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Smartphone Context Aware Implicit Authentication via Multi-branch Attention CNN

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Abstract: Widely-accepted explicit authentication protocols are prone to be bypassed by a series of attacks, resulting in users' constant suffering from periodic changes of passwords. Whereas existing works barely consider multi-context awareness, cold-start and few-shot model training and its deployment in a unified framework. In this work, we present CAIAC that utilizes the behavior characteristics when user finishes a graphic pattern on lock screen, and implement on a novel, context aware implicit authentication system for smartphones. We use a multi-branch, attention-enabled deep CNN model to form the base feature extraction encoder and utilize not only the user behavior data, but also contextual information. We then use an efficient binary classifier to avoid assumptions on attacker's data during the training process. As collected data are usually insufficient due to a short user register in field usage, we involve transfer learning and data augmentation to address the cold-start, few-shot training. We collect real-world data with more than 68,000 recordings for validation. Extensive experiments suggest that CAIAC achieves an EER of 3.275 % on mixed contexts, consistently outperforming the state-of-the-arts.

Keywords: Implicit authentication; Context aware; Pattern unlocking; User behavior; Biometrics; Smartphone

Finite-time Composite Learning Control for Flexible-link Manipulator based on Disturbance Observer

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Abstract: With the development of robotics technology and theory, manipulators are promising to work in more complex environments. In this paper, a finite-time composite learning control scheme based on adaptive finite-time disturbance observer (AFTDO) is proposed for tracking control of a flexible-link manipulator system under unknown external disturbances, modeling uncertainties, input saturation and output constraints. The proposed AFTDO can estimate the unknown upper bound of the derivative of disturbance by adaptive laws, and a neural network controller is designed based on the AFTDO algorithm to achieve compensation and suppression of multiple disturbances and stabilization of all variables in finite time. The feasibility and superiority of the proposed composite learning control algorithm are verified by simulation.

Keywords: Disturbance Observer; Finite-time Control; Flexible-link Manipulator; Input Saturation

Hierarchical Control Method Based on Model Predictive Control for Virtual Coupling Trains

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Abstract: Virtual Coupling (VC) as a flexible coupling method in rail transportation aims at efficient using train resources to increase line capacity. In order to combine with the actual demand, the synchronization of inbound and outbound is considered as an important technical performance index for VC of urban rail trains. However, due to the high complexity of real-time calculations and the inability to fully consider the surrounding line conditions, the current methods employed in tracking control fail to address the issue of synchronous inbound stopping. An off-line planning method has been proposed to calculate the recommended speed profile with the best synchronous stopping performance index, but the synchronous stopping of virtually coupled trains (VCTs) cannot be achieved by off-line planning alone because of the deviations in actual control. To address the above problems, this paper proposes a hierarchical control method for VCTs based on Model Predictive Control (MPC) , in which the lower-lever uses MPC for distributed curve tracking control based on the upper-lever offline planning to achieve synchronous stopping of VCTs. Firstly, we describe the inbound synchronous stop problem and introduce the hierarchical control framework . Then we design the distributed curve tracking MPC. Finally, the existing PID and MPC control methods are compared and experimented with the Beijing train test line. The results show that MPC can more accurately control the tracking of the recommended speed curve of the upper-lever.

Keywords: Virtual Coupling; MPC; Hierarchical control

A Semi-Supervised Deep Learning Model based on Mean Teacher for Φ-OTDR Event Classification

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Abstract: It would usually be difficult, sometimes even unrealistic to label all the acquired samples due to Phase sensitive Optical Time Domain Reflectometer's (Φ-OTDR) real-time and seamless monitoring nature. To fully take advantages of the information contained within the large number of unlabeled samples, which are formerly not utilized and wasted, we propose a semi-supervised deep learning (SSL) model based on Mean Teacher framework to boost Φ-OTDR's event classification performance. We have compared ten models under two different SSL frameworks, and then the best, namely MT-ACNN-SA-BiLSTM model, is put forward. In the proposed model, the teacher model and the student model adopt an ACNN-SA-BiLSTM network to extract respectively the temporal features and the spatial bidirectional features. On this basis, this model further introduces a dual attention mechanism of channel attention and spatial attention, which further optimizes the extraction of time domain features and improves the processing capability of long-distance data. The model greatly improves the classification ability of disturbance events, and the classification accuracy for six types of events can reach up to 97.5% with only 1248 labelled samples. In addition, it is found that with the increasing number of unlabeled samples and decreasing number of labeled samples, our model shows more advantages in the events classification. In short, the proposed model is ideal for online real-time scenarios, as it can accurately classify the new data collected instantly and improve the classification accuracy and robustness with the help of otherwise unused unlabeled samples in the complex practical monitoring applications.

Keywords: Φ-OTDR; Event Identification; Mean Teacher; Semi-supervised Learning; MT-ACNN-SA-BiLSTM

基于对比学习和标签挖掘的点云分割算法

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摘 要：共基于深度学习的点云分割算法通过设计复杂的特征提取模块，可以对高维空间点云进行有效的分割。但由于缺乏对边界点集的特征挖掘，使得其对边界分割的精度欠佳。已有将对比学习思想用于点云分割以解决边界区域分割性能不足问题的研究中，未能充分利用点云无序和稀疏特性，特征提取不够准确。对此，本文设计了基于对比学习和标签挖掘的点云分割模型 CL2M(Contrastive Learning Label Mining)，通过自注意力机制学习不同位置处点云更为精准的特征，并引入对比学习方法，提高了点云边界处的分割精度。在对比边界学习过程中通过深入挖掘语义空间中的标签并设计了基于标签分布的对比边界学习模块，使得高维空间点云标签分布包含更多的语义信息。CL2M 充分利用标签的分布规律计算分布间的距离，可准确划分正负样本，减少了常规硬划分带来的累计错误。在 2 个公开数据集上进行的实验结果表明，CL2M 在多个评价指标上优于既有的点云分割模型，验证了模型的有效性。

关键词：计算机视觉；点云分割；对比学习；自注意力机制；边界挖掘

Point Cloud Segmentation Algorithm based on Contrastive Learning and Label Mining

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Abstract: Point cloud segmentation algorithm based on deep learning can effectively segment point clouds in high-dimensional space by designing complex feature extraction modules. However, due to the lack of feature mining of boundary point set, the precision of boundary segmentation do not get good precision. Some studies have applied the idea of contrastive learning to point cloud segmentation to solve the problem of insufficient boundary region segmentation performance, but the disorder and sparse characteristics of point cloud have not been fully utilized, and the feature extraction is not accurate enough. To solve these problems, CL2M is designed in this paper to learn more accurate features of point clouds at different locations through the self-attention mechanism, and the contrastive learning method is introduced to improve the segmentation accuracy of point cloud boundaries. In the process of contrastive boundary learning, labels in semantic space are deeply mined and a contrastive boundary learning module based on label distribution is designed to make the label distribution of point cloud in high-dimensional space contain more semantic information. The model makes full use of the label distribution law to calculate the distance between

distributions, and can accurately divide positive and negative samples, reducing the cumulative errors caused by conventional hard partition. The experimental results on two public data sets show that CL2M is superior to the existing point cloud segmentation model on several evaluation indexes, which verifies the effectiveness of the model.

Key words: Computer vision; Point cloud segmentation; Contrastive learning; Self-attention; Boundary mining

Viewpoint-aware Channel Selection for Vehicle Re-identification

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Abstract: Vehicle re-identification (vehicle Re-ID) aims to identify the same vehicle images from various views in the cross-camera scenario. There are many challenges with the current vehicle re-identification task, e.g., illumination, viewpoint, and resolution. One of the most common problems is the large difference in vehicle appearance caused by viewpoint. Vehicle re-identification networks generally focus on discriminative areas (e.g., vehicle logo and vehicle inspections). However, the specific regions are different on different viewpoints, leading to a large intra-class variation on different viewpoints. In this paper, we propose a viewpoint-aware channel selection method (VCS) to solve this problem by exploring channels with distinguished categories on the network. Specifically, we discover the most active channels in each viewpoint. Based on features processed by these active channels, we calculate the distance of vehicle features by common active channels of two viewpoints. In addition, our method is a simple post-processing method in vehicle re-identification, making it applicable to existing feature representation methods. Experimental results on several large vehicle Re-ID datasets illustrate the effectiveness of our method, especially on the difficult VERI-Wild dataset.

Keywords: Vehicle re-identification; Feature Channels; Channels Selection; Viewpoint

Sentiment Sensitive Summarization for Explainable Review-aware Recommendation

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Abstract: Explainable review-aware recommendation (ERaR) focuses on learning user preferences from reviews and providing explanations to further increase user trust and satisfaction with recommendations. Existing methods mainly train the rating prediction task and the explanation generation task independently or simply encode the integer part of predicted ratings to one-hot vectors and use them as the input for explanation generation. They are limited in explicitly distinguishing user fine-gained sentiments and considering the sentiment consistency between predicted ratings and explanations, resulting in providing sentimentally ambiguous or conflicting recommendations. In this work, we propose an end-to-end architecture named S3-ERaR to generate sentiment sensitive summarization with high quality for explainable review-aware recommendation. Instead of using all historical reviews without considering the sentimental distinction, we explicitly distinguish the fine-grained sentiments of reviews and utilize the predicted ratings to select sentiment-correlated corpus for generating explanations. Experiments on four public datasets demonstrate that S3-ERaR achieves significant improvements over state-of-the-art ERaR methods in both rating accuracy and explanation quality.

Keywords: Recommender system; Explainable recommendation; Sentiment sensitive summarization; Pre-trained language model

中国后发企业关键核心技术突破机制研究：创新要素组合视角

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摘　要：关键核心技术突破对科技竞争和国家安全具有重要战略价值。本文通过对铁建重工研制盾构机的过程进行探索性单案例研究后发现：（1）后发企业在关键核心技术突破过程中聚焦突破原理性和可靠性关键核心技术，二者在解决问题、技术目标、实物形态、创新环节和实现机制方面存在差异。（2）创新要素组合与关键核心技术类型动态匹配，促进技术创新能力演化。（3）促进不同关键核心技术突破的创新要素组合在链接方式、链接范围和链接深度方面存在差异。本研究从理论上揭示了创新要素组合是后发企业突破关键核心技术的重要机制，进一步丰富后发企业技术追赶理论。同时，本文对中国后发企业通过创新要素组合突破关键核心技术具有重要启示意义。
关键词：创新要素组合；关键核心技术；后发企业；盾构机；案例研究

Research on Mechanism of Key Core Technology Breakthrough of China’s Latecomer Firms: From the Perspective of Combination of Innovation Elements

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Abstract: The breakthrough of key core technology has important strategic value for technological competition and national security. Based on the exploratory single case study of the process of developing shield machines by CRCHI, the following conclusions can be drawn. Firstly, latecomer firms focus on breaking through principle key core technology and reliability key core technology. They are different in problem-solving, technical objectives, physical form, innovation links, and implementation mechanisms. Secondly, the combinations of innovative elements and the types of key core technology are dynamically matched to promote technological innovation capability's evolution. Lastly, different combinations of innovation elements are different in link mode, link scope, and link depth. This study theoretically reveals the mechanism of the combinations of innovation elements and further enriches the theory of technological catch-up. At the same time, this paper has important implications for Chinese latecomer firms to break through key core technology.
Key words: combinations of innovative elements; key core technology; latecomer firm; shield machine; case study

环境保护税、技术创新与企业价值
——基于重污染企业的经验证据

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摘　要：本文以沪深两市A股上市公司2016~2020年数据作为研究样本，采用双重差分模型检验了政策施行初期，环境保护税对企业价值的影响。研究结果表明，与非重污染企业相比，环境保护税的征收在短期内对重污染企业的企业价值有着负向冲击作用，且技术创新能力强可以削弱环境保护税对企业价值的抑制作用。进一步分析显示，短期内环境保护税对企业价值的负向影响在“税负提标”地区和国有企业更显著，并且依据研究结论为环境保护税政策进一步完善提出启示，从而实现经济增长与环境保护的双赢，助力“碳达峰”和“碳中和”目标的实现。通过本文的研究不仅为环境保护税征收初期的政策效果提供了微观经验数据，而且对于环境保护绿色税制的长效作用提供参考，有助于谋求经济发展与环境友好的协同作用。

关键词： 环境保护税　企业价值　技术创新　双重差分法

Environmental Protection Tax, Technological Innovation and Corporate Value——Empirical Evidence Based on Heavy Polluters

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Abstract: This paper examines the impact of environmental protection tax on the firm value of heavy polluting firms in the early stage of the policy implementation using the data of A-share listed companies in Shanghai and Shenzhen from 2016 to 2020 as the research sample using a double difference model. The results of this study show that the imposition of environmental protection tax has a negative impact on the enterprise value of heavy polluters in the short term compared to non-heavy polluters, and that the strong technological innovation capacity can weaken the inhibitory effect of environmental protection tax on enterprise value. Further analysis shows that the negative impact of environmental protection tax on firm value in the short run is more pronounced in "tax-raising" regions and state-owned enterprises, and the findings of the study provide insights for further improvement of environmental protection tax policy, so as to achieve In addition, the findings of this study suggest further improvement of the environmental protection tax policy, so as to achieve a win-win situation for both economic growth and environmental protection, and help achieve the goals of "carbon peaking" and "carbon neutrality". This study not only provides micro-empirical data on the effects of environmental protection tax at the initial stage of its collection, but also provides references on the long-term effects of the green tax system for environmental protection,

which helps to seek the synergy between economic growth and environmental friendliness.

Key words: Environmental Protection Tax；Technological Innovation；Enterprise Value；Differences-in-Differences

Analysis of a Double Bottleneck Model for Household User Travel Considering Activity Utility

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Abstract: This study examines the morning peak travel behavior of household commuters from an activity utility perspective. In contrast to most previous studies, this paper assumes that household commuters will encounter two bottlenecks in one continuous travel from home to work. These two bottlenecks are assumed to exist sequentially on the way from home to school and on the way from school to work. In this paper, we first analyze the morning peak travel behavior of home commuters based on the double bottlenecks. Then we combine the activity utility of home commuters at home, and school and work with the negative utility of travel to build the net utility function. Second, we use the net utility function to build an equilibrium model of home commuting under no-toll conditions. Finally, we verify the reasonableness of the model and conclusions by numerical arithmetic examples.

