledge of illegal operation vehicles are proposed in this paper. Combined with data characteristics and clustering algorithm, the identification method of suspected illegal operation vehicles is established. And the effectiveness of the method is verified by an example in this paper. The results show that the accuracy of the identification method proposed in this paper reaches eighty percent, which can effectively identify illegal operation vehicles.

keywords: highway toll data; illegal operation; clustering algorithm; identification method

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Vehicle Trajectory Mining Based on Traffic Camera Data

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Abstract：Urban road traffic camera data include the spatial and temporal data of all identified vehicles in a city. Based on the data, the checkpoints that vehicles passed sequentially in a time period can be obtained and the patterns hidden within can be found. This study treats the checkpoints that a vehicle passed sequentially as an ordered spatial sequence data and treats the spatial sequences of a group of vehicles which passed a point of interest as a sequence dataset. By applying the generalized sequential pattern mining algorithm, the frequent sub-sequences of the dataset are derived. The results reflect where the vehicles mainly came from/went to and the frequent routes they took before/after they reached the point of interest. For experiments, this study uses the real-world data of Yichang City in China. The results indicate that the two parallel city corridors show different functions in road travel service.

Key words：vehicle trajectory mining; traffic camera data mining; GSP algorithm

共享单车资源优化研究——以武汉市光谷片区地铁站为例

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摘 要： 近年来共享单车投放规模持续激增，运营企业基于竞争的单车投放模式给城市环境、交通安全带来了负面影响。优化共享单车资源投放空间布局和投放数量是支持绿色出行、维护城市市容的必然途径。本文以武汉市光谷片区为例，对片区内三个地铁站的客流量及周边共享单车的投放点及投放数量进行了统计分析。通过把共享单车视为公共服务资源，以公共服务资源优化模型为依据，以地铁客流为需求量，周边共享单车的数量为供给量，应用重力型两步移动搜索法（G2SFCA），对共享单车在光谷片区的投放空间布局和数量进行了优化。研究结果表明通过计算质量指数和点位指数，可以用来衡量区域内共享单车供给点的数量和位置特征，为优化共享单车资源投放，提高土地利用效率，满足短距离出行需求提供参考。

关键词： G2SFCA；共享单车；供给质量；空间布局

The Research on Optimization of Shared Bicycle Resources: Taking the Subway Stations in Wuhan Optical Valley as an Example

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Abstract：

In recent decades, the scale of shared bicycle keeps soaring while operators' launching patterns based on competition bring cities negative effects in the aspects of environmental stuff and security-promised transportation. It is inevitable to optimize launching scale and spatial distribution of shared bicycle resources for green travel and city appearances maintenances. In this article, the optical valley in Wuhan will be taken as an example, meanwhile, the passenger flow volume of the three subway stations in the area will be accounted for statistically, and the launching points of shared bicycle around them will be analyzed spatially and quantitatively. The spatial distribution and launching quantity of shared bicycle in optical valley are optimized through the method regarding shared bicycle as a kind of public service resource, based on public service resource optimization model, taking passenger flow volume of subway stations as demand, considering surrounding shared bicycle's quantity as supply, and eventually guided by G2SFCA. It manifests that through calculating the quality index (Qj) and location index (Zj), the numerical and locational characteristics can be measured. In that case, it offers a reference to the future launching of shared bicycle, the enhancement of land utilization efficiency, and satisfaction of short-distance trip.

keywords: G2SFCA; shared bicycle; supply quality; spatial distribution

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Understanding the Time - Dependent Effects of Built Environment on Metro Ridership at the Station Level: A Big Data Analytic Approach in Beijing, China

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Abstract：The literature on the effect of built environment on metro ridership is well established. However, most existing studies focus on average daily or hourly ridership, thereby disregarding the temporal variations in the effects of built environment. Temporal dimension is related to the effects of built environment on travel behavior because of time-dependent ridership. In this study, the time-dependent effects of built environment on metro ridership at the station level are investigated using ridership data from the Beijing subway. Daily and hourly metro ridership information are aggregated at the station level using the smart card data, and the built environment variables are measured based on land use data. Results show that significant time-dependent effects of built environment on metro ridership occur. This study aims to provide urban planners and policymakers a good understanding of the relationship between metro ridership and land use.

Key words: built environment; metro ridership; time-dependent; smart card data; land use

Investigating Residents Metro Travel Pattern in Megacity：A Case Study of Beijing Through Data-Fusion Approach

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Abstract：Metro system provides residents rapid, convenient, punctual public transport service in megacity. Investigating residents metro travel pattern in megacity would be helpful for metro system planning and construction in future. Smart card data provides us possibility to characterize metro travel pattern more precisely but some crucial information, such as trip purpose, is still missing. This paper aims at complementing missing information of smart card dataset through a data fusion approach. Several datasets collected in Beijing, including metro trip survey data, smart card data and built environment data, are combined to estimate each metro trip purpose through machine learning approach. On the basis of estimating trip purpose, metro trips are classified according to trip duration, boarding and alighting time, origin and destination, trip purpose of each metro trip recorded in smart card dataset, to investigate residents metro travel pattern and illustrate metro trip spatial-temporal features. In addition, we also apply trip survey data in Beijing and multinomial logit model to examine whether trips with spatial-temporal features are more related to choosing metro instead of private car or other public transport modes after controlling their social-economic features and individual preference, in order to find out metro unique function relative to other transit or private transport modes. This study helps us to understand what the residents metro travel pattern is, how metro system connects different areas and what unique role the metro plays in transport system in megacity. We also make an attempt to apply a data-fusion approach to take the advantage of smart card dataset while avoid its dis advantage through complementing missing information.

Key words: metro travel pattern; smart card data; data-fusion approach; Beijing

基于通勤出行的共享单车骑行时空间特征分析——以深圳为例

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摘 要：共享单车在各大城市的建设运营为完善交通体系、辅助居民出行衔接和分担公共交通通勤流等方面发挥了一定的作用。文章对深圳市 2018 年 5 月 5 号~11 号的摩拜单车骑行数据进行了时间统计分析和空间可视化分析，并研究直接通勤和接驳通勤两种共享单车出行时空间特征的差异与城市公共交通网络的关系。研究发现，共享单车通勤出行的使用路径偏向于快速通过性强的道路与地铁、常规公交等公共交通关联性强，且 70.5%的接驳通勤出行是换乘公交；部分共享单车高频使用路径显示存在通勤流向与城市的主要公共交通通道不匹配的区域；在城市中心区共享单车接驳通勤的需求量与公共交通服务质量呈反相关；短期内，在交通运输能力有限区域共享单车可以作为公共交通扩张的低成本替代方案；此外，研究归纳出了三种通过共享单车直接通勤出行形成的近域职住圈。基于研究结果，文章提出了优化城市的公共交通服务建议。

关键词：共享单车；通勤出行；时间特征；空间特征；路径

Spatial Characteristics Analysis of Bicycle - Sharing Riding Based on Commuting-Taking Shenzhen as an Example

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Abstract：

The construction and operation of bicycle-sharing in major cities have played an important role in improving the transportation system, assisting travels'connection and reducing the pressure of travel. The article conducted a space-temporal analysis of the Mobike cycling operation in Shenzhen from May 5th to 11th of 2018.This paper studied the difference of spatial characteristics between direct commuting and connecting commuting by bicycle-sharing and the relationship between them and urban public transportation network. The study found that the roads with strong rapidity and strong correlation with subway, bus and other public transportation were selected for commuting by bicycle-sharing. 70% of connecting commuting are by bus. Some high-usage roads of bicycle-sharing show that Commuting channels doesn't match the city's public transport corridor. There is an inverse correlation between the demand for bicycle-sharing and the quality of public transport services in urban centers. In the short term, bicycle-sharing in areas with limited transportation capacity can be a low-cost alternative to the expansion of public transportation. The study concluded three types of areas where residence is close to the workplace using bicycle-sharing commuting. Based on the research results, the paper puts forward Suggestions for optimizing public transport services in cities.

keywords: nicycle-sharing; commuting; temporal character; space character; route

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基于出行链的长三角入境旅游交通网络结构特征分析

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摘　要： 旅游流的空间扩散与转移一直是旅游地理学研究的一个重要领域。出入境旅游交通的通道效应和中转集散组织特征尤为显著，交通对国际旅游游线组织、延伸拓展旅游链条具有非常重要的影响。本文基于入境游客的交通大数据分析，从出行链的角度，应用网络分析法，以我国国际旅游客流较为密集的长江三角洲地区为例，研究了入境旅游交通网络的结构特征。

关键词： 入境旅游；大数据；网络分析

Analysis on the Structure Characteristics of Yangtze River Delta Inbound Tourism Network Based on Travel Chain

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Abstract：

The spatial diffusion and transfer of tourism flow has always been an important field of tourism geography research. Inbound and outbound tourism traffic has significant tourism channels and organizational characteristics of transit distribution. Transportation has an important impact on tourism organizations and extended tourism chains.Based on the mobile phone signaling data of inbound tourists, this paper applies the network analysis method from the perspective of travel chain to study the structural characteristics of the inbound tourism transportation network in the Yangtze River Delta.

keywords: inbound tourism; big data; network analysis

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Daily Household Commuting Patterns and Optimal Road Tolls and Parking Fees in a Linear City

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Abstract：This paper use a two-stage differential method to establish a daily traffic pattern that links the morning and evening commutes as an integrated one, and extend the classical bottleneck model from work commute with one single preferred arrival time (work start time) to household commute with two consecutive preferred arrival times (school start time and work start time). Based on a bi-direction bottleneck network with a spatial pattern of parking, we use analytical models to describe household's behavior in choosing departure times in their morning and evening trips, where a household's morning and evening decisions are joined by a parking location. Firstly, we derive the evening commute pattern using a Nash equilibrium. Then the household evening commute costs are allocated to different parking locations in modeling the morning commuting behavior, and the morning travel pattern is a user equilibrium in the sense that no one can reduce private daily travel cost by unilaterally changing travel decisions. Secondly, a time-varying road toll was proposed to eliminate queuing delay and reduce schedule delay penalty. Furthermore, a joint strategy with time-varying road toll and location-dependent parking fee is developed to achieve a system optimum where the morning schedule delay cost is further reduced to the minimum by reversing the spatial order of parking. In view of the fact that road pricing is hard to implement, we then propose a location-dependent parking fee strategy with no road tolls to optimize the morning commute pattern, without improving the evening commute pattern.

Key words: household travels; daily commute pattern; road toll; parking fee

Trajectory Identification of Online Hailing Car

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Abstract：As a typical representation of new transportation service type, online hailing car provided passengers more choices in convenient payment pattern, cheap fees, flexible ride location and time. However, more and more intentional injuries happened at the same time because that the online hailing cars' company had low application requirements for their members. Thus, identifying online hailing car trajectory had a significant impact on passengers security and expanding of online hailing car market. Based on principle component analysis (PCA) method, typical features of online hailing cars' trajectory extracted by this paper using Didi trajectory data. The data set was divided into training set and testing set by different ratio in order to extract typical features of online hailing cars' trajectory. Then, clustering the mixture vehicle trajectories into three categories based on K-means algorithm using trajectory data (a randomly drawing sample which size is 1000)in Xi'an. After comparing these three clusters characteristics in different periods, it found that the mixture vehicle is composed with commuting cars(584), online hailing cars(234) and the cars both used for commuting and online services(182).

Key words: vehicle trajectory classification; principle component analysis; K-means; cluster number determination

考虑家庭出行的早高峰拥挤收费问题研究

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（北京交通大学）

摘　要：本文以早高峰家庭出行为切入点，对Vickrey的经典瓶颈模型进行扩展，提出了基于效用的瓶颈模型，研究家庭出行者早晨出行时间决策问题。考虑家庭通勤者的居住地和工作地由一条高速公路连接，学校在居住地和工作地之间。每天早上，通勤者需先送小孩去往学校上学，然后再开车去工作地上班。在基于效用的瓶颈模型的基础上，分别研究了常数和线性边际活动效用下的单阶段收费问题，并与传统的瓶颈模型的解进行比较。结果表明，在常数效用的模型下收费时间短于线性边际活动效用时，此外线性边际活动效用条件下的最优单步收费值也要大于常数效用时。

关键词：拥挤收费；瓶颈模型；家庭出行；效用

Study on the Early Peak Congestion Charging Problem Considering Family Travel

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（Beijing Jiaotong University）

Abstract：

This paper expands Vickrey's classic bottleneck model by using the early peak family's behavior entry point, and proposes a utility-based bottleneck model to study the family traveler's morning travel time decision problem. Consider the family commuter's place of residence and work place connected by a highway, the school is between the place of residence and the workplace. Every morning, commuters need to send their children to school, and then drive to work to go to work. Based on the utility-based bottleneck model, the single-stage charging problem under constant and linear marginal activity is studied separately and compared with the solution of the traditional bottleneck model. The results show that in the constant utility model, the charging time is shorter than the linear marginal activity utility, and the optimal single-step charging value under the linear marginal activity utility condition is also greater than the constant utility.

keywords: crowded charging; bottleneck model; family travel; utility

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TOD 模式下站城一体化环控技术的应用与发展

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摘　要：在我国经济持续发展和城市日益成长的背景下，人们对环境和资源合理利用的要求也越来越高，于是很多新型环控技术被开发，如地源热泵、水源热泵等空调形式。目前我国城市地铁的环控、暖通空调设备大多是采用传统形式，是单独的，只是供地铁用。另一方面，城市城市中土地资源紧张，一些新型环控技术用于建筑采暖空调受到限制。现在，基于 TOD 站点大量出现，就可以考虑地下地上环控设备共同使用。本文就是结合前人的研究，提出 TOD 模式下站城一体化环控技术，并研究其应用可行性。

关键词：TOD；环控技术；区域能源系统；节能

The Environmental Control Technology of Station-City Integration in TOD Mode

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Abstract：

　　With the development of our economy and the growing of cities, people's requirements for the rational use of the environment and resources are getting higher and higher, so many new environmental control technologies have been developed, such as ground-source heat pump, water-source heat pump and other air conditioning forms. At present, most of the HVAC equipment of urban subways in China adopt traditional forms and are separate, which are only used for subway. On the other hand, land resources are scarce in cities, and some new environmental control technologies are limited in building air conditioning. Now, based on the TOD sites, it is possible to consider the use of underground-ground control equipment. This paper is to analyze environmental control technology of the integration of station and city in TOD mode and its application.

keywords: TOD; environmental control technology; district energy systems; energy conservation

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城市新区公交特征及规划策略——以兰州新区为例

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摘　要：城市新区是城市发展建设中的重要区域，但其发展过程中往往存在用地开发不充分，客流需求不集中的问题。这使得城市新区的公共交通系统投入较大却难以转入良性发展。本文结合兰州新区的规划实践，从梳理城市新区公交系统的特征问题入手，分析问题产生的症结。针对兰州新区的实际特征，提出公交系统发展的战略思路，并构建适合不同发展阶段的多元化新区公共交通系统模式。以期为解决国内新区规划建设过程中面临的公交问题提供一定的参考。

关键词：城市新区；公共交通；公交规划

Characteristics and Planning Strategies of Public Transportation in Urban New Area: A Case Study of Lanzhou New Area

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Abstract：

　　The urban new area is an important area in urban construction. With the development, insufficiency land use and not-concentrated passenger flow are occurred. Considerable input of public transportation in urban new area were not balanced with the prosperous development of the system. According to the public transportation planning of the Lanzhou New Area, the characteristics of public transportation in new area were summarized, and the crucial reasons were analyzed. The development strategies of the public transportation system were proposed, and the public transportation systems of different stages were built. The research is trying to provide reference to solve problems of public transportation in the development of new areas.

keywords: urban new area; public transportation; public transportation planning

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轨道车站一体化接驳规划研究——以重庆为例

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摘　要：轨道交通作为城市公共交通的骨干力量，带动土地开发建设和城市发展。轨道站点是公共交通出行的物理起讫点，与其他交通方式的一体化衔接是构建多层次、互通交通网络的重要基础。本研究以优化轨道站点接驳系统为目的，提出轨道站点接驳系统设施配置原则及方案，以重庆规划的轨道站点为例，形成轨道站点一体化接驳方案，对提升轨道交通服务品质，促进公共交通与城市协同发展具有一定意义。

关键词：土地开发；轨道车站；公共交通；一体化接驳

Research on Integrated Connection Planning of Railway Stations:Taking Chongqing as an Example

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Abstract：

　　With the significant role in urban public transport system, rail transit promotes land exploitation and city development. Rail transit stations are physical starting and ending points of public transport trips, whose integrated connections with other transport modes are vital basis of constructing multi-level and interoperable transportation network. The purpose of this study is to optimize rail station connection system by proposing principles and plans for the connection between rail transit and other modes. Taking Chongqing rail transit system as an example, the study composes integrated connection schemes for rail stations, which can help improve rail transit service level and promote coordinated urban development.

keywords: land development; rail stations; public transport; integrated connection

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BTOD 模式发展半径研究——以武汉市为例

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摘 要：TOD 模式（Transit-Oriented-Development，以公共交通为主导的发展模式）已经获得了世界范围内的认可及应用，然而由于 TOD 模式要求高密度高强度建设发展，引起了一系列问题，诸如噪音增加、日照时长受损、居民生活环境质量下降以及公平性失衡等。为了改善 TOD 模式的这一弊端，使 TOD 模式得到更广泛的应用，本文将传统 TOD 模式与我国迅速发展的共享单车相结合，以共享单车出行方式代替传统 TOD 模式中的步行出行方式，提出了 BTOD 发展模式。该模式将扩大 TOD 发展范围，有效降低区域内发展建设密度，解决传统 TOD 模式所带来的一系列问题。同时为更好的规划建设 BTOD 发展区域，本文利用回归模型估算出了武汉市 BTOD 模式的推荐发展半径。研究结果发现，以武汉市三环线作为分界线，三环线内的 BTOD 推荐发展半径为 3km，三环线外的为 2.72km，BTOD 发展范围约为传统 TOD 发展范围的 4.63 倍，大大扩展了 TOD 模式的发展范围，此结果也为武汉市的土地利用和交通资源配置提供了参考。

关键词：TOD；BTOD；推荐发展半径；回归模型

The Research on Development Radius of BTOD: Taking Wuhan as an Example

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Abstract：

TOD (Transit-Oriented-Development) has been admitted and put into practices worldwide, however, a series of problems emerge because of the high density construction the TOD required, such as the noises, the loss of sunshine duration, the decline of living environment quality and the disturb of social fairness. In order to moderate the disadvantages of TOD and generalize the concept, this article presents a new concept named BTOD, which combines the traditional TOD with the increasingly developing shared bicycles and uses shared bicycles instead of walking as the basic trip mode. BTOD enlarges the impact area of traditional TOD, effectively lowers the construction density and solves problems that TOD brings. Meanwhile, in order to better plan and design the impact area of BTOD, a regression model is used in this article to calculate the recommended development radius of BTOD. According to the results, the radius inside the third ring road is 3 km and the outside radius is 2.72km. The impact area of BTOD is as 4.63 times bigger as TOD's which means BTOD extends the traditional walk-based impact area. The results also provide a reference for the land use and transport resource allocation in Wuhan.

keywords: TOD; BTOD; recommended radius; regression model

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A Tale of Two Cities: Jobs-Housing Balance and Urban Spatial Structure in Beijing and Shanghai

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Abstract：Urban spatial structure is known to significantly affect jobs-housing balance and vice versa. Many researchers have conducted theoretical studies on this topic or empirically analyzed their interactions. However, few studies have investigated these relations for two or more large cities simultaneously. Beijing and Shanghai are the two largest megacities in China with comparable populations and subway mileages. Thus, they are valuable cases for comparison. With smartcard data collected during from April 13-17, 2015, this paper surveyed the spatial pattern of job-worker ratios to understand the extent to which the cities achieve jobs-housing balance and further explored the urban spatial structure. The job-worker ratios were first estimated at the metro-station level, after which a linear programming approach was used to evaluate the magnitude of excess commuting. Finally, the urban spatial structure was investigated via the job and housing distributions. Using the proposed research framework, a comparative study was conducted for regular transit commuters. The overall job-worker ratio in Shanghai was 1.97, and that for Beijing was 2.47. Jobs and residences were distributed relatively evenly in Shanghai, as its minimum average in-metro time was shorter. Excess commuting in Beijing was 56.75 percent, whereas that in Shanghai was 61.85 percent. This indicates that the subway network design in Beijing fits better with commuting trips. Finally, according to the spatial pattern of job-worker ratios, the urban form of Beijing followed a concentric model, whereas the spatial structure of Shanghai follows the sector model. These findings may be useful for urban planning and transit network design.

Key words: excess commuting; jobs-housing balance; job-worker ratio; smartcard data; urban spatial structure

轨道交通导向下的市郊新城开发比较分析

——以伦敦、东京、香港为例

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摘　要：本文以伦敦米尔顿•凯恩斯中央区、日本东京二子玉川站东地区与香港青衣城开发为例，分析其开发背景及开发内容，探讨基于轨道交通和商业开发共同导向下的新城开发模式，并针对其开发规模、开发依据、交通组织、功能布局、容量控制、建设时序等方面进行分析和比较，最后总结其对我国市郊新城建设的启示。

关键词：轨道交通；市郊新城；开发模式

The Analysis of the Development of Suburban New Town Based on Rail Transit : A Case Study of London, Tokyo and Hong Kong

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Abstract：

After a brief introduction of the background of Central Milton Keynes in London, the east area of Futako tama gawa in Tokyo and Tsing Yi in Hong Kong, the paper discusses strategies of urban development of the three areas. First, it introduces the content of the development generally. Furthermore, it explores the development mode of suburban new town based on rail transit and commercial development. In detail, it analysis and comparison of the development scale, development basis, traffic organization, function layout, capacity control, construction sequence and so on. In the end, it summarizes its enlightenment to the construction of suburban new city in China.

keywords: rail transit; suburban new town; development mode

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借助公交导向发展改善特大城市职住平衡？多模式就业可达性视角

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摘　要： 公交导向发展（TOD）和职住平衡是当代城市尤其是特大城市共同追求的两个目标。然而，目前还少有研究检验两者之间的关系，使得相关的理论认识和实践缺乏实证依据。本文以深圳市为例，基于多模式两步移动搜寻法，利用百度地图 API 测算公共交通和小汽车模式出行时间，计算了多交通模式就业可达性，以此测度职住平衡以及公共交通尤其是轨道交通的作用，从而考察 TOD 与职住平衡之间的关系。主要得到以下结论：（1）深圳市城市轨道交通建设及其延伸的 TOD 效应能够显著改善轨道沿线地区的职住平衡，但由于轨道交通目前主要覆盖原特区范围，使得这种改善作用并不均衡，反而加剧了就业可达性的空间差异；（2）公共交通模式的可达性仍然明显低于小汽车模式，并且空间差异更大，说明深圳市 TOD 程度仍有很大的提升空间；（3）为借助 TOD 进一步改善职住平衡，一方面要增加轨道交通建设、扩大其覆盖范围，另一方面则要加强轨道交通线路和站点与就业中心和居住地的一体化程度。

关键词： 公交导向发展；职住平衡；可达性；多交通模式；公共交通

Improving Job-Housing Balance of Megacities by Transit-Oriented Development? A Multi-Modal Job Accessibility Approach

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Abstract：

Transit-oriented development (TOD) and job-housing balance are two important goals for contemporary cities, especially megacities. However, few studies have examine the relationship between them, resulting in a lack of empirical evidence for relevant theoretical knowledge and practices. Taking Shenzhen as a case, this study introduces the multi-modal two-step floating catchment area method to measuring job accessibility with multiple transportation modes, using which as a measure of job-housing balance. The transit- and driving-mode travel time are estimated using Baidu Map API. Based on the multi-modal job accessibility, the role of transit, especially rail transit, in job accessibility can be examined. Several conclusions can be drawn: (1) The rail transit construction and the consequent TOD effects can significantly improve job-housing balance in the areas along the transit lines in Shenzhen. However, due to the imbalanced configuration of rail transit lines, the above improvements are spatially uneven, which instead strengthens the disparity of job accessibility. (2) the job accessibility of transit mode is significantly lower than driving mode, but with a larger disparity, which indicates a large room for improvement. (3) To improve job-housing balance by TOD, more rail transit lines and stations should be constructed to expand the served areas in one hand, and the integration between rail transit lines and stations with job centers and residences should be strengthened.

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How Should a Transit-Oriented City Address the Population Ageing Trend?

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Abstract：Population aging is happening in many places, such as Mainland China and Hong Kong. Hong Kong, with the second highest percentage of elderly residents in Asia, is among the world's fastest-aging societies. The city has very high transit patronage: transit is heavily used by the residents, constituting approximately 90% of trips. Given the significant role of transit in Hong Kong, improving transit services for the elderly is, evidently, of substantial importance. In light of this, based on the data on transit satisfaction (or perception) collected by a questionnaire survey in March 2015 (N=613), this study adopted entropy method to determine importance weights of an array of transit service quality attributes (e.g., seat availability and travel stability). Then, it performed an importance-satisfaction (I-S) analysis based on an I-S index using the outcome of the entropy method as a basis and determined priorities to improve transit services in the view of the elderly. Accordingly, quite a few policy implications are put forward.