Key words: Activity Utility； Morning Peak Activity；Double Bottleneck； Household Travel

融合情境与会话的高阶思维能力辨识方法研究

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摘　要：学生高阶思维能力评价是教育研究的重点问题。数据驱动的多模态学习分析是高阶思维能力评价的发展方向，其中，对协作会话本质内容的挖掘是评价的关键，学习情境的融合在其中至关重要。据此，文章借助虚拟仿真平台营造数字化学习情境，基于协作学习中产生的会话数据、决策行为数据和环境数据，通过情境识别与建模、文本抽取、情境化语义分析、语义流程化建模，形成一套数据驱动、融合情境与会话的高阶思维能力辨识方法。最后，结合当下 VUCA 时代的能力需求开展方法应用，辨识出分析判断力、风险识别力、关联想象力等 8 种重要的高阶思维能力。融合数字化情境和会话内容分析的分析方法拓展了高阶思维能力的评价方式，并对基于会话数据的学习分析有借鉴意义。

关键词：高阶思维能力;学习评价;会话分析;情境建模;多模态学习分析

Research on Identification Method of Higher-order Thinking Ability Integrating Context and Conversation

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Abstract： The evaluation of students' higher-order thinking ability is the key issue of education research. Data-driven multimodal learning analysis is the development direction of the evaluation of higher-order thinking ability. The mining of the essential content of cooperative conversation is the key to the evaluation, and the integration of learning context is of great importance. Creating a digital learning context with the help of virtual simulation platform, a data-driven identification method of higher-order thinking ability that integrates context and conversation is formed, based on the conversation data, decision behavior data and environmental data generated in collaborative learning, through context recognition and modeling, text extraction, contextualized semantic analysis and semantic process modeling. At the end of this paper, combined with the current VUCA era background to carry out the application of the method, identified eight important higher-order thinking abilities in the VUCA era, such as analytical judgment, risk recognition, correlation imagination. The analysis method integrating digital context and conversation content analysis expands the evaluation method of higher-order thinking ability and has reference significance for learning analysis based on conversation data.

Key words： Higher-order thinking ability; Learning evaluation; Conversation analysis; Context modeling; Multimodal learning analysis

How do teleworkers avoid negative emotions to improve job performance? The conservation of resources theory view

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Abstract: In the context of rapid growth of telework, many scholars have studied the influence of extrinsic factors on teleworking job performance, neglecting the psychological factors. The primary aim of this paper is to study how teleworkers' job performance is influenced from the conservation of resources perspective. An online survey was sent to 835 teleworkers from March to May 2022 in China. Useful data from 218 respondents were collected and analyzed to test the hypothesized relationships by PLS-SEM method. This paper studies the relieving effects of Enterprise Social Media (ESM) affordance on teleworkers' emotional exhaustion and reveals their psychology defending mechanism for avoiding entering into the state of poor psychological condition. Furthermore, this paper supplies beneficial practical suggestions for managers and teleworkers in regular context to improve teleworking job performance.

Keywords: telework, 'family to work' conflict, social isolation, emotional exhaustion, ESM affordance, psychological resilience

ESG 表现对企业投资效率的影响

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摘　要：随着近年来可持续发展理念的不断深入，社会对于企业的 ESG 表现重视程度逐渐提升，开始影响企业的投资决策。本论文以 2010-2020 年度中国沪深 A 股上市公司为样本，采用华证 ESG 指数评级为解释变量，运用固定效应模型就 ESG 表现对企业投资效率的影响进行了实证分析，并试图通过中介效应模型来检验其对公司投资效率的影响机制。

实证结果表明，良好的 ESG 表现对于企业的投资效率有着显著的促进作用。且企业的产权性质与所处行业均会对其产生调节作用：相对其他企业，国有企业与重污染行业的企业良好的 ESG 表现对企业投资效率的促进作用更大。此外，文章检验发现 ESG 表现是通过影响融资约束与企业风险进一步提升企业的投资效率。本文旨在为政府有关部门制订相关政策提供帮助，以改善微观主体的投资质量，推动我国经济的高质量发展。
关键词：投资效率；ESG 表现；产权性质；重污染行业

The effect of ESG performance on investment efficiency

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Abstract: With the development of the concept of sustainable development in recent years, the social attention to the ESG performance of enterprises has gradually increased, beginning to influence the investment decision-making of enterprises. This paper selects the a-share listed companies in stock markets in China from 2010 to 2020 as the research sample, and uses the ESG rating data of China Securities Corporation, as the basis for evaluating the ESG performance of enterprises, this paper empirically tests the effect of ESG performance on investment efficiency through fixed effect model, and tries to analyze the effect of ESG performance on investment efficiency from the perspective of ESG performance.

The empirical results show that good ESG performance has a significant impact on the efficiency of investment, and effectively inhibit the over-investment and under-investment of inefficient investment behavior. And in this process, the property right nature of the enterprise and the industry where it is located will have the adjustment function to it: compared with other enterprises, the good ESG performance of the state-owned enterprise and the heavy pollution industry enterprise will promote the enterprise investment efficiency more. In addition, in the further research, the paper shows that the performance of ESG affects the financing constraints and the risk of the firm through the intermediary effect model. This research has enlightenment significance for government departments to formulate relevant policies to improve the investment quality of micro-subjects and promote the high-quality development of social economy.
Keywords: Investment Efficiency; ESG Performance; Property right nature; Heavy pollution industry

双元时间压力对员工工作退缩行为的影响研究

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摘　要：后疫情时代，面对国家对重振经济的呼吁，企业需要耗费大量时间精力修复疫情所致的经济创伤，这意味着员工必须与企业同心协力，在工作中呈现出积极状态以应对激烈的市场竞争。然而时间资源有限，任务依然繁重，如何使员工面临时间压力仍不退缩，与企业共进退是目前亟待解决的难题。由此，本研究基于压力认知评价理论，以工作调节焦点为中介、差错管理氛围为调节，基于时间压力的性质，探讨挑战-阻碍性时间压力对员工工作退缩行为的影响机制。288 份有效问卷的分析得出：挑战性时间压力负向影响工作退缩，阻碍性时间压力正向影响工作退缩，促进-防御型工作调节焦点在二者之间起中介作用，差错管理氛围调节双元时间压力对工作调节焦点的影响。
关键词：挑战性-阻碍性时间压力；工作调节焦点；差错管理氛围；工作退缩行为

Study on the Effect of Dual Time Pressure on Employees ' Work Withdrawal Behavior

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Abstract: In the post-epidemic era, in the face of the country 's call to revive the economy, enterprises still need to spend much time and energy to repair the economic trauma caused by the epidemic, which means that employees must work together with enterprises to show a positive state in their work to cope with fierce market competition. However, in the face of limited time resources and heavy tasks, how to make employees face time pressure is still a difficult problem to be solved. Therefore, based on the cognitive appraisal theory of stress, this study explores the influence mechanism of challenge-hindrance time pressure on employees ' work withdrawal behavior based on the nature of time pressure, with work regulatory focus as the mediator and error management climate as the moderator. The analysis of 288 valid questionnaires shows that challenge time pressure negatively affects work withdrawal, hindrance time pressure positively affects work withdrawal, promotion- prevention work regulatory focus plays an intermediary role between the two, and error management climate regulates the influence of dual time pressure on work regulatory focus.
Key words: challenge - hindrance time pressure; work regulatory focus; error management climate; work withdrawal behavior

职场负面八卦对组织公民行为的双刃剑效应

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摘　要：职场负面八卦是组织中普遍存在的非正式沟通行为，是近年来组织行为领域的热点话题。本研究基于资源保存理论，通过293名员工数据分析，探究职场负面八卦对员工组织公民行为的影响机理。结果表明：职场负面八卦对员工组织公民行为存在“双刃剑”效应；侵入反刍和主动反刍在其中发挥中介作用；组织支持感负向调节职场负面八卦对侵入反刍的积极作用，以及侵入反刍在职场负面八卦与员工组织公民行为之间发挥中介作用；组织支持感正向调节职场负面八卦对主动反刍的积极作用，以及主动反刍在在职场负面八卦与员工组织公民行为之间的中介作用。
关键词：职场负面八卦；组织公民行为；主动反刍；侵入反刍；组织支持感

The Double-edged Sword Effect of Negative Workplace Gossip on Employees' Organizational Citizenship Behavior

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Abstract: Negative workplace gossip, a common informal communication behavior in organizations, has become a hot topic in the field of organizational behavior in recent years. Based on conservation of resources theory, this study analyzed the data of 293 employees to explore the influence mechanism of negative workplace gossip on employees' organizational citizenship behavior. There search shows that there is a“double-edged sword”impact of negative workplace gossip on employees' organizational citizenship behavior; intrusive rumination, deliberate rumination mediate the relationship between negative workplace gossip and employees' organizational citizenship behavior; perceived organizational support negatively moderates the positive effect of negative workplace gossip on intrusive rumination, the mediating effect of intrusive rumination on negative workplace gossip and organizational citizenship behavior of employees; perceived organizational support positively moderates the positive effect of negative workplace gossip on deliberate rumination and the mediating effect of deliberate rumination on negative workplace gossip and organizational citizenship behavior.
Keywords: Negative Workplace Gossip; Organizational Citizenship Behavior; Intrusive Rumination; Deliberate Rumination; Perceived Organization Support

Exploring the effects of monthly pass in reducing peak-hour congestion using combined survey-modeling approaches: a case study of Beijing subway

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Abstract: Excess levels of crowdedness in the subways during peak hours lead to unsatisfactory riding experience for subway users and raise questions of inefficiency for the management agencies. To address this problem, an innovative off-peak monthly pass subway fare pricing scheme is designed and tested regarding its benefits in incentivizing behavior shifts (e.g., peak avoidance) and easing the congestion during peak hours in the subway system. Based on the idea of time-based differential pricing, a framework is proposed to guide the development of the monthly pass scheme: the framework consists of three steps, including Stated Preference (SP) surveys to detect the expected behavioral responses, behavior models to understand travelers time sensitivity, and an Agent-Based Model (ABM) simulation to predict the network-level outcomes of the policy. The proposed framework is tested with a case study of Beijing subway Line 5, one of the busiest subway lines in the city. A baseline scenario with no off-peak monthly pass and two alternative scenarios with monthly passes are tested and compared regarding the policy outcomes. The results demonstrate that the monthly pass can reduce the crowding both in terms of the platform crowdedness and train occupancy during the morning peak period, while also attracting more travelers to use the subway as well.

Keywords: TDM; transit pass; simulation

Does the Aggregating Effect of High-speed Railway Network Match the Urban Agglomerations? A Case Study in China

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Abstract: High-speed railway is the critical transportation mean in intercity exchanges, and the aggregating effects of railway network could determine the spatial interactions among cities within an urban agglomeration. The mismatch between the transportation clusters and the spatial structure of urban agglomerations will restrict in regional economic integration. To solve this problem, this paper proposed a community classification model to analyze the aggregating effects of high-speed railway network (HSRN) based on the Louvain algorithm and compared the central cities in city clusters and the HSRN communities in relevant areas to explore the radiation of central cities in urban agglomerations. Finally, a case study of China's high-speed railway network was carried out to illustrate the application of the model. The community classifications of HSRN were compared with the planned or future urban agglomerations in China from the view of the national level, provincial level, and civic level. The results show that the HSRN in China has apparent combined effects which mainly match with the distribution of urban agglomerations, and the existing central cities in urban agglomerations has good service level in the HSRN network. Whereas, the HSRN communities in each urban agglomeration are over-scattered and should be integrated to reduce the accessibility inequalities within the urban agglomerations. This study could provide suggestions for the development planning of HSRN and contribute to the economic integration of urban agglomerations.

Keywords: High-speed railway network, Urban agglomerations, Regional development

工资上升对我国工业行业出口质量的影响

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摘 要：正确认识工资和工业行业出口质量的关系，对于促进中国对外贸易高质量发展具有重要意义。本文利用相对质量法测算我国 29 个工业行业的出口质量指数，采用 2000—2016 年行业面板数据的固定效应模型进行实证检验。研究发现，工资上升对我国工业行业出口质量的提升具有显著的促进作用，并且对技术密集型行业及高创新力行业具有更明显的正面影响。机制分析表明，当工资上升时，高创新力行业可以通过创新抵偿进一步提升出口质量；技术密集型行业可以通过要素替代提高出口质量。基于此，本文得到以下启示：要正确理性地看待工资上升这一现象，发挥其积极作用，提高企业自主创新能力和资本劳动比，促进出口质量升级。
关键词：工资；工业行业；出口质量

The Impact of Rising Wages on the Quality of Exports in China's Industrial Sector

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Abstract: Correctly understanding the relationship between wages and the quality of exports in the industrial sector is of great significance for promoting the high-quality development of China's foreign trade. In this paper, the export quality index of 29 industrial industries in China is calculated by the relative quality method, and the fixed effect model of the industry panel data from 2000 to 2016 is used for empirical testing. The study found that the rise in wages has a significant role in promoting the improvement of the export quality of China's industrial industry, and has a more obvious positive impact on technology-intensive industries and high-innovation industries. Mechanism analysis shows that when wages rise, high-innovation industries can further improve the quality of exports through innovation compensation; Technology-intensive industries can improve the quality of exports through factor substitution. Based on this, this article gets the following enlightenment: it is necessary to correctly and rationally look at the phenomenon of wage increases, give play to its positive role, improve the independent innovation ability of enterprises and the capital-labor ratio, and promote the upgrading of export quality.
Key words: wages；industrial industry；export quality

A Novel Decision-Making Method for Selecting Charging Pile Manufacturer with q-Rung Dual Hesitant Information

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Abstract: The selection of charging pile manufacturers involves many factors, and it is hard for decision makers (DMs) to provide accurate assessments due to the uncertainty of subjective or objective factors. As a combination of *q*-rung orthopair fuzzy set (*q*-ROFS) and dual hesitant fuzzy set (DHFS), *q*-rung dual hesitant fuzzy set (*q*-RDHFS) provides more possibilities for information expression and gives DMs greater decision-making freedom. Because of the advantages of *q*-RDHFS in expressing uncertain information, we propose a novel decision method to capture DMs' hesitant information with *q*-rung dual hesitant fuzzy elements (*q*-RDHFEs) to obtain the optimal scheme. Firstly, Frank t-norm and t-conorm (FTT) is well known for its flexibility in coping with compatibility compared to traditional algebraic operation. Considering the advantages of FTT, we extend FTT to *q*-RDHFS and provide the definition of Frank operational rules of *q*-RDHFS. Subsequently, according to generalized power average (GPA) and generalized power geometric (GPG) operators, some corresponding operators based on the novel operational laws are proposed. Then, with the proposed operators, a novel multi-attribute decision-making (MADM) method under *q*-RDHFS environment is introduced and applied to the selection of charging pile manufacturers. Finally, compared with the existing methods, the method proposed in this paper can better handle extreme evaluation information and is more flexible in operation.

Key words: Management science and engineering; Multi-attribute decision-making; *Q*-rung dual hesitant fuzzy set; Frank t-norm and t-conorm; Generalized power average operator

中断风险下考虑双源补货的多级配送网络优化

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摘 要：研究了中断风险对中心仓、区域仓和门店三级配送网络的影响下，考虑门店可由中心仓或者区域仓双源补货方式的区域仓选址—库存问题，构建了非线性 0-1 整数规划模型，并采用分段线性近似的方法将模型转化为线性 0-1 整数规划问题，使用精确算法求解实现了区域仓的选址决策与各级库存决策。算例分析证明了，中断风险下考虑双源补货可以减少区域仓建设的成本，同时考虑中断风险可以降低将来可能发生的应急成本。

关键词：物流管理与工程；多级配送网络；双源补货；中断风险；选址—库存问题

Multi-echelon Distribution Network Optimization Considering Dual-source Replenishment under Interruption Risk

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Abstract: This paper studies the regional warehouse location-inventory problem under the influence of interruption risk on the three-level distribution network of central warehouse, regional warehouse and store, considering that a store can be replenished by a central warehouse or a regional warehouse. A nonlinear 0-1 integer programming model is constructed, and the model is transformed into a linear 0-1 integer programming problem by using the piecewise linear approximation method. The location decision and inventory decision are realized by using the precise algorithm. The case study shows that considering dual-source replenishment under the risk of interruption can reduce the cost of regional warehouse construction, while considering the risk of interruption can reduce the possible emergency costs in the future.

Keywords: multi-echelon distribution network optimization; dual-source replenishment; interruption risk; location-inventory problem

Evaluating the sustainability of urban rail transit from passenger and firm perspectives: A dynamic network data Envelopment analysis approach

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Abstract: In this paper, operational performance is decomposed into three dimensions: production efficiency, service effectiveness and operational effectiveness, and a DNSBM model is proposed to evaluate the operational sustainability of urban rail transit from the perspective of firms and passengers. According to the operation characteristics of URT, the undesirable output, the influencing factors of passengers' choice of transportation mode, and the carry-over items between periods are included in a unified model, which can provide performance variables more suitable for evaluation. Taking the URT systems of 23 cities in China from 2015 to 2021 as an example, the results show that URT production performance is better than consumption performance, but most URTs have poor operational performance, and there is heterogeneity in URT performance of different city sizes. Operational effectiveness is significantly positively related to consumption effectiveness, and operational effectiveness is proportional to city size. A large amount of the input redundancy in the current URT consumption stage comes from vehicle speed, while the perennial shortage of passengers and passenger miles is the main reason for the low service effectiveness.

Keywords: Urban rail transit, Data envelopment analysis, Efficiency, Effectiveness, Sustainability

Critical Factors Influencing the Internet of Things Technology Adoption Behavior of Construction Companies: Evidence from China

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Abstract: The limited use of Internet of Things (IoT) technology on construction sites has restricted the value of IoT technology in construction industry performance. Hence, this study explored the influencing factors and action paths of construction companies' IoT technology adoption behavior (AB). The adoption model was empirically tested through a structural equation model and regression analysis of questionnaires collected from Chinese construction companies. Results show that external environmental pressure (EEP), perceived benefit (PB), top management support (TMS), company resource readiness (CRR), adoption intention (AI), and perceived compatibility (PCA) have a direct positive impact on AB, whereas perceived cost (PC) and perceived complexity (PCL) exert a direct negative impact on AB. EEP, PB, and PC are critical factors affecting AB, whereas AI is strongly affected by CRR and TMS. Besides, AI partially mediates the relationship between seven factors and AB. Company size and nature positively moderate AI's positive effect on AB.

Keywords: Internet of Things technology, Construction sites, Construction company, Adoption behavior, Technology-organization-environment

女性董监高能够提升企业 ESG 得分吗？

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摘　要：ESG 理念符合我国经济的高质量发展需求，在学术和实践中都被频繁提及，而女性董监高作为企业治理的重要组成部分，尚未有文献研究对企业 ESG 得分的影响。本文基于社会角色理论，利用万得 ESG 得分数据，研究发现女性董监高可以提高企业 ESG 得分。进一步分析表明，女性董监高并非被迫而是主动提高企业 ESG 得分，且企业 ESG 得分可以帮助企业缓解融资约束，提高企业市场价值。

关键词：ESG；女性董监高；可持续发展；高质量发展

Can Female Directors, Supervisors and Senior Executives Improve a Company's ESG Score?

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Abstract: The ESG concept meets the needs of high-quality development of China's economy and is frequently mentioned in both academia and practice, while the impact of female directors, supervisors and executives, as an important component of corporate governance, on corporate ESG scores has not been studied in the literature. Based on social role theory and using WAND ESG score data, this paper finds that female directors, supervisors and executives can improve corporate ESG scores. Further analysis shows that female directors, supervisors, and executives are not forced to improve corporate ESG scores but actively do so, and that corporate ESG scores can help firms alleviate financing constraints and increase corporate market value.

Key words: ESG; female directors, supervisors and executives; sustainable development; high quality development

年长员工相对剥夺感对知识隐藏行为的影响

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摘　要：知识传承是保持组织知识持续性和创新能力的一种有效方式。随着“退休潮”的到来，企业采取“传帮带”、知识分享会等模式来促进年长员工知识共享，但是依然无法改善组织内知识隐藏的现象。本研究结合实际背景，基于心理所有权理论，考察了年长员工相对剥夺感对知识隐藏行为的影响机制及边界条件。通过对 296 个年长员工样本的分析，研究发现：年长员工相对剥夺感正向影响知识隐藏行为，组织心理所有权在其中起中介作用；年龄刻板印象威胁正向调节相对剥夺感与知识隐藏行为的关系，并增强组织心理所有权在其关系间的中介作用。本研究丰富了相对剥夺感与知识隐藏行为的研究，为企业改善年长员工知识隐藏行为提供理论依据与管理启示。

关键词：年长员工 知识隐藏行为 相对剥夺感 组织心理所有权 年龄刻板印象威胁

Effects of relative deprivation of older employees on knowledge hiding behavior

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Abstract: Knowledge inheritance is an effective way to maintain organizational knowledge continuity and innovation ability. With the arrival of the "retirement tide", enterprises have adopted "mentoring" and other ways to promote knowledge sharing among older employees, but they still cannot improve the phenomenon of knowledge hiding within the organization. This study, based on the theory of psychological ownership, combined with the actual background, examined the influence mechanism and boundary conditions of the relative deprivation of older employees on knowledge hiding behavior. Through the analysis of 296 samples of older employees, the study found that the relative deprivation of older employees has a significant positive impact on knowledge hiding behavior, in which organizational psychological ownership plays an intermediary role; Age stereotype threat positively regulates the relationship between relative deprivation and knowledge hiding behavior, and strengthens the intermediary role of organizational psychological ownership in their relationship.

Key words: older employees; knowledge hiding behavior; relative deprivation; organizational psychological ownership; age stereotype threat

年长员工资质过剩感对沉默行为的双刃剑效应

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摘　要：近年来，年长员工占我国劳动人口比重逐年扩大，若能合理利用其经验、技能优势，帮助组织改进与发展，对企业而言意义深远。但该群体却常常因受负面刻板印象的影响，职业发展受限，出现“年长员工资质过剩”现象。本研究基于社会认知理论，构建了年长员工资质过剩感与沉默行为的双刃剑模型。通过对235位年长员工调查分析发现，年长员工资质过剩感对沉默行为总体呈正向影响。在低水平组织支持氛围下，年长员工资质过剩感更倾向于通过降低内部人身份感知增加沉默行为；在高水平组织支持氛围下，年长员工资质过剩感更有可能通过提升角色宽度自我效能感抑制沉默行为。本研究揭示了年长员工资质过剩感的双面性，为组织有效管理年长员工提供实践指导。

关键词：年长员工 资质过剩感 沉默行为 内部人身份感知 角色宽度自我效能感 组织支持氛围

The Double-edged Effect of Older Workers' Perceived Overqualification On Employee Silence

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Abstract: In recent years, the proportion of older workers in the labor force has been increasing. It is significant for enterprises to properly utilize their experience and skills to help organizations improve and develop. However, this group is often influenced by negative stereotypes, and their career development is limited. “Over-qualification of older workers” is appearing. Based on social cognition theory, this study constructs a double-edged model between older workers' perceived overqualification and employee silence. Through the investigation of 235 older workers, it is found that there is a positive effect between them. In the low level of supportive organizational climate, older workers' perceived overqualification is more likely to increase employee silence by reducing perceived insider status. In the high level of supportive organizational climate, older workers' perceived overqualification is more likely to suppress employee silence by enhancing role breadth self-efficacy. This study reveals the double-sided effect of older workers' perceived overqualification and provides practical guidance for organizations to manage older workers.

Key words: older workers; perceived overqualification; employee silence; perceived insider status; role breadth self-efficacy; supportive organizational climate

绿色生产、数字驱动和制造业出口——来自 16 个细分制造行业的证据

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摘　要：绿色化生产如何影响制造业的出口，在全球化的今天是一个值得探讨的命题。本文基于 2002 年到 2020 年 16 个细分制造业的出口数据，通过构建面板固定效应模型对此进行实证分析，结果表明：绿色生产能够显著促进制造业的出口，这一结论在引入工具变量和考虑外生冲击等稳健性检验下依旧成立。机制分析表明，数字经济具有调节效应，数字经济发展水平越高，绿色生产对制造业出口的正向影响越大。异质性分析表明，污染制造业比清洁制造业的出口值更容易受到绿色生产的正向影响，同时，该种影响机制在不同地区、行业、技术水平下呈现差异。本文的研究不仅为绿色生产与制造业出口之间的关系提供了经验证据，而且对于如何顺应数字经济发展趋势，提升制造业生产效率和促进绿色化生产，进一步增强我国制造业的竞争优势也有重要的政策启示。
关键词：绿色全要素生产率；数字经济；制造业出口；绿色贸易壁垒

Green production, digital drive and manufacturing exports: Evidence from 16 subdivided manufacturing industries

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Abstract: How green production affects the export of manufacturing is a proposition worth exploring in today's globalized world. Based on the export data of 16 sub-manufacturing industries from 2002 to 2020, this paper conducts an empirical analysis by constructing a panel fixed effect model. The results show that green production can significantly promote the export of manufacturing industries, and this conclusion is still valid under the robustness test of introducing instrumental variables and considering exogenous shocks. The mechanism analysis shows that digital economy has a moderating effect, and the higher the development level of digital economy, the greater the positive impact of green production on manufacturing exports. Heterogeneity analysis shows that the export value of polluting manufacturing industry is more susceptible to the positive impact of green production than that of clean manufacturing industry. Meanwhile, the influence mechanism is different in different regions, industries and technical levels. This research not only provides empirical evidence for the relationship between green production and manufacturing export, but also has important policy implications on how to adapt to the development trend of digital economy, improve manufacturing production efficiency and promote green production, and further enhance the competitive advantage of our manufacturing industry.
Key words: Green total factor productivity; Digital economy; Manufacturing exports; Green

trade barrier

央行透明度对系统性金融风险的影响研究

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摘 要：本文以2006年至2015年期间15个发达国家和35个发展中国家共1780家商业银行为样本探讨了央行透明度对系统性金融风险的影响。结果表明，央行透明度对系统性金融风险的影响取决于国家的发达程度。其中，就发达国家而言，央行透明度的提高有利于系统性金融风险的下降。就发展中国家而言，央行透明度的提高导致了系统性金融风险的上升，并且这种关系受到央行独立性的影响。本文认为，更透明的央行对发达国家金融体系有利，但会激励发展中国家的商业银行从事风险活动，增加对系统性金融风险的贡献。

关键词：央行透明度；系统性金融风险；央行独立性

Research on the impact of central bank transparency on systemic risk

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Abstract: This paper takes 1780 commercial banks in 15 developed countries and 35 developing countries from 2006 to 2015 as samples to explore the impact of central bank transparency on systemic risk. The results show that the impact of central bank transparency on systemic risk depends on the degree of development of the country. In developed countries, the improvement of central bank transparency is conducive to the reduction of systemic risk.But in developing countries, the improvement of central bank transparency has led to the rise of systemic risk, and this relationship is affected by degree of central bank independence. This paper believes that a more transparent central bank is beneficial to the financial system of developed countries, but it will encourage commercial banks in developing countries to engage in risk activities and increase their contribution to systemic risk.

Key words: central bank transparency; systemic risk; central bank independence

中国交通运输结构对新型城镇化影响的空间计量研究

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摘　要：本文运用空间杜宾模型使用2010—2020年全国31个省份的面板数据研究中国交通运输结构对新型城镇化影响。研究发现：（1）货运与客运结构优化对新型城镇化发展均存在U型关系，而路网密度对新型城镇化发展存在倒U型关系。（2）从区域异质性上看，东部地区路网密度对东部新型城镇化质量的影响为负向，中部地区路网密度与新型城镇化质量呈U型关系；东部地区铁路与公路客运比重对新型城镇化质量呈负向影响；东部以及西部地区铁路与公路货运比重对于新型城镇化质量的影响呈U型，而中部地区铁路与公路货运比重对于新型城镇化质量的影响为负向。（3）从溢出效应上看，中部地区路网密度对相邻区域新型城镇化的发展存在U型关系，西部地区客运结构的优化对相邻区域新型城镇化的发展存在正向关系。而东部以及西部地区货运结构的优化对相邻区域新型城镇化的发展存在正U型关系。（4）从影响机制看，路网密度和运输方式结构优化均可以通过缩小城乡收入差距从而提高新型城镇化发展水平。同时，路网密度增加可以通过促进工业产业的空间集聚进而促进新型城镇化发展。而客运结构的提升可以通过促进服务业布局分散化，从而促进新型城镇化的发展。本文研究为新型城镇化背景下我国运输网络布局以及运输结构优化调整提供参考。

关键词：交通运输结构；新型城镇化；货运结构；客运结构；路网密度

A Spatial Econometric Study on the Impact of Transportation Structure on New Urbanization in China

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Abstract: This paper uses the spatial Durbin model to study the impact of China's transportation structure on new urbanization using panel data of 31 provinces from 2010 to 2020. It is found that (1) there is a U-shaped relationship between freight and passenger transport structure optimization on the development of new urbanization, while there is an inverted U-shaped relationship between road network density and the development of new urbanization. (2) In terms of regional heterogeneity, road network density in the eastern region has a negative impact on the quality of new urbanization in the east, while road network density in the central region has a U-shaped relationship with the quality of new urbanization; the proportion of passenger transportation by rail and road in the eastern region has a negative impact on the quality of new urbanization; the proportion of freight transportation by rail and road in the eastern and western regions has a U-shaped impact on the quality of new urbanization, while the proportion of freight transportation by rail and road in the central region has a U-shaped impact on the quality of new urbanization. (3) In terms of the spillover

effect, the effect of railroad and highway freight transportation on the quality of new urbanization is negative. (3) In terms of spillover effects, the density of road network in the central region has a U-shaped relationship with the development of new urbanization in neighboring regions, while the optimization of passenger transportation structure in the western region has a positive relationship with the development of new urbanization in neighboring regions. And the optimization of freight structure in eastern as well as western regions has a positive U-shaped relationship on the development of new urbanization in adjacent regions. (4) In terms of influence mechanism, both road network density and transportation mode structure optimization can improve the development of new urbanization by narrowing the income gap between urban and rural areas. Meanwhile, the increase of road network density can promote the development of new urbanization by promoting the spatial agglomeration of industrial industries. And the improvement of passenger transportation structure can promote the development of new urbanization by promoting the decentralization of service industry layout. This paper provides a reference for the layout of China's transportation network and the optimal adjustment of transportation structure in the context of new urbanization.