Key words: elderly; entropy method; importance-satisfaction analysis; mobility; service quality attribute; transit satisfaction; transit-oriented city; Hong Kong

城乡一体化发展下公交线网优化之研究

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摘　要：随着县城经济的发展，城乡一体化的进程也在不断加快，实现城乡公交一体化是亟待实现的目标。当前我国许多地方对于城乡公交一体化都还在探索阶段。本文顺应当前形势，对城乡公交一体化中的线网规划部分进行了研究。论文阐述了城乡公交一体化的基本涵义，对城乡公交一体化的运作模式也作了简要概述。本文首先用人口、土地利用等相关的交通生成模型以及增长系数交通分布预测方法。主要对城区及城区规划区域的客流进行了预测，在客流分布预测及位于城郊新建客运站的客流分布的基础上对城乡公交线网进行优化。由于城区中心与新建客运站间公交线路衔接中断，通过设计公交环线将主要交通小区及客运站联系起来，并对其优化效果进行评价。论文以固始县为例，根据对相关现状分析对固始县城区公交线网进行了优化，覆盖更多公交盲区，解决城区中心与新建客运站间公交衔接中断问题。

关键词：城乡公交一体化；交通需求预测；线网优化；线网评价

Optimization of Public Transit Network for Integration Development of Urban and Rural Area

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Abstract：

　　With the continuous development of the county economy and the building of a new socialist countryside, the integration of urban and rural areas, with the accelerating urbanization process put forward new requirements for the integration of urban and rural public transportation. At present, many areas in China are still exploring the integration of urban and rural public transportation. This paper first conforms to the current situation and conducts corresponding research on the county's urban and rural public transportation network planning. Then, to proposes the basic meaning of urban-rural public transportation integration and points out the operation mode of urban-rural public transport integration. The use of population, land use and other related traffic generation models and growth coefficient traffic distribution forecasting methods. This study mainly forecasts the passenger flow in the urban and urban planning areas, and optimizes urban and rural public transit networks on the basis of passenger flow distribution forecasts and passenger flow distribution at the new passenger terminal on the outer ring of the city. As the bus connection between the urban center and the newly-built passenger station is interrupted, the main traffic area and passenger station are linked by designing the bus loop, and the optimization effect is evaluated. To take Gushi County as an example, the paper optimizes the urban public transit network in Gushi County according to the analysis of the relevant status quo, covers more bus

blind spots, and solves the problem of bus disconnection between the urban center and the newly built passenger terminal.

keywords: urban and rural public transport integration；transportation demand forecasting；network optimization；network evaluation

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临空指向型丘陵地区 TOD 实施策略研究

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摘　要：结合成都天府国际机场临空经济区资阳片区规划实践，根据生态相对敏感的丘陵地区的特殊性，尤其是山水林田湖等资源禀赋，在分析临空经济区发展趋势、人口构成与交通需求特征的基础上，研究未来空港周边地区所吸引的专业技术人员、企业总部办公人员、高端服务人员、高级知识精英、研究人员与各类贸易商等活动人群的出行要求，探索适合城市新区的集约、绿色的公共交通方式，提出差异化的分区交通组织方式，明确 TOD 在社区与组团层面的实施策略，提出适合规划管理的 TOD 实施考核指标与规划指引。

关键词：TOD；实施策略；丘陵地区；临空指向

Study on TOD Implement Strategy of Building Airport Economic Zone in Hilly Area

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Abstract：

　　Combined with the planning practice of Ziyang area in the airport economic zone of Chengdu Tianfu international airport, according to the particularity of the hilly region with relatively sensitive ecology, especially the resource endowment of mountain, water, forest, farmland and lake, based on the analysis of the development trend, population composition and traffic demand characteristics of the airport economic zone, studying the travel requirements of professional and technical personnel, office staff of corporate headquarters, high-end service personnel, senior knowledge elites, researchers and various traders and other groups attracted by the surrounding area of the airport in the future. Exploring an intensive and green public transportation mode suitable for new urban areas. Putting forward the different district traffic organization way and making the implementation strategy of TOD at the community and group level clear. Finally proposing TOD implementation assessment indicators and planning guidelines suitable for planning management.

keywords: TOD;implementation strategy; hilly region;airport-oriented

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国家级新区功能提升与 TOD 实施之间互动关系研究

——以重庆两江新区为例

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摘 要： 根据《关于促进国家级新区健康发展的指导意见》，国家级新区下一步发展需要强化落实产城融合、宜居宜业等目标，重点转变发展模式、动力与体制机制，特别是突出以公共交通为导向的发展，实现新区从产业主导的外围功能拓展区到公共服务设施相对完善的城市地区的转变。本文依托手机信令等大数据分析手段揭示新区职住关系与交通出行特征，剖析两江新区城市发展与交通建设所面临的问题与挑战，总结以小汽车方式为主导的交通模式所带来的一系列问题。在借鉴与归纳国内外城市功能提升与 TOD 发展模式之间的互动关系基础上，重点研究城市新区 TOD 实施对城市转型发展、功能品质提升的促进作用，提出国家级新区 TOD 实施的主要方向与具体措施。

关键词： TOD 实施；国家级新区；功能提升；职住关系

Study on the Interactive Relationship Between the Functional Improvement of National New Areas and the Implementation of TOD : Taking the Chongqing Liangjiang New Area as an Example

Sheng Zhiqian

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Abstract：

According to the guideline on promoting the healthy development of state-level new areas, the next development of state-level new areas needs to strengthen the implementation of the goals of industry-city integration and livable and business-friendly, with the focus on changing the development model, driving force and institutional mechanism, especially the development oriented by public transportation, so as to realize the transformation of the new area from an industry-led peripheral functional development area to an urban area with relatively complete public service facilities. Based on big data analysis methods such as mobile signaling, this paper reveals the job-residence relationship and traffic characteristics of the new area, analyzes the problems and challenges faced by the urban development and traffic construction of Liangjiang new area, and summarizes a series of problems caused by the car-oriented traffic mode. On the basis of drawing lessons from and summarizing the interactive relationship between urban function improvement and TOD development mode at home and abroad, this paper focuses on the promotion effect of the implementation of urban new area TOD on urban transformation development and functional quality improvement, and proposes the main direction and specific measures for the implementation of national new area TOD.

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接运城市轨道交通的公交线路布设模型

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摘　要：合理的接运公交线网规划是加强城市轨道交通与公交的衔接以提高公共交通服务水平、充分发挥城市轨道交通系统作用的重要保障。而接运公交线网规划重点是线路服务区域的确定、站点的选取和线路走向的设计。本文在分析选择接运公交站点及线路布设特征的基础上，建立了具有最小平均乘客出行时间和生成线路最少的双目标模型，并设计遗传算法对模型进行求解。

关键词：接运公交；轨道交通；双目标模型；遗传算法

Model of Feeder Bus Line Generation Based on Multi-Objective Optimization

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Abstract：

　　Reasonable feeder bus line network planning is an important guarantee to strengthen the connection between urban rail transit and public transport, improve the level of public transport services, and give full play to the role of urban rail transit systems. The focus of the feeder bus network planning is the determination of the line service area, the selection of the station and the design of the line direction. Based on the analysis of the selection of feeder bus stations and the layout characteristics of the lines, this paper establishes a dual-objective model with minimum average passenger travel time and minimum generation of lines, and designs a genetic algorithm to solve the model.

keywords: feeder bus; rail transit; two targets model; genetic algorithm

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Dispatching Problem of Dock-Less Sharing Bicycle in Mega Cities

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Abstract：Chinese leadership has made vision of "One Road One Belt" and "CPEC", a reality. For development in the metropolises, the energy efficient solution, convenient way to commute, public bicycle systems and bicycle sharing systems are popularly and regularly in vogue throughout the world. There are myriad studies of public bicycle system. The main purpose of the paper would be, sensitizing the reader about potential problems of dock less sharing bicycles. This paper is written with the perspective of a foreigner, who is learning from the experiences of already existing systems so that in future the same analogy can be used by the planners in Pakistan to develop a dock less sharing bicycles system. Since there is no "MySQL" database, so arbitrary data is assumed for the sake of modelling and calculations by building random numbers. Then, according to the different characteristics of the traveler, the paper set up a logit model of the public bicycle systems and the bicycle sharing systems respectively, and quantitatively study the relationship between the intensity and its other characteristics.

Key words：public bicycle system；bicycle sharing system；data cleaning；multinomial logit model; routes; links

Research on the Influence of Road Pricing Policy on Traffic Emission Based on Micro-Simulation

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Abstract：Increasingly serious urban traffic congestion and transport emissions have been paid more and more attention by policy makers and planners. From the perspective of traffic economics, reasonable road pricing policy as a means of the market economy can really improve the whole efficiency of the transport system and reduce the traffic externality. In order to study the impact of road pricing policy on urban traffic emissions, the impact of different road toll schemes on reducing traffic emissions was analyzed through the establishment of Nanning microscopic traffic simulation model. The results show that the implementation of road pricing policy can alleviate traffic congestion and reduce emission levels, but it has no significant effect on reducing the car traffic share rate.

Key words：traffic emission; matsim; road pricing; externality

Funding Regional Rail in China's Pearl River Delta: From Metro to High-Speed Rail

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Abstract：Urban China is experiencing substantial growth of metropolitan passenger trips, particularly in developed coastal areas. However, China lacks specific regional institutions to plan and fund inter-city transportation infrastructure and service. How China's governments have managed to fund regional inter-city rail which is facilitating passenger movement in high-density urbanized areas is not well understood. Using the Pearl River Delta as the study case, this research studies a variety of regional rail investments and policy arrangements, ranging from inter-city metro systems, to provincial government-led inter-city passenger rail, and to regional express services on the national high-speed rail track. The pros and cons of each of these rail options are assessed.

Key words: transportation finance

带状城市公交发展特征与规划策略思考—以烟台市为例

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摘 要： 烟台市带状组团城市的特征、通道资源的稀缺性、道路交通拥堵愈发突出的态势，要求确立公交出行主体地位。首先分析烟台市公交发展现状特征与问题，包括公交客流走廊对城市发展的支撑作用不足、公交换乘枢纽建设滞后、公交线网布局不尽合理、公交运营与服务水平不高等，借鉴国内带形城市公交发展先进经验，提出烟台市公交发展策略，主要包括：培育走廊，规划快速公共交通引导土地利用；以站定线，明确重要枢纽场站布局；提升服务，构建分层次公交网络；组合优化，注重近期实施可操作性，为提升烟台市公交出行比例、保障公交竞争力提供有益参考。

关键词： 带状城市；公交特征；烟台市；规划策略

Research on Development Characteristics and Planning Strategies of Public Transport in Belt Cities Illustrated by the Case of Yantai City

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Abstract：

The characteristics of Yantai banded cluster city, the scarcity of corridor resources and the increasingly prominent situation of road traffic congestion require the establishment of the main body of public transport. Firstly, the characteristics and problems of public transport development in Yantai are analyzed, including the insufficient supporting role of public transport passenger flow corridor for urban development, the lagging construction of public transport hub, the unreasonable layout of public transport network, the low level of public transport operation and service. Based on the advanced experience of the development of public transport in belt cities in China, the development strategies of public transport in Yantai are put forward, including: cultivating corridors, planning. Rapid Public Transport guides land use; defines the layout of important hub stations by station alignment; upgrades service and constructs hierarchical public transport network; optimizes combination and pays attention to the operability of recent implementation, which provides useful reference for improving the proportion of public transport trips in Yantai City and ensuring the competitiveness of public transport.

keywords: belt cities; bus characteristics; Yantai city; planning strategy

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基于可达性的交通公平测度与发展

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摘　要：公平是许多社会问题研究的起点与目标，而交通问题可以看做是社会问题的延伸。个体的出行自由度侧面反映了交通政策天平的倾向，许多学者试图将交通公平融入城市交通规划的政策中去，但公平作为一种价值判断，如何定义公平变得尤为重要。同时公平的目标因其难以指标化而成为交通分析的难点，目前比较认可的观点是个体对交通资源获取能力的机会公平。在衡量交通公平时常以可达性作为评价指标，可达性强调获取机会的能力，具有很强的公共性质，需认识到其应该是所有公民共享的资源。目前对于可达性测度本身的研究已经较为成熟，形成了很多可达性测度的指标，也有相当多的文章利用可达性的指标去度量交通公平性，但是还没有文章对其进行系统的总结。因此，本文将会梳理在衡量交通公平时对可达性测度的发展，希望构建一个基于可达性的交通公平测度体系，以为今后的研究提供参考。

关键词：交通公平；可达性；模型优化；洛伦兹曲线

Measurement and Development of Transport Equity Study Based on Accessibility

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Abstract：

　　Equity is the starting point and goal of many social problems, and transport problems can be seen as the extension of social problems. Individual freedom of travel reflects the tendency of transport policy balance. Many scholars have tried to integrate transport fairness into the policies of transport planning. However, as a value judgment, how to define equity becomes important. At the same time, the goal of equity has become a tough question in transport analysis, because of the difficulty in indexing. At present, the more accepted view is that individuals have equal access to transport resources. Accessibility is often used as an evaluation index to measure transport equity. Accessibility emphasizes the ability to access opportunities and has a strong public nature. It should be recognized that public transport is shared by all citizens. At present, researches on accessibility measurement have been relatively mature, and many accessibility measurement indicators have been formed. There are also quite a number of articles using accessibility indicators to measure transport fairness, but there is no systematic summary of these articles. Therefore, this study will sort out the development of accessibility measurement when measuring transport equity, and hope to construct a transport fairness measurement system based on accessibility, which will provide reference for future research.