Key words: Transportation Structure; New Urbanization; Freight Structure; Passenger Structure; Road Network Density

高铁能否促进长三角区域经济一体化？

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摘　要：中国的区域发展中，政府通常致力于通过基础设施互联互通实现区域经济一体化发展，同时中国的高铁建设也开始逐步转向于构建区域网络。本文以企业异地投资衡量了区域经济一体化水平，进而在明晰长三角区域一体化进程的基础上探究了高铁对区域经济一体化的影响。我们发现长三角中心区的区域经济一体化进展飞快，并且呈现出明显的“核心-边缘”结构，高铁对区域经济一体化则存在着前后持续性的正向影响，尤其是高铁可达性比高铁连通性的影响要更大。更进一步，我们开展了异质性研究并总结认为，高铁对于不同类型、不同规模、不同行业的企业异地投资行为都有着差异化影响，并且，高铁促进了资本向较不发达地区的流入。这些发现表明高铁的建设已经极大推动了区域经济一体化，但是政府仍然需要因地制宜，根据城市的产业发展规划和区域结构决定与谁相连高铁，并更深一层地考虑是建设更快的还是更多发车频次的高铁。
关键词：国民经济学；　高速铁路；　区域经济一体化；　长三角；　企业异地投资；

Can HSR Promote Regional Economic Integration in Yangtze River Delta?

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Abstract: In China's regional development, the government typically aims to achieve regional economic integration by connecting transportation infrastructure, and the construction of high-speed railway (HSR) has gradually turned to establish a regional network. In this paper, we measure regional economic integration by corporate off-site investment and investigate the impact of HSR on regional economic integration based on the analysis of the regional economic integration process in the central region of Yangtze River Delta. We find that the regional economic integration of the central region of YRD is developing rapidly and presents a obvious "Core-Periphery" structure, and that HSR has a continuous positive impact on regional integration, especially the influence of HSR accessibility is greater than the impact of connectivity. Further, we conducted a heterogeneity analysis and concluded that HSR has a differentiated effect on off-site investment by enterprises with different types, sizes and industries, additionally, HSR facilitates the capital flow to underdeveloped cities. The findings suggest that the construction of HSR has greatly advanced regional economic integration. Nevertheless, the government still has to customize the local situation and consider more intensively whether to build a faster or more frequent high-speed rail according to the urban industrial development plan and the regional structure, after deciding which city to connect the HSR with.
Key words: National economics; HSR; Regional economic integration; Off-site investment

数字经济对交通碳排放的影响研究

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摘　要：“双碳”目标下，数字经济为交通碳减排提供新动能。文章基于2013-2021年省级面板数据采用中介效应模型研究了数字经济对交通碳排放的影响及作用机制。结果显示：数字经济对交通碳排放有明显抑制作用，且二者存在倒“U”型非线性关系；机制检验显示，数字经济可以通过促进绿色技术创新抑制交通碳排放；异质性分析显示，数字经济对东部地区、高创新要素地区和发达地区的减排效应显著，且随着交通碳排放分位点不断提高，数字经济的抑制作用先增强后减弱。政府有关部门及市场主体应充分认识到数字经济对交通碳排放的影响及作用机制，这对加强数字技术应用、提高交通运输效率及促进“双碳”目标的实现等具有重要意义。

关键词：数字经济；交通碳排放；绿色技术创新；非线性关系

Research on the Impact of Digital Economy on Traffic Carbon Emissions

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Abstract: Under the goal of "double carbon", the digital economy provides new kinetic energy for transportation carbon emission reduction. Based on the provincial panel data from 2013 to 2021, this paper empirically analyzes the impact and mechanism of digital economy on traffic carbon emissions. The results show that the digital economy can significantly inhibit traffic carbon emissions, with an inverted "U" nonlinear relationship between them. The mechanism test shows that the inhibitory effect can work by green technology innovation. Heterogeneity analyses show that the effect is significant in the eastern, highly innovative and developed regions. With the continuous improvement of traffic carbon emission points, the inhibitory effect of the digital economy first strengthens and then weakens. Relevant government departments and market players should fully understand the impact and mechanism of digital economy on transportation carbon emissions, which is significant to strengthen the application of digital technology, improve transportation efficiency and promote the realization of "double carbon" goals.

Key words: Digital economy; Traffic carbon emissions; Green technology innovation; Nonlinear relation

城市公共政策异质性效果评估及差异化政策制定：基于北京地铁错峰票价政策的实证研究

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摘　要：摒弃“一刀切”工作模式，因人、因地、因时进行政策的异质性评价并对政策进行差异化设计成为城市现代化治理的共识。现有研究较多评价城市公共政策的单方面效果，缺少政策对不同受众在不同时间和空间的异质性影响的分析，更缺乏政策异质性效果评估总体框架，无法有效服务政策的差异化设计。本研究从行为视角出发，以北京地铁错峰票价政策为背景，将异质性分析引入城市公共政策评价流程，借助城市多源大数据挖掘出行者的异质性特征，构建双重差分模型，从个体、时间、空间多维度实证分析政策的差异化效果和机理，总结异质性政策效果评估和差异化政策制定的整合框架。研究结果表明：该政策带来的出行者整体错峰比例为 1.33%，然而不同分类人群的政策效果存在差异（0.87%-1.49%）；在时间上只对优惠时间节点后 15 分钟的客流量减少具有显著影响；高峰时间距离优惠时间节点较远的站点政策响应不显著，被使用强度越高、高峰小时系数越小的站点政策响应越好。这种差异由不同类别人群的时间敏感性差异、对地铁依赖程度差异以及异质性的时空分布导致；据此在政策试点站点选取、政策折扣水平及时间窗口设置等方面设计了差异化举措。本文从行为视角进行异质性政策效果评估，并贡献精准化差异化政策制定，为政策制定者改善“一刀切”政策干预效果、提升精准施策能力提供实证参考。

关键词：城市公共政策；异质性效果评估；差异化政策设计；多源大数据；时空规律

Evaluation of Heterogeneous Effects of Urban Public Administration Policies and Differentiated Policy design: A Study of Beijing Subway Peak-avoidance Policy

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Abstract: Policy-related departments shall abandon the "one size fits all" working mode while evaluating and perfecting urban public policies, which is of great significance to evaluate the heterogeneity of policies according to people, places, and times and design policies differently. Taking the behavioral perspective, this paper takes the Beijing subway peak fare policy as the background, introduces heterogeneity analysis into the urban public policy evaluation process with the help of urban multi-source big data. Then, the heterogeneity policy effect evaluation and policy formulation framework from both individual and system levels is summarized. According to the research results, there are heterogeneous effects among different subway stations, different periods, and different categories of people. This difference

can be explained by the time-sensitivity difference of different groups of people and the heterogeneous spatial and temporal passenger flow distribution. Policymakers can design differentiated interventions for different policy targets people, policy sites, and time windows. Suggestions on formulating targeted and differentiated policies are put forward in this paper from the perspective of behavior. Specifically, it is suggested that policymakers should explore the mechanism of heterogeneity effect from the perspective of behavior, and design policies on this basis, to improve the intervention effect of "one size fits all" policies and enhance their ability of precise policy.

Key words: urban public administration; heterogeneity effect assessment; differentiated policy design; multi-source urban data, time and space pattern

数字化转型对企业绿色创新的溢出效应——基于同行视角

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摘　要：在高质量发展导向下，探究数字化转型如何赋能企业绿色低碳转型具有理论与实践意义。然而，现有研究多聚焦于数字化转型对自身企业的影响，数字化转型对企业绿色创新是否产生溢出效应尚无明确证据。本文基于2008—2020年中国沪深A股上市公司，探究了同行业企业数字化转型对目标企业绿色创新的影响及作用机制。研究发现，同行数字化转型程度提高对目标企业下一期绿色创新存在正向溢出效应，且行业竞争激烈以及市场地位较高的企业受到的溢出效应更显著。机制检验表明，同行数字化转型通过同群效应（数字化转型同群和绿色创新同群）和资源效应（知识溢出）的作用机制提升了目标企业绿色创新。异质性检验结果表明，当目标企业为重污染行业企业和国有性质企业时，同行数字化转型对目标企业绿色创新的溢出效应更为明显。本文从溢出效应角度拓展了数字化转型影响企业绿色创新的微观路径，并为实现数字经济与绿色转型的融合与共赢提供了一定的参考依据。

关键词：产业经济学；数字化转型；溢出效应；绿色创新；同行企业

Spillover Effects of Digital Transformation on Enterprise Green Innovation: Based on the perspective of peer firms

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Abstract: Under the guidance of high-quality development, it is of theoretical and practical significance to explore how digital transformation can empower enterprises to achieve green and low-carbon transformation. However, most of the existing studies focus on the impact of digital transformation on their own enterprises, and there is no clear evidence whether digital transformation has spillover effect on green innovation of enterprises. Based on the A-share listed companies in SSE and SZSE from 2008 to 2020, this paper explores the influence and mechanism of digital transformation of peer firms on the green innovation of target firms. It is found that the improvement of digital transformation of peer firms has a positive spillover effect on green innovation of target firms, and the spillover effect is more obvious for enterprises with fierce industry competition and high market position. The mechanism test shows that peer digital transformation promotes the green innovation of target enterprises through the mechanism of peer effect (peer digital transformation and peer green innovation) and resource effect (knowledge spillover). The results of heterogeneity test show that when the target enterprises are heavily polluting industries and state-owned enterprises, the spillover effect of peer digital transformation on the green innovation of the target enterprises is more

obvious. From the perspective of spillover effect, this paper expands the micro-path of digital transformation affecting green innovation of enterprises, and provides some reference for realizing the integration and win-win of digital economy and green transformation.

Key words: industrial economics; digital transformation; spillover effect; green innovation; peer firms

对外贸易对劳动力就业质量的影响

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摘 要：贸易开放总体而言能够提升一个国家的福利，但是其导致的劳动力市场的动态调整所产生的调整成本也会减少潜在的贸易福利。因此，探讨贸易开放对就业质量的影响具有重要的现实意义。本文基于 CFPS2018 微观调查数据构建就业质量综合评价指标体系，探讨贸易开放对就业质量的影响及其传导路径。研究结果表明，贸易开放能够显著提高就业质量，且进口贸易对就业质量的促进作用大于出口贸易。在异质性分析中，相比于中西部地区，东部地区对外贸易对就业质量具有显著的促进作用。最后通过构建中介效应模型，本文发现贸易开放可以缓解劳动力错配程度，进而对就业质量产生正向影响。

关键词：对外贸易；就业质量；劳动力错配

The impact of foreign trade on the quality of labor force employment

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Abstract: Trade openness can improve a country's welfare in general, but the adjustment costs caused by the dynamic adjustment of the labor market can also reduce the potential trade welfare. Therefore, it is of great practical significance to explore the impact of trade openness on employment quality. This paper constructs a comprehensive evaluation index system of employment quality based on CFPS2018 micro data, and discusses the impact of trade openness on employment quality and its transmission path. The results show that trade openness can significantly improve employment quality, and import trade has a greater promotion effect on employment quality than export trade. In the heterogeneity analysis, compared with the central and western regions, the foreign trade in the eastern region has a significantly promoting effect on the employment quality. Finally, by constructing a mediating effect model, this paper finds that trade openness can alleviate the degree of labor misallocation, which in turn has a positive impact on employment quality.

Keywords: Foreign trade; Employment quality; Labor mismatch

A social trust network-based hybrid MCGDM approach with unknown weight information under interval-valued Pythagorean fuzzy environment

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Abstract: Multi-criteria group decision making (MCGDM) has been proved as an effective technique and is widely used in many domains. However, some drawbacks still exist although some novel approaches has been proposed which combined multiple MCGDM methods to solve the increasingly complex group decision-making problems. In group decision scenario, the trust relationships of decision-makers (DMs) in relative complex environments need to be explored and extended. Besides, some existing methods cannot effectively adjust the representation of uncertain information. Additionally, the existing weight determination methods heavily rely on the decision values of alternatives and the interrelationships among criteria are more likely to be ignored. To address the aforementioned problems, a social trust network (STN) based novel MCGDM approach is proposed that integrates the best-worst method (BWM) and the preference ranking organization method for enrichment evaluation (PROMETHEE) under interval-valued Pythagorean fuzzy (IVPF) environment, named STN-based IVPF-BWM-PROMETHEE. First, STN is constructed and extended to IVPF environment which helps capture the indirect trust among DMs and determine the weights of DMs. A novel trust propagation operator is also introduced. Next, BWM is utilized and extended to IVPF environment for acquiring optimal weights of criteria. The high efficiency and consistency of BWM matched well with IVPF numbers. Then we extend PROMETHEE method to IVPF scenario and IVPF weighted Hamy mean (IVPFWHM) operator is applied to aggregate the preference and decision values. Finally, the proposed STN-based IVPF-BWM-PROMETHEE method is applied to evaluate urban rail transit digital twin models to demonstrate the validity and superiority of the proposed method.

Keywords: multi-criteria decision making; social trust network; Best worst method; PROMETHEE; interval-valued Pythagorean fuzzy; digital twin

制造企业是否应当通过研发投资应对供应中断风险？

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摘　要：受华为、特斯拉等企业应对芯片供应中断管理实践启发，提出企业利用研发投资进行技术储备管理供应中断风险的策略。针对不同产品和市场需求特征，考虑单周期和无限周期两种情形，构建考虑研发决策的报童模型和多周期动态规划库存管理模型，分析该策略下企业的最优库存策略和最优投资策略。研究发现：（1）企业拥有的投资金额和内部生产成本是企业决定是否采取研发策略的先决条件；（2）技术特征将决定企业研发投入是全部投资或部分投资；（3）企业的研发基础则是研发投入决策的关键影响因素；（4）库存水平的设置依赖于研发成功概率、供应商可靠性和成本参数。
关键词：供应中断；研发投资；安全库存；报童模型；动态规划

Managing Supply Disruption Risk by Investment in Technical Reserve

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Abstract: Inspired by Huawei’s and Tesla’s practices in dealing with chip supply disruption management, it is proposed that companies manage supply disruption risk by R&D investment for technology stockpiling. The optimal inventory and investment strategy under this strategy are analysed for different product and market demand characteristics, considering both single period and infinite period scenarios. By constructing single period newsvendor problem and infinite period inventory management model that consider R&D decisions, the study finds that: (1) R&D investment budget and inhouse production cost are prerequisites for a firm's decision to adopt an R&D strategy; (2) technological characteristics will determine whether a firm spends fully or partially R&D budget; (3) firm's R&D base is a key influencing factor in R&D investment decisions; (4) the inventory levels depends on the probability of R&D success, supplier reliability and cost parameters.
Key words: supply disruption; R&D; safety stock; newsvendor model; dynamic programming

The Radial Service or the Cooperation Service? Location of Nucleic Acid Testing Points under Cooperative Coverage Model

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Abstract: In tandem with the ongoing mutation and evolution of COVID-19, it is critical to rationally construct more efficient and effective nucleic acid testing points. Based on this, this paper conducted a study on the location of nucleic acid testing points, developed a location model under cooperative coverage, and created a case study using real-life data from Beijing’s Chaoyang District. The results show that as the planned number of nucleic acid testing points increased, the marginal coverage distance satisfaction decreased. In addition, compared with the radial location results, the “cooperation” location will be more conducive to better nucleic acid testing implementation. The results of this paper will be better applied to the actual detection efforts in response to COVID-19, while moving toward more generality and providing some research ideas and modeling basis for the siting of facilities related to the detection and treatment of other types of infectious diseases.