keywords: transport equity; accessibility; model optimizing; lorenz curve

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需求响应式定制公交研究综述

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摘　要：随着"互联网+交通"的兴起，我国各大城市公交系统呈现多模式快速发展。需求响应式定制公交作为满足居民对多元化、高质量的出行服务需求的一种出行方式，是解决居民出行最后一公里问题的有效途径之一。本文主要从定制公交的发展历程、定制公交的线路设计、定制公交的运营管理和定制公交的定价策略等四个方面对国内外需求响应式定制公交研究的进展进行综述。最后总结现有的研究，并对未来的研究方向提出展望。

关键词：城市交通；定制公交；需求响应；线路设计；运营管理；定价策略

A Survey of Demand-Responsive Customized Public Transport Research

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Abstract：

With the rise of "Internet + Transportation", the public transport systems in major cities in China have shown rapid development in multiple modes. Demand-responsive custom-made public transport is one of the effective ways to solve the problem of residents' travel to the last mile of travel, as a way of travel to meet the needs of residents for diversified and high-quality travel services. This paper summarizes the progress of domestic and international demand-responsive customized public transport research from four aspects: the development history of customized public transportation, the design of customized public transportation lines, the operation management of customized public transportation and the pricing strategy of customized public transportation. Finally, the existing research is summarized and the future research directions are proposed.

keywords: urban traffic; customized city bus service; demand response; line design; operation management; pricing strategy

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公交到站时间预测研究综述与展望

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摘　要：准确的公交到站时间预测有利于出行者合理安排行程及公交车辆的实时调配，是提高公交服务水平的有效手段。首先对公交运行特性和影响因素进行分析总结。之后，通过研究公交到站时间预测的原理和方法，系统总结了国内外研究现状，并对常用模型的优缺点进行了比较。最后，分析了公交到站时间预测发展趋势，提出了该领域需要进一步研究的问题。

关键词：交通工程；公交到站时间；预测

Review and Outlook of Bus Arrival Time Prediction

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Abstract：

The key to the development of public transport is providing passengers with good services, and accurate bus arrival time prediction can provide better services by promoting reasonable arrangements for passengers and real-time deployments for the buses. This paper analyzes bus operating characteristics and the factors affecting the bus arrival time systematically. Then this review summarizes the basic theories and methods of bus arrival time prediction and compares the research status of bus arrival time at home and aboard. Finally, the paper analyzes the development pf bus arrival time prediction in the future. Some new issues related to the prediction models are put forward at the end of this paper.

keywords: traffic engineering; bus arrival time; prediction

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基于 IC 卡刷卡间隔的上车人数计算

李强强

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摘　要：公共交通的地位日益增高，获取实时、全面的公交客流数据对城市公交的发展显得愈发重要。近年来，在现金支付及日渐普及的电子支付方式（如利用微信支付）乘车的背景下，IC 卡记录不能准确的记录乘客乘车信息。在相关论文研究的基础上，本文结合站点附近 POI，基于机器学习理论，考虑 IC 卡刷卡间隔内上车人数，提出公共交通上车人数的实时计算的方法，并根据实际调查数据验证了方法的可靠性，提高大数据的背景下公交运营单位的信息化服务程度。

关键词：IC 卡；刷卡间隔；机器学习；POI；python

Calculation of the Number of People on Board Based on the Swipe IC Card Interval

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Abstract：

The status of public transportation is increasing. It is more and more important to obtain real-time and comprehensive bus passenger flow data for the development of urban public transportation. In recent years, in the context of cash payments and increasingly popular electronic payment methods (such as using WeChat payment), IC card records cannot accurately record passenger ride information. Based on the research of related papers, this paper combines the POI near the site, based on the machine learning theory, considers the number of passengers in the IC card swipe interval, proposes a real-time calculation method for the number of passengers on public transportation, and verifies the reliability of the method based on actual survey data., improving the information service level of bus operating units in the context of big data.

keywords: IC card; swipe interval; machine learning; POI; python

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基于公交和社会车辆速度比的城市公交效率评估

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摘　要：合理地评估城市整体的公交效率水平，需要考虑城市的整体交通环境。基于互联网实时路况和公交线路速度的融合数据集，可以得到城市整体公交速度，比较同期同线路的公交车辆和社会车辆运行速度，并通过多线路指标融合得到城市整体的公交效率指标。结合国内 24 个城市实际数据的案例分析表明，用单一速度指标未必能客观反映城市公交效率水平；使用速度和速度比两个指标的分析，能够反映公交运行效率的绝对水平、和相较于社会车辆的相对水平，更全面合理地反映城市整体公交效率水平。

关键词：地面公交；公交效率评价；行驶速度；速度比

Citywide Bus Efficiency Evaluation Based on Bus-Social Vehicle Speed Ratio

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Abstract：

　　To rationally evaluate citywide bus efficiency rationally, the traffic environment of the city must be considered. Based on the fusion dataset that intergrades the real time traffic data from the internet and the speed data of bus lines, the citywide bus speed can be derived, and the bus vehicle speed to the social vehicle speed ratio for various bus lines can be calculated respectively within identical spatial-temporal unit. Then, the citywide index of bus efficiency is computed by integrating indices of multiple bus lines. The case study with empirical data from 24 cities in China shows that the bus efficiency assessment based on single index of average speed could be unilateral. However, by considering both average speed and speed ratio, the absolute and relative level of bus efficiency can be evaluated in a more comprehensive and rational way.

keywords: public transport; bus efficiency evaluation; cruising speed; speed ratio

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Simulation-Based Method of a Dynamical On-Demand Transportation Problem

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Abstract： Demand-oriented public transportation is a new way to provide mobility in both urban area and rural area. This paper aims to simulate an on-demand transportation system which will be implemented in Elde region, Germany. The workflows of sending a trip request and driving are first simulated using Java. The involved data models are explained and implemented. An ant colony algorithm is developed for routing optimization. By applying the measures referring to request acceptance rate, average waiting time, vehicle occupancy and vehicle capacity occupancy, in different values of request arrival rates, the number of vehicles, vehicle capacities and the maximum acceptable riding time, it is found that the vehicles with four seats are most suitable for this system. Also in order to maintain a high acceptance rate of more than 80%, the vehicle occupancy rate should be more than 70%. The analysis and evaluation results provide suggestions for vehicle resource assignment and system management.

Key words： on-demand transportation; dial-a-rid problem; ant colony algorithm; simulation

纯电动公交驾驶员排班优化问题探讨

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摘 要：针对纯电动公交驾驶员排班问题，考虑车辆充电时间、驾驶员就餐时间等影响，提出驾驶员无效休息时间的概念和计算方法，建立了基于集合覆盖理论的驾驶员排班模型。案例表明，该模型可减少驾驶员无效休息时间成本，同时在求解过程中通过换班机会筛选和候选班次筛选，一定程度缩减了问题求解规模。

关键词：纯电动公交；驾驶员排班；集覆盖模型

Research on Crew Scheduling Problem for Electric Bus Line

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Abstract：

Considering the influence of electric vehicle charging time and driver's dining time, the paper proposed the concept and calculation method of driver's invalid rest time, and established a crew scheduling model based on set covering theory. Case study showed that the model can effectively reduce the cost of driver's ineffective rest time. At the same time, it can greatly reduce the scale of problem solving by adding the relief selection process and candidate duty selection process in model's solving algorithm.

keywords: electric bus; crew scheduling; set covering model

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基于运送速度的公交车运行状况评价模型及参数计算方法

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摘　要：为了研究通过不同运输方式表征城市交通运行状况的指标与参数，在通过以地点速度、行驶速度、运送速度等不同速度指标研究公交车运行特性的基础上，提出了基于公交车运送速度的公交车运行状况评价方法，构建了评价模型。通过对车辆定位数据计算分析，采用百分位数法确定了模型参数；结合不同运输方式的运送速度特征，利用回归、聚类等统计分析方法确定了公交车不同运行状况等级的速度阈值。最后以郑州市为例对公交车运行状况评价模型进行了验证，结果表明：实时计算与通过历史电子路单数据计算结果相吻合。研究成果可为城市公交运行评价与考核提供理论方法依据，并为建立以公交为导向的城市交通运行状况评价提供参考。

关键词：城市交通运行状况；运送速度；运送速度比；百分位数法；聚类法

Bus Traffic Performance Evaluation Model and Parameter Calculation Method Based on Transportation Speed

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Abstract：

In order to study the indicators of urban traffic performance through different modes of transportation, based on the study of bus performance characteristics by different speed indicators such as spot speed, running speed and travel speed. The evaluation method of bus performance based on bus travel speed is proposed and the evaluation model is constructed. Through the calculation and analysis of the vehicle positioning data, the model parameters are determined by the percentile method. With reference to the travel speed characteristics of different modes of transportation, the statistical analysis methods such as regression and clustering are used to determine the speed threshold of different performance. Finally, the data of Zhengzhou was used to verify the evaluation model. And the real-time calculation results is consistent with the calculation results of historical schedule data. This research can provide theoretical basis for urban bus performance evaluation and assessment, and provide reference for the establishment of public transportation-oriented urban traffic performance evaluation.

keywords: traffic performance; travel speed; travel speed ratio; percentile; clustering

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A Conceptual Framework for the Resilience of Land Use and Transport Integration

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Abstract：In order to investigate the resilience of land use and transport interaction (LUTI), a bi-level conceptual framework is constructed to identify the components during disruptions where the interactions among the variables are available. The framework suggest that in the first level accessibility, land use degree, travel demand and traffic congestion degree are potential factors in the system performance, whereas in the second level the system performance and resilience interact with each other. System dynamics and multiple correspondence analysis (MCA) are employed to accommodate the feedback relationship and interactions among all of the variables. The results advise that the roadway users are more concerned with safety, accessibility and adaptability, whereas system controllers/operators pay more attention to mobility, efficiency and recovery. The analysis provides potential insights for practitioners and policy makers concerning resilience of LUTI.

Key words: resilience; land use and transport interaction; system dynamics; multiple correspondence analysis

论城市标志性大道的功能特征与重要作用

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摘　要：基于对城市发展特征与经典规划模式的研判，首先对城市标志性大道的概念进行深化，识别出其可能的存在形式；然后根据街道的现实用途与规划要求来探讨大道的双维核心属性的关系，指出标志性大道的交通性与场所性的综合效益最优化是实现城市中心区交通功能与场所空间良性互动、协同发展的内在条件；进而以北京城市轴线大道与中心城区空间结构的协同发展机制为例，归纳出标志性大道的三大功能特征；最后总结出大道对城市规划与城市发展的四大重要作用。以期能对城市与交通规划中认知城市形态、优化城市骨架、完善城市功能而有所助益。

关键词：城市标志性大道；交通性；场所性；北京长安街

Study on the Significant Features and Roles of the Landmark Avenue in Cities

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Abstract：

Based on the analysis of urban development characteristics and classical planning model, firstly，the concept of city landmark avenue is deepened, then their possible existing forms are identified, and the two-dimension core properties of the boulevard are discussed according to the actual use and planning requirements. This paper points out that the comprehensive benefit optimization of the traffic and place of the landmark avenue is the intrinsic condition of realizing the benign interaction and cooperative development between the traffic function and the place value in the central district of the city. Furthermore, taking coordinated development mechanism of Beijing's urban axis avenue and city central spatial structure as an example, the paper sums up the three functional features and four significant roles of the landmark avenue to urban planning and development. It is hoped that it will be helpful to recognize the city form, optimize the city skeleton and perfect the city function in the theory research and practice work of urban and traffic planning.

keywords: the city landmark avenue; traffic attribute; place attribute; Beijing Chang'an street

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Road Infrastructure, Congestion, and Social Welfare: Does Optimal Road Space Exist in Agglomeration-Endogenized Cities?

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Abstract：This study critically revisits the first law of road congestion by evaluating the induced travel, congestion and welfare effects of road expansion and searches for the optimal road space in theory. We develop a spatial general equilibrium model to internalize land use for road infrastructure, residential and business locations, as well as endogenously determined externalities of congestion and agglomeration. Both analytical and numerical solutions demonstrate the existence of optimal road capacity in cities with moderate congestible levels and population scales. If the road space is below the optimum, more investment on new road construction could benefit the public, the business, and the city development in the long term. Simulations also reveal that the long-term elasticities of travel distance with respect to road capacity range from 0.1 to 0.5 as road shares increase from 10% to 50%. The inelastic induced travel can be explained by the land use and productivity effects of road expansion, which densifies firms and jobs without much change in the size of the firm cluster, lowers labor costs for firms, decentralizes residents, and raises residential densities. This study shows the importance of internalizing road capacity and agglomeration in the transport policy analysis relying on urban economics models.

Key words: spatial general equilibrium model; road investment; induced travel; agglomeration; congestion; optimal road space

组团城市布局结构与交通协调发展研究——以辽宁省盘锦市为例

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摘　要： 组团结构是城市布局的一种常见形式，在功能布局与交通联系上都有鲜明的城市特色。但同时由于组团城市特殊的交通模式及运行特点，使其更容易产生有别于集中式发展模式的交通状况。基于此，以辽宁省盘锦市为主要研究对象，通过实地调研及数据可视化处理等方式发现组团城市交通问题节点及症结所在，认为带状组团城市往往会由于组团间间距过大造成交通联系上的负效用，而组团间交通问题通常会波及单个组团内部，使得组团城市同时面临长距离通勤出行及组团内交通拥堵的问题。文章最后通过国内外组团城市的对比分析，借鉴先进经验，提出组团城市解决好组团间交通问题必须考虑组团内部交通与跨组团交通之间的相互关系，并且依据组团城市特点选择合适的快速联系体系。

关键词： 组团城市；盘锦市；交通规划；快速化

Study on the Coordinated Development of Urban Layout Structure and Traffic in Panjin of Liaoning Province

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Abstract：

Cluster structure is a common form of urban layout, in the functional layout and traffic links have distinctive urban characteristics. At the same time because of the special traffic mode and operation characteristics of cluster city, it is more likely to produce different from the centralized development mode of the traffic situation. Based on this, Panjin of Liaoning province as the main research object, through field investigation and data visualization processing methods such as group urban traffic node and fault, thinking ribbon group city often due to the large spacing between groups cause the negative effect on the transport links, traffic problem between groups will often spread inside a single group, the group city faces commuter travel long distances and a group of traffic congestion problem. Finally, through comparative analysis of domestic and foreign cluster cities and drawing on advanced experience, this paper points out that to solve the inter-cluster traffic problems, the interrelationship between inter-cluster traffic and cross-cluster traffic must be considered, and the appropriate rapid connection system should be selected according to the characteristics of cluster cities.

keywords: cluster city; Panjin; transportation planning; rapidness

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大城市多粒度职住空间动静态分布评价与应用研究——以南昌为例

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摘　要：快速发展城市的职住空间研究缺乏多粒度的动、静态分析，同时数据来源过于依赖传统调查数据，具有一定的局限性。本研究试图以南昌为对象，利用手机信令数据分析多尺度的职住空间静态分布与动态职住特征，识别城市通勤圈，并与轨道、快速路系统进行耦合度分析，提出交通系统的发展建议，以引导大城市空间结构与交通系统的协调发展。

关键词：手机信令；职住空间；通勤圈；交通模式

Research on Big City's Dynamic and Static Distribution of Job-Housing Spatial Relationship by Multi-Granularity: A Case Study of Nanchang

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Abstract：

Research on occupational and residential space about fast-growing cities always lacks dynamic and static analysis of multi-granularity. At the same time, data sources are too dependent on traditional survey data, which is limited. This study attempts to use mobile signaling data to analyze the static and dynamic job-housing spatial relationship of multi-spatial granularity in Nanchang. Aiming at the regions with poor coupling degree, propose some suggestions for optimizing the traffic development mode in order to guide the coordinated development of urban spatial structure and traffic system by identifying the urban commuter circle and analyzing the coupling degree with the track and expressway system. This method is an important research means for the expansion of space scale and the increasingly prominent problem of commuting caused by the continuous expansion of cities.

keywords: mobile phone signaling; job-housing spatial relationship; commuting circle; traffic mode

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城市土地利用与交通一体化模型关键技术创新

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摘　要：城市土地利用与城市交通系统之间存在循环反馈关系，促进二者的协调发展，对从根源上优化城市空间结构、解决"城市病"，实现城市可持续发展具有重要的现实意义。城市土地使用与交通系统的研究作为城市空间研究、城市规划管理、城市交通和城市地理领域的热点问题，其重要性已得到广泛认可。但目前国内学者的有关研究多数仍处于理论研究和局部变量关系描述阶段，很少综合研究考虑两系统的动态一体化过程。为此，本研究结合我国城市发展的现实问题与实际需求，基于对城市土地利用与交通的互动作用机理的理论剖析，探讨了土地利用与交通一体化模型求解算法中的关键技术创新。不同用地混合度和强度的土地开发利用形成城市居民的交通出行发生、吸引及其空间分布，而城市交通系统服务水平通过改变交通可达性影响房地产价格，引导城市用地的空间分布和职住分布。本文围绕影响城市交通与土地利用系统的关键内生变量：可达性、用地结构、土地开发强度和职住关系展开分析，讨论其对于人口就业分布、交通出行需求、房地产开发和土地利用变化的调节机制与相互作用，以实现模型算法与实践应用中各子系统间数据流的动态转换。本研究有助于优化土地利用结构、均衡人口和出行需求的分布、缓解城市交通拥堵，为实现土地使用和交通的协调发展提供理论支撑与量化分析技术。

关键词：土地利用；城市交通；职住分布；出行需求

Key Technology Innovation of Integrated Model of Urban Land Use and Transport

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Abstract：

There is a circulation and feedback between urban land use and urban transport system. It is of great practical significance to optimize urban spatial structure, solve urban disease and realize sustainable development to promote the coordinated development of land use and urban transport. The research on this issue has been widely recognized as a hot topic in the field of urban space research, urban planning and management, urban transport and urban geography. However, most of the studies of domestic scholars on the interaction between land use and urban transport system are still in the stage of theoretical research and description of the relationship between local variable. Few studies consider the integrated model of the two systems comprehensively. Therefore, based on the theoretical analysis of the interaction mechanism between urban land use and transport, this study discusses the key technological innovation in the solution algorithm of the integrated model of land use and transport by combining the practical problems and needs of urban development in China. The development of land with different degrees land use mix and

intensity generate urban residents' trip production, attraction and spatial distribution. The level of urban transport system affects the real estate price by changing transport accessibility, thus guiding the spatial distribution of land use, population and employment. This paper analyzes the key endogenous variables that affect urban transport and land use system: accessibility, structure and intensity of land use, relationship of employment and residence. In order to realize the dynamic transformation of data flow among subsystems in practical application, we discuss the adjustment mechanism and interaction of these variables on the spatial distribution of population and employment, trip demand, real estate development and land use change in the model frame. The paper helps to optimize the land use structure, balance the distribution of population and travel demand, and alleviate traffic congestion. It provides theoretical support and quantitative analysis technology for the coordinated development of land use and transport system.

keywords: land use; transport system; distribution of population and employment; trip demand

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Inter-City Travel Patterns in Urban Agglomeration Region: A Case of Jing-Jin-Ji

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Abstract : Frequent inter-city travel has become a typical phenomenon in urban agglomeration region. Technological change in transportation such as the development of high-speed rail is reconstructing the spatial structure of inter-city travel, which is witnessed in China. To analyze the spatial preference and frequency of inter-city travel in urban agglomeration region is important for more reasonable urban and regional planning. Some previous studies using traditional statistical data have done on this topic, but several limitations such as low spatial and temporal precision cannot be avoided. This study provides new evidence for analyzing spatial structure of inter-city travel in urban agglomeration region using big data analytics on mobile phone data in Jing-jin-ji region, China, which is a typical urban agglomeration region with rapid growth in recent years. We built the inter-city travel network of this region based on over 37.6 million mobile phone records. Diversity of the spatial patterns and density variation of connection between cities was recognized. We also compared the difference between weekends and weekdays in this work. The findings of this study enhance our understanding of inter-city travel features in developing urban agglomeration regions and can be helpful for regional policy making.

Key words: inter-city travel; urban agglomeration region; Jing-jin-ji; China; big data

A Multi-Scale Analysis of Urban Drivable and Walkable Networks of 26 Pilot Cities of ASEAN Smart Cities Network

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Abstract：Street network (SN), especially in urban areas, is a backbone of people's daily life and socio-economic activities. However, the majority of research work on SNs/ has been concentrated in cities in developed countries with less attention paid to rapidly growing cities in low income nations, particularly in member states of Association of South East Asian Nations (ASEAN) where urban population growth and traffic issues have reached critical levels. This paper applies multiple network metrics by using Python package OSMnx to measure drivable and walkable SNs from Open Street Map for 26 pilot cities in ASEAN Smart Cities Network (ASCN). The results show that SNs are heterogeneously diverse and characterized by different geographical characteristics, development paradigms, historical background, land sizes, and population density. Some cities have orthogonal street grids with functional connectivity and accessibility for walking while some others have more curvilinear and circuitous streets that are prone to disruption and are automobile-oriented. Metropolises have denser SNs than other types of cities, and thus they become greater potential hubs to connect to other core network corridors. This study suggests that street configuration metrics are essential to identify street features, urban forms, travel demand, and development. Therefore, when modeling and characterizing SNs, planners and policymakers should consider the analyses of accessibility and characteristics of SNs as well as differentiating pedestrianized and motorized SNs so as to reflect policies on alternative modes of travel.

Key words：ASCN; Open Street Map; street network; network analysis; urban morphology

行动者网络理论下的城市轨道交通规划方法论思考

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摘　要：本文主要探讨社会学领域的行动者网络理论应用于城市轨道交通规划方法论建构的可能性，为解决城市轨道交通规划与城市建设脱节问题提供不同角度的思考。研究初步结论为城市轨道交通系统的生成过程是"行动者"构成的网络通过交换问题、信息和诉求等，促进资源整合、有序分配的过程，过程是否有意义的主要衡量标准是行动者所构成的网络的活动效率。

关键词：行动者网络理论；城市轨道交通

Thoughts on the Methodology of Urban Rail Transit Planning Under the Actor-Network Theory

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Abstract：

This paper mainly discusses the possibility of the application of the actor-network theory in the field of sociology to the construction of urban rail transit planning methodology, and provides different angles for solving the disconnect between urban rail transit planning and urban construction. The preliminary conclusion is that the formation process of urban rail transit system is a network of "actors" to promote the process of resource integration and orderly distribution through the exchange of problems, information and claims, and whether the main measure of the significance of the process is the activity efficiency of the network formed by the actors.

keywords: actor-network theory; urban rail transit

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市域铁路对城镇关联的影响研究——以成灌线为例

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摘　要：由于国内城市规模的不断扩大，中心城市与周边城镇间的联系越发重要。本文采用空间可达性作为指标对栅格化的城镇两地的关联进行计算分析比较，并利用指标差值来表征市域铁路对城镇间关联的影响。本文以成灌线为例，利用 Osmnx 包提取成都和都江堰路网信息，以两地各处间联系的最短时间为基本元素，构成成灌线开通前后两地可达性矩阵，用以对比分析。结果表明：1、成灌线对两地可达性较弱的区域影响较大；2、成灌线站点位置使得其对两地可达性的影响呈现分区特性；3、成灌线的开通拉近了两地的经济文化交流。

关键词：市域铁路；城镇联系；空间可达性；成灌线

Study on the Influence of Suburban Railway on Urban Correlation: A Case Study of the Chengguanxian

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Abstract：

　　Due to the further development of domestic cities, the links between central cities and surrounding towns are becoming more and more important. In this paper, spatial accessibility is used as an index to calculate and compare the correlation between rasterized towns and cities, and the difference between indicators is used to characterize the impact of urban railways on inter-city linkages. Taking the Chengguanxian as an example, this paper uses the Osmnx package to extract the information of Chengdu and Dujiangyan road network, and takes the shortest time between the two places as the basic element to form the accessibility matrix before and after the opening of the Chengguanxian, and analyzes them. The results show that the suburban railways has a great influence on the weaker accessibility of the two places; the location of the suburban railways sites make their influence of the accessibility a zonal characteristic; the opening of the suburban railway makes the economic and cultural exchanges between the two places closer.

keywords: suburban railways; urban correlation; spatial accessibility; the Chengguanxian

High-Speed Rail in China and Its Impact on Land Development

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Abstract：The construction of large-scale high-speed rail (HSR) network in China is altering the time-space relationships between cities. As a result, HSR is changing the traditional hierarchical urban system in China and regions with large-scale networks of cities are forming. At the city level, the construction of HSR new towns could contribute to rapid land use development. In this paper, we focus on the relation between HSR and land development at the city level and study how HSR is transforming cities in China through the land development process. We conduct empirical studies on all cities within the HSR-impact area, which is defined as provinces that are covered by at least one HSR line. Our sample included cities with a HSR station and those without. The empirical model we applied was a Difference-in-Difference model, with two years of data-2004 (prior to HSR) and 2015 (after HSR). We found that HSR facilitates the rapid land development in cities with HSR stations (i.e., through planned HSR new town surrounding the HSR station), to an extent that is faster than cities without HSR stations. We also found heterogeneity in the HSR's impact on land development for cities of different sizes, as well as for cities in different regions (Eastern vs. Western provinces). HSR has no statistical significant impact on urban land development in Eastern part of China (i.e. coastal provinces), whereas the influence in Western part of China is significant and strong. In addition, HSR has shown no statistical significant influence on land development in large cities, while in small cities, HSR significantly increases the land development pace. This finding is supported by our previous case study that illustrated small cities are more likely to experience leapfrog development due to the locations of their HSR stations. At the HSR station selection process, large cities are able to carefully choose the locations of their HSR stations and thus their planned HSR new towns are often within their existing central cities. For medium to small cities, decentralization is often passively driven by HSR as the site selections of HSR stations are beyond their control. The long distance between the HSR new town and the existing urban center often result in leapfrog development.