The effectiveness of relationship quality on knowledge transfer in project teams: the roles of project organizational structure

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Abstract:
Purpose – This paper aims to investigate the impact of relationship quality among team members in the project team on knowledge transfer effectiveness and analyze the role of organizational structure in the influencing process. **Design/methodology/approach** – The hypotheses are verified by the structural equation modeling analysis using Smart PLS with the data collected from 236 questionnaire samples in Chinese construction industry.
Findings – The results indicate that relationship quality has a direct impact on knowledge transfer in project teams, and centralization has a negative impact on relationship quality. Moreover, relationship quality plays a mediating role between centralization and knowledge transfer effectiveness, and formalization plays a negative moderating role in the effect of relationship quality on knowledge transfer effectiveness.
Originality – This paper studies intra-project knowledge transfer from the perspective of relationship quality of project teams, and explores the antecedent and moderating role of organizational structure in the influence of relationship quality on knowledge transfer.
Keywords: Organizational Structure, Relationship Quality, Project Teams, Knowledge Transfer, Structural Equation modeling

PPP 模式下社会资本合作网络的影响要素及演化研究

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摘 要：为揭示 PPP 项目中社会资本合作关系的形成与发展逻辑，基于我国 2003~2022 年交通运输 PPP 项目数据,运用社会网络分析方法探究社会资本合作网络的结构与特征，并结合交易成本理论和关系嵌入理论，从社会信任构建的视角，进一步考察情感性关系和认知性关系对社会资本合作网络的影响机制。结果表明：随着我国 PPP 模式的不断发展，社会资本合作网络逐渐由小宗派网络演变成为半开放型网络，网络密度不断增大，网络凝聚性不断增强，整体网络呈现出多中心、扁平化的关系结构；情感性关系运作是社会资本合作网络得以形成的基本逻辑，认知性关系运作是社会资本合作网络进一步扩张的补充逻辑。

关键词：PPP 项目；社会资本；社会关系；合作网络；QAP 分析

Study on the influence elements and evolution of social capital cooperation network under PPP model

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Abstract: To reveal the logic of the formation and development of social capital partnership in PPP projects，based on the data of transportation PPP projects from 2003 to 2022 in China, the structure and evolution characteristics of social capital cooperation network are explored using social network analysis theory, and the emotional and cognitive relationships are further examined from the perspective of social trust construction by combining transaction cost theory and relationship embedding theory. The results show that, with the development of PPP model in China, the social capital cooperation network has become more and more important. The results show that: with the continuous development of PPP model in China, the social capital cooperation network gradually evolves from a small sectarian network to a semi-open network, with increasing network density and increasing network cohesion, and the overall network presents a polycentric and flattened relationship structure; in the process of network evolution, the operation of affective relationships is the basic logic of social capital cooperation network formation, and the operation of cognitive relationships is the complementary logic for the expansion of social capital cooperation network.

Keywords: PPP project；Social capital；Social relationship； Cooperation network；QAP analysis

Greenhouse Gas Emission Analysis and Measurement for Urban Rail Transit: A Review of Research Progress and Prospects

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Abstract: Rail transit plays a key role in mitigating transportation system carbon emissions. Accurate measurement of urban rail transit carbon emission can help quantify the contribution of urban rail transit towards urban transportation carbon emission reduction. This research reviews the existing studies on carbon emission of urban rail transit. First, the characteristics of urban rail transit carbon emission were figured out and the complexity of carbon emission measurement was analyzed. Then, the urban rail transit carbon emission measurement models were compared and analyzed in terms of the selection of research boundaries, the types of greenhouse gas (GHG) emissions calculation, and the accuracy of the measurement. Following that, an intelligent station was introduced to analyze the practical application of digital collaboration technology and energy-saving and carbon-reducing system platforms for rail transit. Finally, the urgent problems and future research directions at this stage were discussed. Significantly, this research presents the necessity of establishing a dynamic carbon emission factor library and the important development trend of system integration of carbon emission measurement and digital system technology.

Keywords: Urban rail transit, Life cycle assessment (LCA), Greenhouse gas emission, Digital collaboration technology, Carbon emission factors, Climate change, Measurement method

考虑用户效益的共享停车匹配问题

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摘　要：为保障用户效益，解决私人停车位共享中供给用户意愿不高的问题，本文将共享时间设置为工作日日间和夜间并划分为两个阶段，对供给用户返回进行分类处理和保障。考虑时间窗约束，以泊位利用率最大为目标，构建了二元整数规划模型。求解模型并与基础模型进行了对比分析，本文模型的实时泊位利用率和停车请求接受率均有所提高。最后，基于匹配结果，考虑了关于价格参数的平台纯利润和供给用户效益最大双目标优化，给出了帕累托最优解，为共享停车的实施和应用提供了重要借鉴意义。
关键词：共享停车；匹配机制；用户效益；泊位利用率；时间窗约束

Shared Parking Matching Considering Users' Benefits

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Abstract: In order to guarantee users' benefits and solve the problem of low willingness to supply users in the sharing of private parking spaces, this paper set the sharing time as working day and night and divides it into two stages to classify and guarantee the return of supply users. Considering the constraint of time window, a binary integer programming model was established to maximize berth utilization. Compared with the basic model, the real-time berth utilization rate and parking request acceptance rate of the proposed model are improved. Finally, based on the matching results, the Pareto optimal solution was given considering the double objective optimization of the platform net profit and the maximum benefit provided to users, which provides an important reference for the practical application of shared parking.
Key words: shared parking; matching mechanism; users' benefits; parking utilization rate; time window constraints

基于机器学习的地铁列车环境振动源强预测

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摘 要：在环境影响评价中地铁列车振动源强取值对评价结果至关重要。目前通常采用类比测试的方法确定源强大小。为了提高效率和准确性，引入机器学习方法，对地铁列车振动源强进行预测。选用 BP 和 GRNN 神经网络算法可以充分利用样本数据的各项特征，并且可以对数据降噪以提高预测准确度。结果表明：BP 神经网络和 GRNN 的均方误差都在 25 以内，且预测效率高，可作为地铁环境影响评价振动源强取值的参考。
关键词：地铁；振动源强；BP 神经网络；GRNN 神经网络

Prediction of Metro Train-Induced Vibration Source Intensity Using Machine Learning Method

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Abstract: In environmental impact assessment, the value of vibration source intensity of metro train is very important to the assessment results. At present, this value is usually determined by the analog test. To improve the efficiency and accuracy, the machine learning method was introduced to predict the vibration source intensity. The back propagation neural network (BPNN) and generalized regression neural network (GRNN) were employed, which can make full use of the characteristics of the sample data, and can reduce the noise the data to improve the prediction accuracy. The results indicate that mean square errors of BPNN and GRNN are less than 25, and the prediction efficiency is high. Accordingly, they can be used as the reference of vibration source strength in metro train-induced environmental impact assessment.
Key words: metro； vibration source； intensity back propagation (BP) neural network； generalized regression neural network (GRNN）

Analysis of crack initiation mechanism and influencing factors of dyke-bedrock interface cracks under sub-elevated temperature

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Abstract：In order to study the mechanism of crack initiation and propagation at the interface between dyke and bedrock sub-elevated temperature, the analytical solution of the stress field at the tip of the interface crack was derived based on the conformal mapping method. The stress intensity factor is obtained by the superposition principle. The expressions of crack initiation strength and angle are established by using the MTS criterion. The effects of lithological differences on both sides of the typical interface, crack characteristics, and external factors on crack initiation form, crack initiation strength, and angle is analyzed. Finally, the theory is verified by numerical simulation. The results show that the crack initiation characteristics of dyke-bedrock interface are affected by two factors, internal factors (rock difference on both sides of the interface, crack length, and inclination angle) and external factors (temperature and horizontal lateral pressure coefficient), among which rock difference is the dominant factor. The difference of rock is large, high temperature, long crack, high confining pressure, and low inclination angle K_{I} has a large value, β is close to 45°, K_{II} has a large value, K_{I} is always greater than K_{II}, the tension-shear composite initiation form dominated by tension. Under the same conditions, the greater the interface key parameters E_{th} and $\Delta\alpha$ are, the more significant the rock difference is, the greater the temperature stress, and the greater the initiation strength. The greater the influence on the critical initiation angle is. The initiation direction always occurs on the bedrock side with lower strength. The initiation law of numerical simulation is consistent with the theoretical results.

Keywords dyke-bedrock, interfacial crack, conformal mapping, stress intensity factor, crack initiation strength, initiation angle

A damage identification method for hinge joints of plate girder bridges based on dynamic stiffness and Bayesian Optimization-Support Vector Machine

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Abstract: Hinge joint damage is a common disease type of hollow slab bridge. The existing hinge joints damage detection methods based on vibration mode mostly rely on original data, and put forward strict requirements for operation and environmental conditions. The index of dynamic stiffness (DS) calculated by the transient response method (TRM) is widely used to check the integrity and bearing capacity of bridge substructures, while the noise interference limits the development space of this method. In this paper, the DS index is applied to the hinge joints damage detection of the bridge superstructure for the first time. A method is proposed to accurately locate the hinge joints damage and preliminarily evaluate the damage degree by directly using the slope of the DS line chart obtained by the impact response of all slabs. This method does not depend on the finite element model, and is suitable for the detection of old bridges with incomplete original data and the rapid detection of disaster-damaged bridges. For bridges with complete original data, this paper proposes a method to identify the location of hinge joints damage by inputting the DS of the bridge as a feature vector into the Bayesian Optimization-Support Vector Machine (BO-SVM) model to classify, and takes into account the uncertainty factors in the actual measurement, such as noise interference, different impact positions, and changes in the peak value of impact force. This method is very sensitive to capture damage, and is robust to noise, which can be used for regular detection of existing bridges and repair outcome evaluation of repaired bridges. Finally, the proposed method is verified by field tests. The results show that the DS line chart judgment results and machine learning recognition results are consistent with the field visual inspection results.

Key words: Damage identification; Dynamic stiffness; Bayesian optimization; Support Vector Machine; Transient response method; Hinge joint damage

考虑粘结滑移参数不确定性的钢管混凝土构件可靠性分析

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摘　要：为研究粘性强度对钢管混凝土柱结构最终失效的影响，以钢管混凝土柱为研究对象。本文共对 9 个方形钢管混凝土（CFST）试件和对 27 根钢管轻集料混凝土试件进行轴压推出试验，分析研究了钢管轻集料混凝土粘结滑移的发展过程和破坏机理，探讨了影响钢管混凝土黏结强度的因素。通过 CFST 柱的推出试验，系统地研究了钢管与核心混凝土的界面粘结性能；通过对已有试验数据及允许误差等进行分析，得到符合规范要求的随机参数的统计特征，利用蒙特卡罗重要抽样法探讨了随机荷载在不同界面长度下，加载不同阶段的粘结机理以及各种参数对粘结应力和结构的极限承载力的影响,对结构进行可靠度分析。试验结果显示，养护方法和浇筑方式对 CFST 界面粘结强度有一定的影响；钢管内壁越粗糙，粘结强度越大；混凝土强度对粘结强度影响不明显；在试件的参数范围内，长细比和径厚比增大，粘结强度降低，随着试件长细比的增加，钢管混凝土荷载-滑移曲线逐渐由拐点变为明显的峰值点。最后，对钢管混凝土界面粘结机理进行了较深入的探讨，以及不同参数对粘结应力和结构的承载力的影响，同时可以清楚地了解结构的局部和整体应力损伤分布以及损伤后的应力重分布，结果表明，预测结果与试验结果基本一致。

关键词：钢管混凝土；粘结滑移；推出试验；蒙特卡罗法；随机参数；可靠度；应力损伤

Uncertainty analysis of bond-slip parameters of concrete-filled steel tubes

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Abstract: In order to study the effect of viscous strength on the final failure of CFST column structure, the CFST column was taken as the research object. In this paper, a total of 9 square concrete-filled steel tubular (CFST) specimens and 27 light-weight aggregate concrete specimens were subjected to axial compression push-out tests. Factors affecting the bond strength of CFST. Through the push-out test of the CFST column, the interfacial bonding performance of the steel tube and the core concrete is systematically studied; through the analysis of the existing test data and the allowable error, the statistical characteristics of the random parameters that meet the requirements of the specification are obtained. The sampling method discusses the bonding mechanism of random loads at different interface lengths and loading stages and the influence of various parameters on the bonding stress and the ultimate bearing capacity of the structure, and the reliability of the structure is analyzed. The test results show that the curing method and pouring method have a certain influence on the bond strength of the CFST interface; the rougher the inner wall of the steel pipe, the greater the bond strength; the concrete strength has no obvious effect on the bond strength; As the

slenderness ratio and diameter-thickness ratio increase, the bond strength decreases. With the increase of the slenderness ratio of the specimen, the load-slip curve of CFST gradually changes from an inflection point to an obvious peak point. Finally, the bonding mechanism of the CFST interface is discussed in depth, and the influence of different parameters on the bonding stress and the bearing capacity of the structure can be clearly understood. The results show that the predicted results are basically consistent with the experimental results.

Keywords: concrete filled steel tubular; bond-slip; rollout trial; Monte Carlo method; random parameters; reliability; stress damage

抗冲切钢筋对带暗梁的板-柱节点受冲切性能的影响研究

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摘　要：为研究抗冲切钢筋对配置暗梁的钢筋混凝土(RC)厚板抗冲切性能的影响，完成了 5 块板柱中节点的冲切破坏试验。主要设计变化参数为抗冲切钢筋体系(抗剪栓钉、鸭筋与型钢)。通过分析节点的破坏形态、承载能力、竖向挠度、钢筋与混凝土的应变等现象，发现抗冲切钢筋具有改善破坏界面受压区混凝土力学性能的作用，并抑制内部裂缝开裂和发展。试验结果表明，45°冲切破坏锥面相交范围内布置的鸭筋与抗剪栓钉，可提高板柱节点的受冲切承载力与破坏挠度，失效模式为冲切破坏；无抗剪措施的试件为脆性破坏；装配有型钢剪力架的试件为具有一定延性的弯曲破坏，合理设计型钢剪力架可以使 RC 板柱节点的破坏模式从脆性的冲切破坏转换为具有一定延性的弯曲破坏。在一定范围内布置抗冲切钢筋等措施，不仅提高厚板的受冲切承载力，还解决了规范设计中，暗梁宽度过大的问题。

关键词：抗冲切钢筋；暗梁；抗剪栓钉；鸭筋；型钢；板柱节点；失效模式

The influence of shear reinforcement on the punching shear resistance of thick flat slabs with hidden beams

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Abstract: This paper presents the results of experimental campaign on 5 shear reinforced thick flat slabs with hidden beams embedded in interior slabs. The tests aimed to study the punching shear failure modes and the mechanical performances of reinforced concrete (RC) slab column connections with shear reinforcement. The researched parameters were shear reinforcement system (studs, duck-bars and section steel). By analyzing the failure mode, bearing capacity, vertical deflection, strain of steel bar and concrete, it is found that the punching shear reinforcement can improve the mechanical properties of concrete in the compression zone of failure interface, and inhibit the cracking and development of internal cracks.The test results show that the punching shear capacity and failure deflection of slab-column joints can be improved by arranging the duck-bars and shear studs in the intersection area of 45° punching shear failure cone, and the failure mode is punching shear failure.The specimens without shear resistance measures are brittle failure.The failure mode of RC slab-column joints is changed from punching shear failure to flexural failure with ductility by designing the steel shear frame properly.The punching shear strength of thick slab is improved and the problem of too large width of hidden beam in code design is solved by arranging punching shear reinforcement in a certain range.