Key words: high-speed rail

轨道交通对出行方式选择的影响研究——基于上海市 80 后微观调查样本的实证分析

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摘　要：评估轨道交通绩效的一个重要方面是考察轨道交通可达性的提高能否促进居民交通行为转变，尤其是减轻对小汽车的依赖。目前的研究结论不尽一致，且研究中存在的自选择问题尚没有引起足够的重视。基于 2013 年上海市 80 后群体的微观调查数据，分析轨道交通可达性对城市居民交通方式选择（小汽车购买和使用以及轨道交通使用）的影响，并利用样本的异质性来克服轨道交通可达性与交通行为之间的自选择。研究发现：居民居住区周边轨道交通可达性的提高，确实能够显著地降低家庭小汽车的拥有概率，并提高乘坐地铁通勤的可能性；但不能找到轨道交通可达性的提高会减少小汽车使用的证据。

关键词：轨道交通；出行方式选择；小汽车；自选择

The Influence of Rail Transit Accessibility on the Shift of Travel Modal Choice: Empirical Analysis Based on the Micro Survey of 80's in Shanghai

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Abstract：

Increasing vehicular travel demand in urban areas has resulted in negative consequences such as traffic congestion and air pollution. It is widely acknowledged that the growth of auto ownership is a major cause of the deterioration of urban traffic conditions. In developing countries, auto ownership levels have grown substantially. In mainland China, the period between 2010 and 2014 has witnessed an increase of private auto ownership from 78 million to 145 million at the national level. In the meantime, many cities worldwide, especially those in fast-growing developing countries, have made massive investments in rail systems and considered them an alternative to reduce individuals' reliance on automobile and mitigate traffic congestion and environmental impacts of transport. However, no agreement has been concluded from related researches, and few studies have examined the relationships between transit access and auto ownership in developing countries. More importantly, available studies are far from being satisfactory for grossly neglecting the self-selection problem. Based on a household survey of Shanghai residents who were born from 1980 to 1989, this paper analyzes the influence of rail transit accessibility on travel mode choice. Using Probit and Heckman two-step estimations, we find that, after controlling for demographics and other urban built environment variables, the improvement of rail transit accessibility can indeed significantly reduce the possibility of car

ownership, and encourage the use of Metro. Besides, no evidence has been found that the improvement of rail transit accessibility can affect the use of cars. However, these findings may still suffer from residential self-selection, specifically those who prefer not owning vehicles may choose to live in transit-accessible neighborhoods. In order to confirm our findings, we adopt two different approaches to solve this problem. The main idea behind these two approaches is to reserve samples whose residential locations are not totally the outcomes of their own free choices, but restrained by government or their work organization. After overcoming the self-section problem, we validate our previous findings that transit access is negatively associated with auto ownership, but positively associated with the use of Metro. And it is safe to say that the improvement of rail transit accessibility does lead to the shift of travel mode choice, and transit investment is a promising strategy to slow the growth of auto ownership.

keywords: rail transit; private car; shift of travel mode choice; self-selection

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新形势下城市社会公共停车场规划研究

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摘 要：本文从机动车发展趋势及其对社会公共停车场的需求入手，分析城市总体规划阶段在社会公共停车场用地控制方面存在的不足；为弥补社会公共停车场的缺口，从拓展建设的形式出发，将其分为三种类型；结合城市用地分类，提出适宜用来拓展公共停车场的城市用地类型；最后，针对半刚性停车场，提出总体规划阶段的规划建议。

关键词：社会公共停车场；停车用地指标；停车场分类；半刚性停车场

Research on Urban Public Parking Planning Under the New Situation

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Abstract：

Starting with the analysis of current development tendency of automobiles and its need for public parking lots, lack of public parking land in the stage of the urban master plan is analyzed. To fill those gaps, public parking lots are divided into three types according to their expansion forms. Combined withe the classification of urban land uses, those suitable for public parking lots' expansion are identified. In the end, several suggestions for the semi-rigid parking lots' planning in the stage of urban master plan are put forward.

keywords: public parking lots; land use index for parking lots; the classification of parking lots; semi-rigid parking lots

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大中城市居住和商业地块停车配建指标研究——以宿迁市为例

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摘 要： 国内外学者对停车配建指标的研究从类比分析、定性分析转向科学化的定量分析，但是停车配建标准制定方法在实际案例中的可操做层面欠佳，计算出的配建指标和实际停车需求值存在差距。本次研究在总结国内外停车配建标准制定经验的基础上，评价江苏省大中城市在停车配建标准制定方面的现状情况，然后分析城市停车设施配建标准的影响因素，并建立居住区、商业区停车配建指标计算流程和数学模型，结合情景分析修正计算模型，最后以宿迁市为例验证模型的可行性和合理性。

关键词： 停车配建；停车分区；停车需求

Study on Building Parking Requirements for Residential and Commercial Area of the Big and Medium-Sized Cities-Taking Suqian as an Example

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Abstract：

Domestic and foreign scholar's researches on parking requirements have shifted from analog analysis and qualitative analysis to scientific quantitative analysis, but the method of parking requirements is not good in practical cases, and there is a gap between the calculated parking requirements and the actual parking demand. According to the experience of parking requirements home and abroad , this research evaluates the present situation of parking requirements for big and medium-sized cities in Jiangsu province, then analyses the influence factors of city parking requirements, and establishes the calculation process and mathematical model of the parking demand prediction for residential and commercial area, combining with the scenario analysis to modify the calculation model, and finally to verify the feasibility and rationality of the model through practical case of Suqian city.

keywords: parking requirements; parking zone; parking demand

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片区停车综合整治的规划探索

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摘　要：片区停车综合整治是缓解停车矛盾、提升环境品质的重要抓手。本文以南京市鼓楼区芳草园片区为例，从现状停车特征分析、思路策略、整治措施、方案评估四个方面，阐述了片区停车综合整治的规划路径。

关键词：停车矛盾；综合整治；片区

Planning and Exploration of Comprehensive Renovation of Parking in Urban Piece Area

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Abstract：

Comprehensive renovation of parking in urban piece area is an important catcher to alleviate the contradiction of parking and improve the quality of the environment. The paper takes the Fangcaoyuan area of Gulou district, Nanjing as an example. The planning path of comprehensive Renovation of parking in this area is expounded in four parts, including the status of parking feature analysis, ideas and tactics, program evaluation.

keywords: parking contradiction; comprehensive renovation; urban piece area

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基于泊位共享理念的城市综合体停车需求研究

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摘　要： 在快速城市化背景下，曾经粗犷式土地开发模式，逐渐被城市综合体这种集约、高效和多元模式所替代。城市综合体是多功能复合型建筑，不同建筑类别停车需求高峰时段不同，其停车高峰需求存在时间差异性，且出行者一次出行访问能完成多个目的活动，因此可以通过泊位共享实现停车资源最优化配置。本文结合泊位共享理念，从内部影响因素停车需求时变性、混合程度、停车场布局距离、非垄断比出发，基于停车发生率模型进行了修正，构建了商办城市综合体泊位共享停车需求模型。

关键词： 泊位共享；城市综合体；停车需求

Research on Urban Complex Parking Demand Based on Berth Sharing Concept

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Abstract：

In the context of rapid urbanization, the once rough land development model was gradually replaced by the intensive, efficient and multi-modal model of urban complex. The urban complex is a multi-functional composite building. The parking demand of different building categories is different during peak hours. There is a time difference in the parking peak demand, and the traveler can complete multiple destination activities in one travel, so the parking resources can be realized through berth sharing. Optimization. This paper combines the berth sharing concept, based on the internal impact factors such as land use and intensity, parking demand degeneration, mixing degree, parking lot layout distance, non-monopoly ratio, based on the parking incidence model, and builds a commercial city complex berth. Shared parking demand model.

keywords: berth sharing; urban complex; parking demand

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大城市发展初期城市停车发展战略研究——以四川省泸州市为例

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摘　要：制定适合城市发展阶段的停车体系发展战略，科学引导城市动静态交通平衡，是保证城市可持续发展的首要工作之一。梳理大城市初期阶段交通发展特征，分析停车体系发展关键因素及一般历程，提出其停车发展战略建议，以泸州城市为例，结合其城市发展阶段及趋势，制定停车发展战略。

关键词：停车体系；发展战略；需求管理

Research of Urban Parking Development Strategy of Major Cities in the Early Stage

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Abstract：

Suitable for the urban development strategy to guide the urban traffic is the primary stage of development of parking system．With analysis in the initial stage of city traffic development characteristics and the key factors for the development of parking system and process，we put forward the development strategy recommendations．Combining with the stage and the trend in the development of luzhou city，we formulated the corresponding parking development strategies.
keywords: parking system; development strategy; demand management

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Curb Parking Management Reforms in China: The Case of Shenzhen

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Abstract: This study takes Shenzhen, a major metropolis in southern China, as an example to showcase curbside parking reform in terms of how it has been initiated, its effects and its implications. China's built environment and regulatory background are given particular consideration in this analysis, as they are highly relevant to policy improvements.

Key words: curb parking management; China; Shenzhen

停车政策背离：停车位配建标准的变化及其影响

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摘　要：文章梳理了美国停车位配建标准政策的演变史及其影响。停车位配建标准是世界重要的停车供给政策，是政府对停车资源供给数量和位置的管制。这种管制低效而不公平，且有悖于城市和交通政策目标。所以发达国家正逐步放松管制，包括降低乃至取消配建标准，交由市场配置停车资源。而中国正逐步提高和强化配建标准。对于这种政策背离，本文通过中美比较试图解释其原因，并针对北京市场化政策和路外停车市场缺位的现状，建议北京先增加市场化政策以纠正配建标准的负面影响。

关键词：最低标准；负面影响；放松管制；政策背离

Parking Policy Deviation: The Evolution and Influence of Off-Street Parking Requirements

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Abstract：

　　This study reviews the USA Parking-Requirement's history and its influence. The Requirements are an important parking-supply policy in the world and a government-regulation over the quantity and location of parking resources. But this regulation is inefficient and unfair and contrary to the objections of urban and transport policies. Therefore, developed countries are gradually deregulating, including reducing or canceling the Requirements, and let market allocate parking resources. China is, however, gradually increasing and strengthening the Requirements. This study tries to explain reasons for this policy-deviation through comparison between China and the USA, and suggests that Beijing introduce marketization policies to correct the negative impact of the Requirements.

keywords: minimum parking requirements; negative impact; policy deviation; deregulation

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我国路内限时长停车管理可行性研究

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摘　要： 当前我国城市停车难、停车乱现象十分普遍，城市中心区停车矛盾尤为突出，特别是长时间路内停车，既造成了道路通行能力下降，又增加了车辆寻找停车位的交通量，加剧了城市道路的拥堵。城市中心区 0.5～2 小时的限时长停车模式已经在发达国家和地区广泛采用，对提高路内停车泊位周转率和缓解城市中心区交通拥堵效果显著。论文介绍了国外路内限时长停车的先进经验做法，包括标志标线、设备、违停处罚措施等，并探讨了我国实行路内限时长停车模式的可行性及相关政策建议。

关键词： 限时长停车管理；可行性；超时停车

Feasibility Study on Time-Limited Parking Management in China

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Abstract：

At present, the phenomenon of difficult and disorderly parking in Chinese cities is very common, and the parking contradiction in urban central area is particularly prominent, especially in the long time of parking in roads, which not only causes the decline of road traffic capacity, but also increases the traffic volume of vehicles looking for parking Spaces, aggravating the congestion of urban roads. The 0.5~ 2-hour time-limited parking mode in the city center has been widely adopted in developed countries and regions, which has a significant effect on improving the parking berth turnover rate in the road and alleviating traffic congestion in the city center. This paper introduces the advanced experience and practice of time-limited curbside parking management in developed countries and regions, including signs, marking, equipment, and punishment measures, and discusses the feasibility of implementing time-limited curbside parking in China and relevant policy suggestions.

keywords: time-limited parking management; feasibility; overtime parking

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高铁客运枢纽交通影响评价

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摘　要：高铁客运枢纽是城市综合交通节点，为保证城市交通合理有序运行，研究高铁客运枢纽对城市交通产生影响的因素具有必要性。基于"节点—场所"理论，分析高铁客运枢纽对城市交通产生影响的因素并以此作为指标构建评价体系，结合区间数描述与层次分析法，提出了高铁客运枢纽对城市交通影响程度评价的区间数模糊评价方法。以镇江高铁客运枢纽为实例进行评价分析，镇江高铁客运枢纽对其城市交通产生影响最大的因素是换乘条件和周边土地开发。建立合理的交通影响评价体系并根据分析结果提出相应对策，对于设站城市更好地承接高铁效应和更合理地利用高铁资源具有辅助作用。

关键词：高铁客运枢纽

The Evaluation of the Traffic Impact of High-Speed Rail Passenger Hub

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Abstract：

　　High speed rail passenger transport hub is the city's comprehensive transportation node，will have a certain impact on the city traffic. Therefore，it is necessary to study the factors affecting the urban traffic of high-speed rail passenger terminals. Based on the "node-place" node-place concept，this paper analyses the factors affecting the urban traffic of high-speed rail passenger transport hub and constructs an evaluation system with this as an index. Combining the interval number description and analytic hierarchy process，an interval number fuzzy evaluation method for evaluating the impact of high-speed rail passenger transport hub on urban traffic is proposed. Taking Zhenjiang High-speed Railway Passenger Hub as an example，this paper evaluates and analyses it，and concludes that the most influential factors of Zhenjiang High-speed Railway Passenger Hub on its urban traffic are transfer conditions and surrounding land development. Establishing a reasonable traffic impact assessment system and putting forward corresponding countermeasures based on the analysis results will play an auxiliary role for the station-based cities to better undertake the high-speed rail effect and make more rational use of high-speed rail resources.

keywords: high speed passenger transport hub

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Impact of Rapid Urbanization on Transportation Networks of Lahore

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Abstract： The urban areas around the globe are expanding. Various organizations and studies have given multiple predictions. It is extremely imperative that in order to provide sustainable transportation systems, the planning of urban areas needs to be understood critically. This issue is of severe concern in developing countries like Pakistan in which the urban sprawl is increasing rapidly and haphazardly. This random urbanization and sprawl of areas are depleting the existing transportation networks. Lahore, capital of Punjab, is one of the key cities of Pakistan with diverse culture and ethnic background. Due to the increase in commercialization and better opportunities, people from other areas are attracted towards it alongside the growth of population within the city. This has led to an increase in urbanization in the past decade. The focus of this paper is to highlight the impact of this chaotic rise in urbanization on the existing transportation networks. Multiple studies and findings have been mentioned in this paper, which predicts the future of the transportation networks of Lahore. Furthermore, recommendations are suggested based upon these reports which will be immensely beneficial to the authorities and government. A paradigm shift in terms of decisions and policies is required in order to accommodate this key issue. Relevant transport organizations should work as a concurrent unit to resolve these impending issues at earliest before the transportation network flops predictably.

Key words： transportation; urbanization; metro; public; transportation urbanization metro public

Simulation of Spatial Evolution in Port and Port Peripheral Area Based on ANN-CA Model

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Abstract：With the implementation of port planning scheme, the scale and pattern of land use in port and port peripheral area will occur a certain degree of changes. However, there still lacks an efficient approach to learn these dynamic changes comprehensively. This paper proposes to conduct simulation of spatial evolution in port and port peripheral area based on ANN-CA model. By this approach, we simulate the evolution of land use scale and pattern in port and port peripheral area in future developing process after the port planning scheme is carried out. And we take Qingdao port as an example to carry out specific application and detailed analysis. The approach proposed in this paper can help decision-makers quantitatively and visually learn about the impact of the implementation of port planning scheme on spatial development of port and port peripheral area.

Key words：land use; spatial evolution; port planning; artificial neural network; cellular automata simulation

轨道交通快线运营管理与调度指挥模式研究——以重庆市为例

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摘　要： 为适应大都市区域轨道交通发展需求，重庆市提出了"轨道交通快线"新型轨道交通模式，以期增强大都市区对外交通集聚辐射能力，加强市郊区域与中心城区的轨道交通通道。针对轨道交通快线运营管理与调度指挥模式问题，本文以重庆市为例提出了轨道交通快线运营管理与调度指挥模式选择的影响因素，通过对比分析得出适应轨道交通快线规划发展的运营及调度模式，并进一步探究了轨道交通快线与国铁协同运输组织相关问题，为轨道交通快线与国铁衔接贯通、协同发展提供参考。

关键词： 轨道交通快线；区域轨道交通；运营管理模式；调度指挥模式；协同运输

Research on Operation Management and Dispatching Command Mode of Urban Express Railway: Taking Chongqing as an Example

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Abstract：

In order to meet the needs of metropolitan area rail transit development, Chongqing proposed a new rail transit mode of "urban express railway", in order to enhance the ability of metropolitan area to collect radiation from external traffic and strengthen the rail transit channel between suburban area and central city. Aiming at the problem of urban express railway operation management and dispatching command mode, this paper takes Chongqing as an example to put forward the influencing factors of urban express railway operation management and dispatch systems mode selection. Through comparison and analysis, the operation and dispatching mode adapted to the development of urban express railway planning is obtained. And further explored the issues related to the urban express railway and the state-owned railway cooperative transport organization, providing a reference for the coordination between the urban express railway and the state-owned railway.

keywords: urban express railway; regional rail transit; operation management mode; dispatching command mode; collaborative transportation

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区域一体化背景下航空枢纽布局及交通系统规划

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摘　要：首先对国际城市群区域一体化背景进行介绍，分析其航空枢纽多层次布局的特点和多模式的轨道交通体系。在此基础上对我国长三角区域航空枢纽进行现状分析，指出其已形成多层次的航空体系，但航空枢纽交通集散和机场间的协调与合作仍存在欠缺。最后，结合长三角区域一体化的国家战略背景，指出区域航空枢纽对外交通服务应基于机场功能定位，发展多模式轨道交通系统，并强化不同层次机场间的联系，实现区域航空一体化发展。

关键词：航空枢纽；区域一体化；空铁联运

Aviation Hub Layout and Transportation System Planning Under the Background of Regional Integration

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Abstract：

Firstly, the paper introduces the background of regional integration of international urban agglomeration and analyzes the characteristics of multi-level layout of aviation hub and multi-mode rail transit system. Then the paper analyzes the Yangtze River Delta regional aviation hub, and it is pointed out that there formed a multi-level aviation system, but there are still deficiencies in the coordination and cooperation between transportation distribution and airports. Finally, combined with the national strategic background of regional integration in the Yangtze River Delta, it is pointed out that the external service of regional aviation hub should be based on airport function positioning, developing multi-mode rail transit system, and strengthening the links between airports at different levels to realize the development of regional aviation integration.

keywords: aviation hub; regional integration; air-rail intermodality

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地区同城化交通体系的发展趋势研究——以苏南地区为例

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摘 要：现如今，信息化、全球化和网络化已成为世界经济发展的基本特征，城镇发展的日益区域化、区域发展的日益城镇化已经成为城市区域发展的全球性趋势。在这一背景下，同城化战略作为相邻城市突破行政区划，寻求基础设施建设、产业发展、环境保护等方面的竞合发展，并最终提升城市个体和群体竞争力的一种务实选择，应运而生。本文则在同城化的背景下，以苏南地区为例，从出行分布、出行目的以及出行满意度三个角度，对长三角层面、地市层面、区县层面不同尺度探究其现状发展特征，并借鉴国内外经验，分析苏锡常地区同城化发展问题，并提出建议。

关键词：同城化；现状交通发展特征；交通趋势

The Study of the Development Trend of Transportation System Based on the Urban Integration: A Case Study of Southern Jiangsu

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Abstract：

Nowadays, the world economy has become informationization, globalization and networking, the increasingly regional and urbanization of urban development have become a global trend of urban regional development. Based on the premise, the strategy of city integration is a practical choice and emerges at the historic moment, which neighboring cities break through administrative divisions, seek co-development in infrastructure construction, industrial development, environmental protection and other aspects, and ultimately enhance the competitiveness of urban individuals and groups. Taking southern Jiangsu as an example, the paper explores the current development characteristics of three different scales, which is the Yangtze River Delta region, prefecture, city, district and county levels, from the perspective of travel distribution, travel purpose and travel satisfaction. Drawing on domestic and foreign experience, the paper analyzes the problems of the development of Suzhou-Wuxi-Changzhou, and puts forward some suggestions.

keywords: urban integration; the current traffic development characteristics; traffic trends

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大城市拥堵的深层次原因分析及解决方法

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摘　要：本文分析了大城市交通拥堵的原因、并提出了解决问题的方法。在深层次地分析了道路资源分配问题后，作者发现路权不合理、轿车车型设计不契合等问题是导致城市道路拥堵的根本原因。文中给管理者提出了解决方法，给车辆研发者提出了设计建议。两者结合，可以基本解决城市拥堵的世界难题。

关键词：窄型车；路权；道路控制

In-Depth Analysis and Solutions of Congestion in Big Cities

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Abstract：

This paper analyses the causes of traffic jam in big cities and then proposes some relative solutions. Through the deep study and the process of the discovery of the fundamental reasons, the writers of this essay believe that the misallocation of road resources and the unreasonable design of car models that does not in line with the urban roadways might be the main hidden reasons. In order to solve the congestion problem, several suggestions and advice have been offered to the relevant parties, such as the governor and the vehicle developers. By combing these two methods, the solution could be to alleviate travel congestion in urban areas.

keywords: narrow car; Public right of way; road traffic control

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Model-Based Techno-Economic Evaluation of Fuel Cell Vehicles Considering Technology Uncertainties

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Abstract：Fuel cell electric vehicle (FCEV) has drawn increasingly attentions to reduce emissions and energy consumption in transportation sector. The competitiveness of FCEV compared with other vehicle powertrains determines the future of FCEV. In this study, we adopt a unique model-based techno-economic evaluation approach to compare the cost and performance of FCEV with major competing vehicle technologies. Specifically, we utilize a physical-based vehicle system model, FASTSim, to simulate impacts of vehicle cost and performance due to midterm and long-term progress in technology attributes of components for FCEV and competing powertrain vehicles. Our results show that, in midterm and long-term, FCEV can achieve comparable engineering performance (e.g. mileage range, acceleration time) to dominant powertrain types, such as internal combustion or hybrid vehicles. But FCEV's ownership cost, manufacturing price plus lifetime energy cost, is about $8,000 to 12,000 higher than (midterm) and comparable to (long-term) those of dominant vehicle types. Sensitivity analysis shows hydrogen production is critical to the competitiveness of FCEV. $6 per kg H2 makes FCEV the least economical choice, whereas $2.5 per kg or below gives FCEV the most economic advantage. The uncertainties of technologies and energy prices also suggest that continuous government promotion, such as tax credit or mandate, is important to ensure a rapid market adoption of FCEV.

Key words：fuel cell electric vehicle; techno-economic evaluation; technology uncertainty

A Comparative Study on Solving the Minimum Fleet of Shared Autonomous Vehicles

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Abstract： With the development and popularization of autonomous driving technology, it has become the trend of replacing traditional manned private vehicles with autonomous vehicles in the future. This paper assumes that all travel demands are met by Shared Autonomous Vehicle (SAV). The objective of this paper is to compare the efficiency of two methods, i.e. graph theory method and the Multiple Travelling Salesman Problem (MTSP) method, in solving the minimum fleet size problem. Dataset used in this study is the trajectory data of 50 new energy private cars in Shanghai for one year. Travel demands are first extracted. A specific method for calculating whether two trips can be connected (served by one SAV) is given and the connection matrix is obtained. Then, the specific procedures of transforming the minimum fleet size problem into the minimum path cover problem on directed graph (graph theory method) or into MTSP shortest path problem (MTSP method) are introduced. It is proved that the transformation is effective. Hopcroft-Karp algorithm is adopted in graph theory method, while genetic algorithm (GA) is adopted in the MTSP method. Results show that graph theory method performs better both in the quality of solution and the computing time than the MTSP method. The results indicate that a SAV can replace 2.5 traditional private cars on average.