Keywords: shear reinforcement; hidden beam; shear stud; duck tendon; section steel; slab-column joint; failure mode

日照作用下空心柱沿壁厚方向的温度变化及温差分析

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摘　要：为了探究混凝土空心柱不同位置的温度变化速率、温度差之间的规律，以及温度沿壁厚方向的变化规律，本文以混凝土空心柱试件为研究对象，通过温度监测获取各壁板测点温度数据，详细分析了日照条件下的空心柱的温度变化速率、温度差，以及沿壁厚方向的温度梯度。结果表明：东、南、西三侧壁板外侧温度变化速率相对大于内侧及芯部，东侧壁板最大升温速率可达 7.0℃/h，南侧壁板最大降温速率可达-3.5℃/h，西侧壁板最大升温速率可达 3.2℃/h，北侧壁板温度变化速率不超过 0.5℃/h；南侧壁板的内外侧正温差最大可达 18.3℃，是北侧壁板的 7 倍，东侧壁板的 2 倍，西侧壁板的 1.5 倍，最大温差出现在外侧测点升降温转换时间节点上；日照作用下，温度沿壁厚方向变化符合负指数函数变化规律。

关键词：混凝土空心柱；日照作用；温度变化速率；温度差；温度梯度

Temperature change and temperature difference analysis of hollow column along the wall thickness direction under the action of sunlight

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Abstract: In order to explore the temperature change rate at different positions of the concrete hollow column, the law of the temperature difference, and the change law of the temperature along the wall thickness direction, this paper takes the concrete hollow column specimen as the research object, and obtains the temperature of each wall plate through temperature monitoring. Data, the temperature change rate, temperature difference, and temperature gradient along the wall thickness direction of the hollow column under sunshine conditions are analyzed in detail. The results show that the temperature change rate of the outer side of the east, south and west side panels is relatively larger than that of the inner side and the core. h, the maximum heating rate of the west side panel can reach 3.2°C/h, and the temperature change rate of the north side panel does not exceed 0.5°C/h; 7 times that of the east side wall, 2 times that of the west side wall, and 1.5 times that of the west side wall. The maximum temperature difference occurs at the time node of the temperature change of the outer measuring point. Under the action of sunlight, the temperature change along the wall thickness direction conforms to the law of negative exponential function.

Key words: Concrete hollow column; Insolation; Temperature change rate; Temperature difference; Temperature gradient

Prediction of steady ground surface settlement due to shield tunnelling using intelligence technique and volume loss mechanism

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Abstract: Predicting ground movement is essential in shield tunnelling. Engineers take appropriate countermeasures to prevent excessive ground movement according to the ground movement prediction. This study introduces an artificial intelligence to predict steady surface settlement before shield advancing. The proposed method contains three models: a hybrid deep neural network model (HDNN), an error correction model (ECM), and an auxiliary model. Based on the mechanism of volume loss, the parameters related to the ground movement are categorized into geometrical parameters, geological parameters, shield excavation parameters, tail grouting parameters, and unmeasurable factors. The first four kinds of parameters are taken as the input parameters of the HDNN to predict steady surface settlement. Unmeasurable factors are considered by the ECM to correct the error of the HDNN. Auxiliary model is designed to predict the unknown shield excavation parameters in front of the shield cutter head to help the HDNN predict steady surface settlement in engineering projects. Five datasets collected from different metro lines are used to test the model performance and generalisation ability. The result shows that because the HDNN considers the spatial and temporal characteristics of the different kinds of input parameters, it shows better generalisation to the new projects compared to the traditional deep neural network. The performance of the HDNN is enhanced by considering unmeasurable factors.

Keywords: Deep learning, Shield tunnel, Settlement

基于影响线频率的铁路桥梁、影响线识别方法

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摘 要: 铁路桥梁由于荷载频率高，量级大，比公路桥更容易产生损伤。桥梁影响线能够反映桥梁的静力受力性能,准确识别桥梁影响线有利于进行损伤识别以及轴重监控，对铁路桥梁管养运营起到重要保障。本文提出一种基于影响线频率确定低通滤波器的方法，进而过滤桥梁响应中的动态波动成分，有助于准确识别影响线。经车桥耦合模型进行验证和参数分析，证明该方法在低于 180km/h 车速范围内，信噪比高于 20dB 的轨道不平顺影响下，可以主动却识别影响线，整体和局部识别误差均在 5%以内，此外，识别效果不受列车整体长度影响，体现出该方法的适用范围较广，可应用性强。
关键词:铁路桥梁;桥梁影响线识别;滤波器参数;车桥耦合;参数分析

Railway bridge influence line identification method based on impact line frequency

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Abstract: Railway bridges are more susceptible to damage than highway bridges due to their high load frequency and magnitude. The influence lines of bridges can reflect the static performance. Accurately identifying the influence line is beneficial for damage identification and axle load monitoring, providing an important safeguard for the maintenance and operation of railway bridges. This paper proposed a method to determine a low-pass filter based on the frequency of the influence line, which could filter out dynamic wave components in the bridge response and aim at accurately identifying the influence line. Through validation and parameter analysis by a vehicle-bridge coupling model, this method had been shown effectively identified the influence line under railway irregularity with a signal-to-noise ratio greater than 20 dB, with the speed below 180 km/h. The overall and local recognition errors were both lower than 5%. In addition, the Identification accuracy was not affected by the overall length of the train, demonstrating that this method had a wide range of applicability and strong practicality.
Key words: Railway bridges; bridge influence line identification; low-pass filter parameter; vehicle-bridge coupling; parameter analysis.

A Monte Carlo simulation-based seismic risk assessment method for freestanding artifacts

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Abstract: The seismic safety of freestanding museum artifacts has been a key discussion issue worldwide, and the rise of artificial intelligence technology has given new inspiration to the work of seismic risk assessment for museum artifacts. The aim of this study is to propose a method to analyze the seismic risk of museum artifacts using Monte Carlo simulation, a strategy widely adopted in the field of artificial intelligence. The proposed method considers both the seismic hazard and the fragility of the artifact. The method is illustrated through a case study, and the results demonstrate its usefulness for assessing the seismic risk of freestanding artifacts. This method can provide valuable information to museum curators and conservators for making decisions about risk mitigation and preservation of cultural artifacts.
Keywords: Earthquakes; Cultural artifacts; Monte Carlo simulation; Seismic response; Seismic fragility analysis

R134a/R245fa 非共沸混合工质流动沸腾液膜蒸发特性研究

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摘 要：本文针对水平矩形通道内非共沸混合工质的流动沸腾分层流状态，同时考虑靠近其气液界面处气相与液相浓度边界层的存在，对液相浓度边界层的传质系数进行了修正，构建了对应的流动沸腾液膜蒸发模型，以R134a/R245fa混合工质为研究对象，探讨了不同入口组分浓度、质量流速及热流密度等条件下液膜蒸发过程的热质传递规律，以气液相浓度边界层内的浓度差作为气液相传质阻力的表征，界面温度和主流饱和温度之差为传热阻力的表征，深入分析了传热阻力、传质阻力与混合工质传热特性之间的内在联系。
关键词：非共沸混合工质；流动沸腾；液膜蒸发；传质阻力；传热阻力

The Investigation for Liquid Film Evaporation Characteristics of Zeotropic Mixtures R134a/R245fa

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Abstract: The liquid film evaporation model during the stratified flow of zeotropic mixtures in the horizontal rectangular channel was proposed in the paper, the vapor and liquid concentration boundary layer near the vapor-liquid interface was considered, and the mass transfer coefficient in the liquid concentration boundary layer was modified. The heat and mass transfer mechanism of R134a/R245fa during the liquid film evaporation process under different inlet composition, mass flux, heat flux was studied. The composition difference in the vapor and liquid concentration boundary layer could be used as the characterizations of the vapor and liquid mass transfer resistance, the temperature difference between the interfacial temperature and bulk saturation temperature in the liquid phase could be used as the characterization of the heat transfer resistance. The internal relations among the heat transfer resistance, mass transfer resistance and heat transfer characteristics of the mixtures were analyzed.
Key words: zeotropic mixtures; flow boiling; liquid film evaporation; mass transfer resistance; heat transfer resistance

Investigation on thermal management of lithium-ion batteries based on PCM with mini-channels cooling plate

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Abstract: A battery thermal management model based on phase change materials (PCM) with mini-channels cooling plates was established. In view of the influence of the thickness of PCM, a preliminary experimental study was designed. Specific cooling strategies with different discharge rates of the battery were discussed. It indicated that there was no obvious linear relationship between the increase in PCM thickness and the decrease in battery temperature. The PCM with 3 mm thickness was the most suitable for the application. Different thermal management strategies should be adopted for batteries to better cope with the heat dissipation requirements of batteries in various discharge scenarios. For a discharged rate below 1.2C, external cooling was not necessary. For a discharged rate of 1.2C - 2C, only using PCM can meet the heat dissipation needs. For a discharged rate above 2C, active cooling should be added to make up for the lack of heat storage of PCM. Likewise, the scheme of four cooling plates and each cooling plate with two mini-channels was the most ideal in the application of battery thermal management system (BTMS) based on active cooling auxiliary passive cooling, which not only reduced the battery temperature efficiently but also maintained a good temperature uniformity of the battery. Meanwhile, a short-term active cooling could effectively reduce the power consumption of BTMS caused by active cooling and improve the contribution of passive cooling to the battery heat dissipation. The research results could provide valuable information support and optimization suggestions for the design of BTMS.

Keywords: phase change material, mini-channels cooling, lithium-ion batteries, battery thermal management, short-term active cooling

Multi-objective Optimization Design Method of Wear Rail Grinding Profile Based on Wheel-rail Contact

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Abstract: Aiming at the problems of high design cost, long optimization period, weak pertinence and low solution efficiency in the current optimization of rail grinding target profile, we proposed an arithmetic average fitting algorithm to obtain the representative profile of rail wear, established a parametric model of rail profile, developed an RBF proxy model of wheel-rail contact geometry and mechanical properties, and designed a multi-objective optimization model of rail grinding profile with the optimization goal of reducing wheel-rail contact stress and improving wheel-rail contact geometry. The calculation before and after optimization shows that the average contact stress of wheel-rail decreases by 31.863%, the radius difference of rolling circle increases by 100.391%, and the matching wear work of wheel-rail decreases by 70.5%.

Keywords: Rail Grinding, Optimization of Rail Profile, Wheel-rail Contact, Rail Wear

A Schatz-based amphibious robot with omni-directional locomotion

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Abstract: Robots that can swim in water and move on land have the potential to surrogate humans to explore and patrol in amphibious environment. Therefore, researchers are motivated to explore the structure and navigation of the system. In this article, a novel amphibious robot with omni-directional locomotion is designed and analyzed. There are four driving modules fixed at the four corners of the robot, and each of them is constructed based on the Schatz linkage. Inspired by the similarity between the spatial movement of the Schatz linkage and the motion of the kayak paddle, a special paddle “Olo-paddle” is designed. It is shaped from two mutually perpendicular circles and equipped on the Schatz linkage. Driven by these four modules, the robot performs omni-directional mobility both on land and in water. Besides, it possesses the ability to climb obstacles in both vertical and horizontal directions. In this paper, the mechanical system design of the robot is introduced, and the locomotion analysis is performed. A prototype is manufactured and tested in different terrains. The results prove that the robot possesses the omni-directional mobility in amphibious environment.

Keywords: Amphibious robot; Schatz linkage; spatial movement; omni-directional locomotion;

A rolling contact fatigue life prediction model for gradient material and its application in fatigue life estimation of bearing steel

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ABSTRACT: This paper presents a rolling contact fatigue life prediction model for gradient material. Central to the model is the assumption of a statistical relationship between the probability of survival, fatigue life, stress-related parameter, and material-related parameter for an elementary volume of material. The material-related parameter was derived from torsion fatigue test results and varies with the hardness for different depths from the surface for gradient material. Under the rolling contact condition, a stress-related parameter was defined based on the multiaxial stress criterion. In the initial state of rolling contact fatigue, the anti-fatigue property of the material is improved differently in the depth direction, and the hardness of the subsurface material exhibits gradient distribution due to the cyclic rolling load effect. Based on the phenomenon, the model proposed for gradient material was applied in the rolling contact fatigue life prediction of the bearing steel and validated with the fatigue experiment data in the open literature. The accuracy of the new model results is compared with the traditional life prediction models and proved to be good.

Keywords: Rolling contact fatigue, gradient structure, multiaxial fatigue criterion, bearing steel

An Equidistance Index Intuitionistic Fuzzy C-Means Clustering Algorithm Based on Local Density and Membership Degree Boundary

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Abstract: In this paper, exposure of a novel algorithm, namely equidistance index intuitionistic fuzzy c-means (EI-IFCM), is presented. EI-IFCM can commence its learning process from better initial clustering centers to truncate the computational load and memory demand to a low level. The initial cluster centers can be organized by virtue of the contribution of local density information of data samples. The membership degree boundary may be assigned for the data samples satisfying the equidistance index in pursuit of a more rapid clustering process. The performances of the proposed EI-IFCM are numerically validated using UCI datasets from the real world. The validation includes comparisons with traditional and several efficient clustering algorithms and showcases that our new method can compete and even outperform these approaches in terms of iterations and precision.

Keywords: Equidistance index; Local density; Membership degree boundary; Intuitionistic fuzzy c-means; Equidistance index intuitionistic fuzzy c-means

Research on effects of different internal structures on the grasping performance of Fin Ray soft grippers

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Abstract: Fin Ray soft grippers are passive compliant structures that can change shape to conform to grasped objects, aided by their V-shaped structure and morphable material. Previous research focused on the effects of changing key parameters on grasping performance, but few studies explored the effects of changing the internal structure. This article presents four different Fin Ray structures and uses finite element analysis to investigate key parameters and maximize adaptability. Force responses of four selected structures are analyzed and experimentally validated. The No Internal Filling structure, obtained by omitting cross-beams, is ideal for delicate grasping tasks with high adaptability and minimal force. The Cross structure, adding vertical beams connected to cross-beams, decreases adaptability but significantly increases contact force. The unsymmetric design of the Branched structure enhances contact force while improving passive adaptation to objects. The Fin Ray finger can be used for adaptive delicate grasping tasks or high-force manipulation tasks.