Key words： shared autonomous vehicle (SAV); minimum fleet size; graph theory; hopcroft-karp algorithm; multiple travelling salesman problem (MTSP); genetic algorithm (GA)

开放式小区公交微循环站点选址与线网设计综合优化

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摘　要： 微循环公交系统是解决城市交通"最后一公里"问题的有效方案。在当前建设开放式小区的背景下，其站点选址和线网设计对于乘客、企业和社会更具有重要意义。以所有公交微循环线路总长度最小和乘客总步行距离最短为目标，以站点数量、站间距、线路长度等为约束条件，建立开放式小区公交微循环站点选址与线路设计综合优化模型，设计遗传算法求解模型。以北京市某小区为例，验证了所提出的模型和算法的正确性和有效性。最后，对模型参数和线路条数进行灵敏度分析，决策者应综合考虑企业与乘客利益，选择合理的模型参数值与布设线路条数，使决策达到最优。

关键词： 交通工程；城市交通；站点选址；线路设计；遗传算法

Integrated Optimization Study of Site Selection and Network Design of Bus Microcirculation System in Open Communities

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Abstract：

　　Bus microcirculation system is an effective solution to "the last mile" problem of urban traffic. Under the current background of open communities' construction, the integrated design of site and network is significant for passengers, enterprises and society. A model of site selection and network design of bus microcirculation system in open communities is built, in which the goal is to make total distance on bus driving and passengers' walking in minimum, using the number of sites in demand, spacing ranges and line length etc. as the constraints. Genetic algorithm is designed to solve the model. One community in Beijing is taken as an example, verifying the correctness and validity of the proposed model and algorithm. Finally, sensitivity analysis of the model parameters and the number of lines illustrates that the decision-makers should take into account the interests of enterprises and passengers and select a more reasonable outcome to make the decision adjacent to the best.

keywords: traffic engineering; urban traffic; site selection; line design; genetic algorithm

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共享单车发展的若干思考

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摘　要：本文首先回顾了共享单车发展历程，分析了共享单车兴起以来对城市综合交通系统，特别是公交及慢行系统产生的影响；随后以共享单车目前遭遇的发展困境为的导向，深入剖析了共享单车行业何以走入歧途；最后，结合未来城市交通"出行即服务"的发展趋势，对共享单车及共享交通模式提出新的发展方向，并对如何提升共享单车的行业监管及企业自身竞争力提出了相关建议。

关键词：共享单车；行业监管；出行即服务

Some Thoughts on the Development of Bike-Sharing

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Abstract：

Firstly, this paper reviews the development of bike-sharing, and analyzes the influence of bike-sharing on urban comprehensive transportation system, especially public and non-motorized transport system. Then, based on the development dilemma of bike-sharing, this paper deeply analyzes why the industry of bike-sharing has gone astray. Finally, combined with the future development trend of "mobility as a service" in urban transportation, this paper puts forward a new development direction for bike-sharing, and puts forward relevant suggestions on how to improve the supervision of bike-sharing industry and the competitiveness of enterprises.

keywords: bicycle-sharing; government regulation; Mobility as a Service

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路内停车调控的基本逻辑及经验借鉴

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摘　要： 如何使路内停车服务的社会效益最大化，是实施路内停车调控的基本逻辑。本文首先对不同情景下路内泊位的属性进行探讨：在日间，路内停车具有私人产品属性；在夜间，路内停车具有拥挤型准公共产品属性。在路内停车具有私人产品属性时，应充分发挥市场化的调节手段；在路内停车具有拥挤型准公共产品属性时，应实施低价或免费供应。路内停车调控的方式一般包括总量调控、价格调控和管理方式调控模式，本文介绍了这三类需求调控模式方面的一些国际先进经验。

关键词： 路内停车；需求调控；基本逻辑

Basic Logic and Experience Reference of On-Street Parking Regulation

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Abstract：

On-street parking service is a public product. In order to maximize its social benefits, it is necessary to implement regulation and management. In this paper, we discuss the attributes of on-street parking under different scenarios. Parking has the property of private products in the daytime, however, has the property of crowded quasi-public products at night. When on-street parking has the property of private products, it should be given full play to market-oriented adjustment means. When on-street parking has the property of congested quasi-public products, it can be provided at low price or free of charge. Regulation and control methods of on-street parking include total volume control, price control and management mode control. In the end, we introduce some advanced international experience in demand regulation.

keywords: on-street parking; demand regulation; basic logic

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基于区块链的交通大数据系统

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摘　要：针对交通大数据现阶段存在的数据封闭、数据分享动力不足和信息孤岛等严重的问题，利用区块链技术的去中心化、低成本和高效安全的特性，将区块链应用于交通大数据系统中，并利用软件 python 搭建了一个简单的基于区块链的交通大数据系统。结果表明，区块链能够很好的对交通大数据进行储存、管理和共享，有利于促进透明政府和服务型政府的建设，提高居民对公共管理的参与度和服务水平。

关键词：交通大数据；区块链；去中心化；高效安全

Traffic Big Data System Based on Block Chain

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Abstract：

Aiming at the serious problems of data enclosure, lack of power for data sharing and information islands, block chain technology is applied to traffic large data system by using the characteristics of decentralization, low cost and high efficiency and security. A simple traffic data system based on block chain is built by software python. The results show that the block chain can store, manage and share the traffic data well, which is conducive to promoting the construction of transparent government and service-oriented government, and improving resident participation in public management and service level.

keywords: traffic big data; block chain; decentration; high efficiency and safety

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基于人工智能大数据的政策满意度评价效果初探

——以 2018 年春运满意度评价为例

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摘　要：本研究基于自然语言处理和机器学习，借助人工智能大数据情绪分析算法系统，初步探索基于人工智能大数据技术的满意度评价产品在不同政府职能部门出台的治理政策进行效果评估和评价方面的作用。在对 41 万余条数据进行筛选、去重、关键词分类等处理后，通过人工智能层次分析法、增量聚类算法分析、空间向量模型等技术和算法，对 2018 年春运运输服务以及不同运输方式等的满意度进行分析。结果表明，2018 年春运，在春运期间，网民整体满意度相对比较稳定，维持在 80%左右，这说明，民众对春运整体比较满意。民众对购票的满意度在 80%左右浮动，这与使用网络购票人数的增多息息相关，移动互联网已成为春运出行主要购票渠道。人们在春运期间对高铁动车的满意度最高，为 93.64%，第二位和第三位分别是飞机和火车，满意度为 82.30%和 70.8%，这即与我们的春运出行感受相一致，又与我们国家这么多年的交通行业发展经验相一致。研究结果表明人工智能大数据系统开发的满意度评价产品是比较客观，科学，经得起科学方法的验证的。本研究为人工智能大数据技术在政策评估方面的应用作了有益的尝试。

关键词：人工智能；大数据；政策评估；政府治理；满意度

Preliminary Study on the Evaluation Effect of Policy Satisfaction Based on Large Data of Artificial Intelligence

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Abstract：

Based on natural language processing and machine learning, and with the aid of AI big data emotional analysis algorithm system, this study preliminarily explores the role of satisfaction evaluation products based on AI big data technology in evaluating the effectiveness of governance policies issued by different government departments. After processing more than 410,000 data, such as screening, weight removal and keyword classification, the satisfaction degree of spring transportation service and different transportation modes in 2018 was analyzed through artificial intelligence analytic hierarchy process, incremental clustering algorithm analysis, space vector model and other technologies and algorithms. The results show that the satisfaction evaluation products of AI big data system development are objective, scientific and can stand the validation of scientific methods. This research has made a useful attempt for the application of AI big data technology in policy evaluation.

keywords: AI; big data; policy evaluation; government governance; satisfaction

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BIM 落地 标准先行

——江西省交通建设领域推动 BIM 技术应用管理导则出台

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摘 要：江西省交通建设领域编制出台 BIM 技术应用导则地方标准，该导则致力于交通建设领域各阶段 BIM 技术应用中各方职责和实施内容，使各参与方在 BIM 实施过程中有据可循，实现 BIM 技术应用管理的规范化，促进 BIM 技术在交通建设领域的广泛应用。

关键词：BIM 技术；应用管理；规范

BIM Application, Standard First: Jiangxi Province Promote Regulations on Application of BIM Technology to Produce in Communication Construction Field

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Abstract：

The local standard of the application for BIM technology have been applied in the area of communication construction in Jiangxi Province. The regulations cover responsibilities and implementation at different stages of communication construction for parties' implementing. Also, the standard focus on standardizing the management of BIM technology application and promoting the wide application of BIM technology in the field of communication construction.

keywords: BIM technology; application management; standard

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公交专用道运行效率双层评价模型研究

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摘　要：公交路权优先是提高地面公交运行速度、提升地面公交吸引力的重要手段之一，同时也是公交都市创建工作中的重要内容之一。随着北京市近年来公交专用道施划工作的不断深入，如何提升公交专用道运行效率已经成为当前公交都市建设以及公交线网优化调整中的一项重要工作。本研究从政府、市民和企业三者角度建立了适用于北京市的公交专用道运行效率评价指标体系。基于公交 IC 卡数据、GPS 数据、交通调查数据等多源数据，通过数理统计方法确定指标取值。构建公交专用道运行效率双层评价模型，基于上层模型从宏观层面评价各条专用道运行效率。对于运行效率较低的公交专用道，通过下层模型在中微观层面一事一议的寻找影响其运行效率的原因和症结，以便提出改善建议。本研究首次为北京市公交专用道建设和改善工作提出一套系统的理论方法，并通过实例验证该方法是可行的，具有可操作性。本研究可为北京市公交专用道建设和改善工作提供科学的决策支持，也为北京市公交线网调整工作提供思路借鉴。

关键词：公交专用道；运行效率；评价；双层评价模型

Bi-Level Evaluation Model for the Operation Efficiency of Bus Lanes

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Abstract：

Right-of-way priority for bus is one of the important means to improve the operating speed of bus and increase the attractiveness of bus. It is also one of the important contents in the Transit Metropolis creation. In recent years, with the continuous increasing of the mileage of bus lanes in Beijing, how to improve the efficiency of bus lanes has become an important task in the Transit Metropolis creation and the bus routes and network adjustment. This study establishes an evaluation index system for the operational efficiency of bus lanes from the perspectives of government, citizens and bus companies. To evaluate the operational efficiency of bus lanes from both macro level and micro level, it is necessary to build a bi-level evaluation model for the operational efficiency of bus lanes for Beijing. Based on the multi-source data such as IC card data, GPS data, traffic survey data, etc., the value of the evaluation index is determined by statistical method. The upper-level model is used to evaluate the efficiency of each bus lane from the macro level. As for bus lanes with low efficiency, we use the lower-level model to find factors affecting its operational efficiency from the meso and micro level, and some improvement suggestions are proposed. This study is the first one to propose a systematic theoretical method for the construction and improvement of bus lanes in Beijing. It is verified by examples that the method is feasible and operable. The study results also contribute to provide scientific decision to support the

construction and improvement of bus lanes and provide references for the bus routes adjustment in Beijing.

keywords: bus lanes; operational efficiency; evaluation; Bi-level evaluation model

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Framework and Roadmap Design of Developing Mobility as a Service in China

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Abstract：Mobility as a Service (MaaS) as a quite novel and emerging concept offers a new perspective on how to organize and implement mobility service concepts in the future. In some originated countries, there already exist some studies and pilot projects which have included MaaS in the mobility policy, planning and studying strategies, China is still at the very beginning stage. In order to promote building a sustainable MaaS ecosystem for China, based on the analysis of the related influencing factors and architecture from international, according to the characteristics of different transport modes on institution management, operating mode, passenger identification, ticketing, payment, fare calculation etc., this paper proposed the framework of developing MaaS ecosystem in China, which covering the roles of passengers, transport service providers, MaaS operators, data and ICT service providers, public agencies, etc. In the meantime, according to the difficulty of the integration of different transport services from different level such as accounting, ticketing, payments, evaluating and so on, this paper defines the roadmap of developing MaaS in China. Hope this paper could provide a reference for developing a thriving MaaS ecosystem for China.

Key words: intelligent transport system (ITS); mobility as a service (MaaS); shared mobility; framework and roadmap

互联网+出行下巡游出租车经营管理研究

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摘　要：随着互联网技术的成熟，冲击着巡游出租车行业，使得巡游出租车的利益发生了变化。互联网技术催生出来的网约车抢占着巡游出租车的市场，大量的出租车司机转行到其他行业，而两者之间的竞争也越来越激烈，改善巡游出租车行业的经营管理已经刻不容缓。本文通过研究在互联网+出行下网约车对福州巡游出租车的影响，得出在网约车影响下福州巡游出租车各项运营指标的变化，以及网约车与巡游出租车在运营指标的差异，进而提出在网约车的影响下福州巡游出租车暴露出来的主要问题，重点研究福州巡游出租车运营模式的优劣性以及适应性。并通过 SWOT 模式对比网约车与巡游出租车的优劣性，并结合国内外出租车管理经验，针对福州巡游出租车经营方式的改善提出相关建议。

关键词：互联网+；巡游出租车；网约车

Study on the Management of Cruising Taxis Under Internet Plus

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Abstract：

"Internet Plus Travel" has a huge impact on the traditional taxi industry in Fuzhou, breaking the traditional interest pattern inherent in the traditional taxi market. Especially the advent of the ride-hailing service, the traditional taxi industry has seen a decline in drivers and a loss of staff. The competition between car-hailing and traditional taxi is becoming more and more intense. The transformation of the traditional taxi business is an important issue.

In this paper, through the research on the car-hailing and to cruising taxi, the change of each operation index in Fuzhou car-hailing under the influence and difference of car-hailing and taxi operators in the index, and then put forward some issues. The unequal relation between key operation modes of Fuzhou ability and adaptability. By SWOT analysis car-hailing and taxis compared the advantages and disadvantages, and the combination of domestic and foreign taxi industry operating mode, this study put forward some suggestion on improvement of management mode of taxi in Fuzhou.

keywords: internet plus; cruising; taxi; operating; mode; car-hailing

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