Keywords: Soft robotic gripper, adaptive grasping, Fin Ray structure, finite element analysis

改变磁屏蔽板状态对磁屏蔽性能影响的研究

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摘　要：本文以永磁体和材料为非晶合金的磁屏蔽板作为研究对象，探究以非晶合金为材料的磁屏蔽板的磁屏蔽效果以及改变磁屏蔽板厚度对其磁屏蔽效果产生的影响。在初步确定永磁体的材料的前提下，以永磁体作为磁场源测量磁屏蔽板背后的磁感应强度，从而反应其磁屏蔽效果。对磁屏蔽效果的探究主要分为实验部分与仿真部分，实验部分通过改变磁屏蔽板的厚度和永磁体与磁屏蔽板之间的距离来测量磁感应强度，仿真部分在 Ansys 软件中建立磁屏蔽模型从而对实验结果进行验证。通过实验与仿真相结合的方法，探究改变磁屏蔽板的厚度和磁场源与磁屏蔽板之间的距离对磁屏蔽性能的影响机理，验证了实验方法与仿真方法的可行性与有效性，得到的结果有助于提高磁屏蔽板的磁屏蔽性能.

关键词：磁屏蔽；永磁体；磁感应强度；非晶合金；仿真分析

Research on the Effect of Changing the State of Magnetic Shielding Plate on Magnetic Shielding Performance

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Abstract: In this paper, the magnetic shield plate made of amorphous alloy and permanent magnet is taken as the research object to explore the magnetic shielding effect of the magnetic shield plate made of amorphous alloy and the influence of changing the thickness of the magnetic shield plate on its magnetic shielding effect. On the premise that the material of permanent magnet is preliminarily determined, the magnetic induction intensity behind the magnetic shield plate is measured by using permanent magnet as the magnetic field source, so as to reflect its magnetic shielding effect. The exploration of magnetic shielding effect is mainly divided into experimental part and simulation part. In the experimental part, magnetic induction intensity is measured by changing the thickness of magnetic shielding plate and the distance between permanent magnet and magnetic shielding plate. In the simulation part, magnetic shielding model is established in Ansys software to verify the experimental results. The influence mechanism of changing the thickness of the magnetic shield plate and the distance between the magnetic source and the magnetic shield plate on the magnetic shield performance was explored through the method of combining experiment and simulation, and the feasibility and effectiveness of the experimental method and the simulation method were verified. The obtained results are conducive to improving the magnetic shield performance of the magnetic shield plate.

Key words: Magnetic shielding; Permanent magnet; Magnetic induction strength; Amorphous alloy; Simulation analysis

A control method for a larger speed range of permanent magnet synchronous motor controlled without speed Sensor

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Abstract: Permanent magnet synchronous motor has the advantages of simple structure, high power density, high power factor and large starting torque, which is widely used in various occasions. However, high performance permanent magnet synchronous motor control methods need to obtain accurate motor rotor speed and position information. However, high precision sensors are costly and prone to failure. In this paper, the high-frequency injection method based on the irrational characteristics of the motor is used in the low speed condition, and the observer method based on the motor back electromotive force is used in the high speed condition, and the switching strategy is optimized to realize the speed sensorless control of the permanent magnet synchronous motor in a wider speed range. The simulation results show that, The composite control strategy adopted in this paper can accurately obtain the motor speed and rotor position information in a wider speed range, and the system runs well when the algorithm is switched.

Keywords: PMSM； sliding mode observer；high frequency injection method；no sensor

应用于自动导引小车的导航与供电一体的线圈设计

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摘　要：在自动导引小车（Automated Guided Vehicle，AGV）中采用动态无线充电（Dynamic Wireless Power Transfer, DWPT）可以提高 AGV 充电及搬运效率，更加安全可靠。导航也是 AGV 系统中必不可少的部分。因此，为降低系统复杂性和系统成本，提出了一种既可以实现无线供电又可以实现系统导航的 DAD 线圈。对 DAD 线圈进行了建模分析，推导了其电压输出公式，在此基础上设计了改进的 LCC-S 型补偿拓扑。搭建了 DAD 线圈电磁仿真模型和 WPT 电路仿真模型，验证了 DAD 线圈的导航性能与供电性能，证明了 DAD 线圈可以同时实现导航及供电两种功能。
关键词：AGV，DWPT，线圈，导航

Coil Design for Navigation and Power Supply of Automatic Guided Vehicle

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Abstract: Using Dynamic Wireless Power Transfer (DWPT) in Automated Guided Vehicle (AGV) can improve the efficiency of AGV charging and handling, and is more safe and reliable. Navigation is also an indispensable part of the AGV system. Therefore, in order to reduce the complexity and cost of the system, a DAD coil which can realize wireless power supply and system navigation is proposed. The DAD coil is modeled and analyzed, and its voltage output formula is derived. On this basis, an improved LCC-S compensation topology is designed. The electromagnetic simulation model of DAD coil and WPT circuit simulation model are built. The navigation performance and power supply performance of DAD coil are verified. It is proved that DAD coil can realize both navigation and power supply functions.
Key words: AGV, DWPT, Coil, Navigation

多模块输入串联输出并联型 DC/DC 变换器控制策略的研究

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摘　要：多模块输入串联输出并联型 DC/DC 变换器可以应用在很多场合。要保证整个系统正常运行，则必须保证输入均压和输出均流。在一种改进的双向隔离型 DC/DC 变换器的基础上，提出一种基于本地信息的下垂均压控制策略。这种控制策略动态响应快，实现了模块化运行，冗余度高，提高了系统的可靠性。本文首先介绍了一种改进的隔离型 DC/DC 变换器拓扑，分析了输入均压和输出均流的关系后，提出了一种新型的均压控制策略。之后对这种控制策略进行分析，并进行了稳定性分析，最后通过仿真和实验进行验证该控制策略的可行性。

关键词：输入串联输出并联；DC/DC 变换器；均压均流；下垂控制

A Novel Control Strategy Research for Multi-module Input-Series and Output-Parallel Connected DC/DC Converter

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Abstract: Multi-module input-series and output-parallel connected DC / DC converter can be applied in many occasions. Input voltage sharing and output current sharing of the constituent modules among the system must be ensured. Based on an improved bidirectional isolated DC / DC converter, a voltage sharing control strategy about droop of inductor current and input voltage is proposed. The dynamic response of the control strategy is fast, the modular operation is realized, the redundancy is high, and the reliability of the system is improved. In this paper, an improved bidirectional isolated DC / DC converter topology is introduced. After analyzing the relationship between input voltage sharing and output current sharing, a voltage sharing control strategy about droop of inductor current and input voltage is proposed. After analyzing control strategy, dropping coefficient is selected and converter performance is analyzed. and finally,the simulation and experimental results are presented to verify the effectiveness of the proposed method.

Key words: Input-series and output-parallel；DC/DC converter；voltage sharing and current sharing；droop control

高速铁路动车组网侧变流器温升特性研究

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摘 要：网侧变流器是动车组牵引传动系统中的重要电气设备，其故障的发生将严重影响列车的安全运行。针对动车组网侧变流器功率器件的温升问题，本文提出了一种基于功率器件电热特性的数学模型，对列车运行过程中的网侧变流器的功率器件的温度状况进行实时反映。在此基础上，结合列车运行过程的环境条件，最终实现了动车组网侧变流器的功率器件的温升特性的研究。研究结果发现京张高铁列车网侧变流器的温升仍然存在较大的安全裕度，其温度是满足其相关范围要求的。同时研究结果可以用来作为列车实际运行过程中评估网侧变流器的温度的数据支持，也可以为后续列车电气设备的故障诊断和寿命预测等研究方向提供数据支撑。

关键词：高速动车组；网侧变流器建模；功率器件温升特性

Research on the Temperature Rise Characteristics of Network-side Converters of High-speed Railroad Trains

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Abstract: The grid-side converter is an important electrical equipment in the traction drive system of multiple units, and its failure will seriously affect the safe operation of the train. Aiming at the problem of temperature rise of the power components of the grid-side converter of the EMU, this paper proposes a mathematical model based on the electrothermal characteristics of the power components to reflect the temperature status of the power components of the grid-side converter during the train operation in real-time. On this basis, combined with the environmental conditions of the train operation process, the temperature rise characteristics of the power components of the converter at the side of the EMU network are finally realized. The research results show that there is still a large safety margin for the temperature rise of the converter at the network side of the Beijing-Zhangjiakou high-speed railway train, and its temperature meets the requirements of its relevant range. At the same time, the research results can be used as data support to evaluate the temperature of the grid-side converter during the actual operation of the train, and can also provide data support for the following research directions such as fault diagnosis and life prediction of the electrical equipment of the train.

Keywords: High-speed EMU, Modeling of grid side converter, Temperature rise characteristics of power devices

应用双向变流装置的城轨供电系统直流电压优化策略

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摘　要：本文对轨道交通采用双向变流装置后直流电压调整和优化系统潮流问题进行研究。首先，介绍了包括双向变流装置的城轨牵引供电系统等效电路，基于牛拉法建立了交直流迭代求解模型。基于牵引供电系统仿真平台和遗传算法，提出了一种直流电压优化策略。该优化策略能够主动调配再生制动能量利用路径，减少系统能耗，提高能量利用率。进行了多列动态运行仿真验证，仿真结果相比于恒压控制下，系统能量利用率提升了 1.77%。证明了该方案在应用双向变流装置的城轨供电系统中具有节能效果。
关键词：城轨交通；双向变流装置；能量流动；电压调整

Voltage Regulation Strategy in Traction Power Supply System with Bidirectional Converter Devices

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Abstract: The purpose of this paper is to study DC voltage regulation and power flow optimization in rail transit power systems with bidirectional converter device (BCD). The steady-state equivalent models of traction power systems including bidirectional converters are established, and the ac/dc sequential power flow algorithm based on Newton–Raphson method is presented. Based on the traction power supply system simulation platform and genetic algorithm, a DC voltage optimization strategy is proposed. This optimization strategy can actively deploy the energy utilization path of regenerative braking, reduce the energy consumption of the system, and improve the energy utilization rate. Multiple dynamic operation simulations are carried out, and the simulation results improve the energy utilization rate of the system by 1.77% compared with constant voltage control. It proves that the scheme has an energy-saving effect in the urban rail power supply system using bidirectional converter device.
Key words: urban rail transit; bidirectional converter; energy flow; voltage regulation

基于卷积神经网络的电机轴承故障诊断与寿命预测

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摘　要：电机轴承是电动汽车的核心零部件，其健康情况与电动汽车能否正常运转有着极强关联。轴承故障诊断和寿命预测是轴承研究的两个方向，但两者之间存在着很强的关联性，因此并不能完全割裂开。该文构建了具有特征自学习能力的一维深度宽核卷积神经网络进行电机轴承的故障诊断与剩余寿命预测。模型中设置的宽卷积核能有效避免高频信号干扰，最大池化层能避免模型过拟合。以凯斯西储大学滚动轴承数据及西交大-SY-轴承数据集为例，对所提一维深度宽核卷积神经网络模型进行了验证。结果表明，所提模型对于三个故障数据集的识别准确率分别为 99.76%、99.31%、100%，对于轴承剩余寿命预测的平均准确率为 97.01%。
关键词：滚动轴承；故障诊断；剩余寿命预测；深度宽核卷积神经网络

Fault Diagnosis and Life Prediction of Motor Bearing Based on Convolutional Neural Network

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Abstract: Motor bearing is a core component of electric vehicle, and its health is closely related to the normal operation of electric vehicle. Bearing fault diagnosis and life prediction are two directions of bearing research, but there is a strong correlation between them, so they can not be separated completely. In this paper, a one dimensional deep wide kernel convolutional neural network with feature self-learning capability is constructed for fault diagnosis and residual life prediction of motor bearings. The wide convolution nuclear energy set in the model can effectively avoid the interference of high frequency signals and the maximum pooling layer can avoid the overfitting of the model. Taking rolling bearing data from Case Western Reserve University and XJTU SY-bearing data set as examples, the proposed one-dimensional deep wide kernel convolutional neural network model is verified. The results show that the identification accuracy of the proposed model for the three fault data sets are 99.76%, 99.31% and 100% respectively, and the average accuracy of the prediction of the remaining life of bearings is 97.01%.
Key words: rolling bearing; fault diagnosis; residual life prediction; deep wide nuclear convolutional neural network

Electromagnetic Optimization Design of Permanent Magnet Synchronous Traction Motor Based on Taguchi Method

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Abstract: To optimize the performance of the permanent magnet synchronous traction motor under rated operating conditions, the rated torque, rated point efficiency, stator core loss, and magnetic density amplitude are taken as the optimization objectives, and the stator outer diameter, magnet length, magnet thickness, pole arc coefficient of the spacer bridge on the magnet, and breath length are selected as the optimization factors on the optimization factors, and the effect of the above optimization factors on the optimization objectives is studied by Taguchi method. By establishing the orthogonal experiment matrix, the motor performance under each parameter combination is calculated by using the finite element (FE) electromagnetic simulation software, and the parameter combination with the highest efficiency and the smallest magnetic density amplitude is preferred under the condition of ensuring a certain rated point output power.

Keywords: Permanent Magnet Synchronous Motor (PMSM)；Optimization；Taguchi method

浅谈求解逆矩阵的几种方法

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摘　要：矩阵是代数学的基础，而矩阵的逆是矩阵运算的重要组成部分，逆矩阵作为一种常用的数学工具，它被广泛地应用于解决其他的代数问题. 因此，灵活掌握逆矩阵的求解方法是非常必要的. 本文在对逆矩阵的相关性质进行分析后，详细讨论了在求解逆矩阵时常用的九种方法，并分析了每种方法的适用条件，通过具体的例题展开叙述，有助于加深读者对每种方法的理解，并且掌握求解逆矩阵的一些技巧，从而能够快速准确地求出矩阵的逆. 除此之外，本文还列出了一些关于逆矩阵的应用，将逆矩阵与求解矩阵方程、线性方程组和实际生活中的调配问题、密码问题联系起来，将理论知识和实际应用紧密结合，有助于读者加强前后知识之间的联系，从而更好地进行知识之间的迁移.

关键词：逆矩阵　LU 分解　哈密顿-凯莱定理　线性方程组

Several methods of solving the inverse matrix

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Abstract: Matrix is the foundation of algebra, and the inverse of matrix is an important part of matrix operation. As a common mathematical tool, inverse matrix has a wide range of applications in other algebraic problems. Therefore, it is necessary to master the solution method of inverse matrix flexibly. Based on the introduction of the related properties of the inverse matrix, this paper discusses in detail the nine methods commonly used in solving the inverse matrix, and analyzes the applicable conditions of each method. Through specific examples, it is helpful to deepen readers ' understanding of each method, and master some skills to solve the inverse matrix, so as to find the inverse of the matrix quickly and accurately. In addition, this paper also lists some applications about inverse matrix. The inverse matrix is associated with solving matrix equations, linear equations, real-life deployment problems and problems in cryptography. The combination of theoretical knowledge and practical application is helpful for readers to strengthen the relationship between knowledge before and after, so as to better transfer knowledge.

Key words: inverse matrix　LU decomposition　Hamilton-Cayley theorem　Systems of Linear Equations

High-power and single-mode output all-fiber spatiotemporal mode-locked oscillator

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Abstract: The developed spatiotemporal mode-locked (STML) laser has become an effective platform for studying high-dimensional nonlinear spatiotemporal dynamics. It also provides a new direction for designing fiber oscillators that can operate under high power. At present, the investigation of STML lasers mainly focuses on the former, and the study of high-power STML lasers is very rare. Furthermore, considering practical applications, it is very desirable to design a high-power, high-beam-quality, all-fiber STML oscillator with a simple structure. In this study, a balance among dispersion, nonlinearity, loss, and gain in an all-fiber laser was achieved by the optimal design of the oscillator. An STML operation with an average output power up to 3.48 W was obtained. Simultaneously, the speckle distortion in the multimode fiber was overcome, and a single-mode output was realized. To the best of our knowledge, this is the first demonstration of a high-power, single-mode output, all-fiber STML laser. This work will be beneficial for investigations on compact all-fiber STML lasers with high-power and high-quality beam profile output, thus promoting the applications of STML lasers.

Keywords: spatiotemporal mode-locking; self-cleaning; all-fiber, high-beam quality; high-power

From Hell to Garden of Eden: An analysis of Acculturation among Burmese Immigrant Women Married to Chinese Men in Dehong Dai and Jingpo Autonomous Prefecture

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Abstract: This study, a cross-sectional descriptive study, shed light upon the cultural understanding and acculturative stress related to the demographic of Burmese immigrant women married to Chinese men. Acculturation and acculturative stress were measured respectively by the modified Suinn–Lew Self-Identity Acculturation Scale(SL-ASIA) and Social Attitudinal Familial Environment (SAFE), with a total of 69 participants recruited from De Hong Dai and Jingpo Autonomous Prefecture in 2022 and undertook the structural interview. Analysis of variance and multiple regression analysis were employed for statistical analysis. We demonstrate that there was a U curve between time since immigration and the level of acculturation. Certain demographic variables (employment status, education level of spouse, ethnic group, time since marriage and immigration) were associated with acculturation. Whereas, demographic variables (employment status, education level of spouse, ethnic group) were associated with acculturative stress. These findings can help health care providers and policy-makers to increase their awareness and be more sensitive when providing care or services to these women.

Key words: acculturation, acculturative stress, Burmese immigrant women

落魄绅士之死
-- “忧郁理论”解读《喧哗与骚动》昆丁的死亡意识

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摘　要：本文将以精神分析中的“忧郁理论”对昆丁的自杀行为进行分析。昆丁的忧郁情绪主要来源于“失去”：包括以凯蒂为代表的情感羁绊上的“失去”和以土地为代表的家族荣耀的“失去”。昆丁因为无法接受“失去”而沉溺于哀怨凝固的忧郁之中。在忧郁的认同机制作用下，昆丁身上出现了敏感而柔弱的女性气质，软弱是导致昆丁死亡悲剧的重要原因。同时，忧郁的认同使昆丁的精神世界发生了分裂，真正的“自我”消失殆尽，最终走向了自杀的道路。

关键词：《喧哗与骚动》；昆丁；忧郁；失去；精神分析

Death of the Broken Gentleman -- An Interpretation of Quentin’s Death Consciousness in The Sound and the Fury with Melancholia Theory

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Abstract: The paper will analyse Quentin’s suicidal behavior with the Melancholia Theory in Psychoanalysis. Quentin’ s gloomy mood mainly because of “loss” -- including the “loss” of emotional fetter represented by Katie, and the “loss” of family glory represented by the land. Quentin was indulged in the grieving and solidified melancholy because he could not accept his loss. Under the impact of the identifying mechanism of melancholia, the sensitive and delicate feminity appeared in Quentin’s character, which later became the main reason of Quentin’s suicide. At the same time, the identity of melancholia splited Quentin’s spiritual world, and then the true “ego”of Quentin disappeared in this process. At last, Quentin commited suicide.

Key Words: The sound and the fury, Quentin, Melancholia, Loss, Psychoanalysis

互联网使用对主观幸福感的影响研究——基于身心健康的中介效应分析

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摘　要：互联网提升了人们的生活福祉，但也影响了人们的身心健康，上网对幸福感的具有复杂的影响机制。本文利用 2010 年和 2018 年中国综合社会调查（CGSS）的数据，采用广义定序逻辑斯蒂回归（Gologit）模型，探讨互联网使用对主观幸福感的直接影响，并从身体和心理健康的中介机制考察了互联网对幸福感的间接影响。研究发现：2010 年和 2018 年互联网使用均显著直接提升了居民主观幸福感；身体和心理健康在互联网使用与主观幸福感之间的中介作用仅在 2018 年显著，其中介效果表现为三条路径：一是心理健康的单独中介作用；二是身体健康的单独中介作用；三是心理健康和身体健康的链式中介作用。本研究有助于深化对互联网使用与居民主观幸福感关系的认识，对推进“互联网+健康”事业发展，提升居民幸福感具有一定的参考价值。
关键词：互联网使用；主观幸福感；身心健康；中介效应

The influence of Internet use on subjective well-being——Mediation effect through physical and mental health

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Abstract: The Internet has improved people's well-being, but it has also affected people's physical and mental health. Internet use has a complex mechanism of influence on happiness. Using the data from the 2010 and 2018 Chinese General Social Survey (CGSS) and the Gologit model, this study explores the direct impact of Internet use on subjective well-being, and examines the indirect impact of Internet use on well-being through the mediating mechanism of physical and mental health. The results show that internet use significantly directly improved residents' subjective well-being in 2010 and 2018. The mediating role of physical and mental health between Internet use and subjective well-being was significant only in 2018. Specifically, there are three intermediary paths: First, the separate mediating role of mental health; The second is the role of a separate intermediary of physical health; The third is the chain-based mediating role of mental health and physical health. This study is helpful to deepen the understanding of the relationship between Internet use and residents' subjective well-being, and has a certain reference value for promoting the development of "Internet + health" and improving residents' well-being.
Key words: internet use; subjective well-being; physical and mental health; mediating effects

直面他人
——萨特《禁闭》的存在主义哲学解读

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摘　要：戏剧《禁闭》因其描写极端紧张的人际关系，传达出人生是痛苦和孤独的理念，而一直被视作是萨特存在主义的悲观写照。但是，正如萨特在《存在主义是一种人道主义》中所传达出来的对人的行动的肯定，对人与人和谐相处的期盼，《禁闭》只是从反面来展现生活。萨特的存在主义是严肃乐观的行动哲学而非此前盲目乐观的人道主义，其戏剧所呈现的只是某种极端可能。故而，本文试图重返萨特的存在主义，抽绎出其人道主义主张，以此重评争议不断的《禁闭》。

关键词： 萨特； 《存在主义是一种人道主义》； 《禁闭》； 他人； 注视

Facing Other People
–An Existentialism Interpretation of Sartre’s Huis Clos

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Abstract: Huis clos has always been regarded as the pessimistic interpretation of L’existentialisme sartrien, because of its depiction of people’s extremely strained relations and the thinking that life is full of sufferings and loneliness. But as Sartre’s L’Existentialisme est un humanisme conveys the affirmation of human action and the expectation of harmonious coexistence among human beings, Huis clos just shows another life from the opposite side. For Sartre, Existentialism is a seriously optimistic philosophy of action rather than the blindly optimistic humanitarianism of the past. And his play presents only a certain extreme possibility of life. Therefore, this paper tries to revisit to L’existentialisme sartrien, to sort out Sartre’s propositions of humanism, and reappraise the controversial Huis clos.

Key words: Jean-Paul Sartre; L’Existentialisme est un humanisme; Huis clos; other people; gaze

多元互动环境下不同英语水平学习者写作反馈投入的个案研究

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摘　要：研究基于 Ellis（2010）的学习者三维投入框架，通过写作文本、回溯性访谈和半结构访谈考察了 9 名英语水平不同的二语学习者在多元反馈中的学习者投入情况。研究发现：(1) 学习者对多元反馈的情绪大多为积极情绪，学习者倾向于吸收教师反馈、意义层面的反馈，且学生自我调节学习能力相对较差。（2）二语水平对学习者投入存在一定影响，其中语言水平对低水平学习者反馈投入的影响更为显著。（3）学习者反馈投入三个维度间具有关联性，情感投入影响行为及认知投入，反馈过程中也存在假性行为投入的情况。本研究为多元反馈的实施及二语写作提供一定启示，有益于新时代二语人才的培养。

关键词：二语写作；多元反馈；学习者投入

A Case Study of learner Engagement of English Learners of Different Levels in a Multiple Feedback Environment

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Abstract: Based on Ellis's (2010) three-dimensional learner engagement framework, this study examined the learner engagement in multiple feedback of nine second language learners with different levels of English proficiency through writing texts, retrospective interviews, and semi-structured interviews. It was found that (1) learners' emotions toward multiple feedback were mostly positive, learners tended to absorb teacher feedback, meaning-level feedback, and students were relatively poor at self-regulated learning. (2) Language level has an effect on learner engagement, with language level having a more significant effect on feedback engagement for low-level learners. (3) There is a correlation between the three dimensions of learner feedback engagement, with affective engagement influencing behavioral and cognitive engagement, but there are also cases of pseudo-behavioral engagement. This study provides some insight into the implementation of multiple feedback and second language writing, which is beneficial to the cultivation of second language talents in the new era.

Key words: English writing; multiple feedback; learner engagement

The Influence of Proficiency and Focus Operator “Only” on Chinese EFL Learners’ Online Semantic Interpretation of Short Relative Clause Sentences: A Conceptual Extension of Paterson et. al (1999)

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Abstract: This study investigated the effect of focus operators in the online reading of second language learners of English of varying proficiency. It conceptually replicated studies by Paterson et. al (1999), who found the focus operator facilitated native English Speakers’ recovery procedures from initially syntactical misanalysis rather than initial parsing guidance when they made online semantic interpretation of reduced relative clause sentences beginning with and without *only*. Eye movement evidence from 37 second language learners of English recruited from a university were elicited via a full-spontaneous reading task: comprehend reduced and unreduced relative clause sentences that start with and without the focus operator *only*. Using eye-tracking, we demonstrate that there were longer first-pass reading times in the critical region of reduced sentences than in the same region of unreduced sentences, regardless of the inclusion of *only*. However, there was no significant difference in the total duration of fixations and regression path duration of reduced relative clause sentences with *only* and relative clause sentences without *only*. Hence the referential properties attributed to *only* guided the L2 English learners make the initial processing of the garden path effect, and exerted no influence on the facilitation of sentence reevaluating. Besides, the proficiency of L2 English learners demonstrated no influence of the interrelatedness between the focus operator *only* and disambiguating parsing. These results are in congruence with the referential theory.

Keywords: focus operator, eye movement, online processing, L2 English learners, referential theory

女性译者翻译特质研究
——《呼啸山庄》两个汉译本对比研究

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摘　要：文章主要基于语料库翻译学，自建语料库，对方平和杨苡的两个《呼啸山庄》汉译本进行对比研究。对语料库中的词汇层面、句法层面，以及副文本进行统计分析。其中，词汇层面包括形符数和标准类符/形符比、词汇密度、形合度、词表分析；句法层面包括句段数、句子数、平均句段长、平均句长、问句、感叹句；副文本包括译本序、小说年表情节纪要、译后记、木刻插画、脚注等。基于以上进行定量与定性分析，总结出方译本和杨译本的翻译共性，以及翻译策略、语言特点、男女译者风格的不同之处，对比得出杨译本的女性翻译特点。

关键词：语料库翻译学；副文本；《呼啸山庄》译本；性别视角；方平；杨苡

A Study on the Translation Characteristics of Female Translator — A Comparative Study of two Chinese translations of Wuthering Heights

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Abstract： Based on corpus translation studies and self-built corpus, this paper conducts a comparative study on two Chinese translations of Wuthering Heights by Fang Ping and Yang Yi. Statistical analysis is made on the lexical level, syntactic level and paratext in the corpus. Among them, the lexical level includes the number of token numbers, standard type/token ratio, lexical density, hypotaxis, and word frequency analysis. The syntactic level includes the number of segments, the number of sentences, the average segment length, the average sentence length, interrogative sentences, exclamatory sentences; paratexts include preamble, chronology and plot minutes, postscript, woodcut illustrations, footnotes, etc. Based on the above quantitative and qualitative analysis, this paper summarizes the translation commonalities of Fang's translation and Yang's translation, as well as the differences in translation strategies, language features and styles between male and female translators, and concludes the translation characteristics of women in Yang's translation by comparison.

Key words: Corpus translation studies, paratext, Wuthering Heights translation, gender perspective, Fang Ping, Yang Yi

灾难事件中多元主体议程网络的互动关系研究——以 3·21 东航坠机事故为例

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摘　要：伴随着媒介环境的变革与网络意见领袖的崛起，政府和媒体的议程设置能力受到冲击。本研究选取 3·21 东航坠机事故作为研究案例，基于微博平台，使用属性议程设置和网络议程设置理论对政务微博、媒体、网络意见领袖和公众的议程互动关系进行剖析，并运用格兰杰因果分析进行方向性检验。研究发现媒体与政务微博、公众与网络意见领袖的议程网络分别两两相关，媒体能够设置政务微博的议程，公众与网络意见领袖互相设置议程；但是两个组合之间存在断裂，前者重视灾难事件中的救援工作和信息规范，后者关注个体视角的创伤记忆书写；本研究不仅丰富了网络议程设置理论在中国灾难事件语境中的研究，也为灾难事件中构建多元角色的良好互动关系提供了参考价值。

关键词：灾难报道；属性议程设置；网络议程设置；政务微博；格兰杰因果分析

The Interaction of Agenda Network from Multiple Subjects in Disaster Events——A Case Study of the 3·21 China Eastern Airplane Crash

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Abstract: With the transformation of the media environment and the rise of online opinion leaders, the agenda-setting ability of the government and the media in disaster events has been impacted. In this study, the 3·21 China Eastern Airplane crash accident was selected as a case. Based on the microblog platform, attributive agenda setting theory and network agenda setting theory were used to analyze the interactive relationship between the agenda of government microblog, media, online opinion leaders and the public, and Granger causality analysis was used to conduct directional test. It was found that the media and the government microblog, the public and the network opinion leaders' agenda network were pairwise related. The media could set the agenda of the government microblog, while the public and online opinion leaders set the agenda each other. However, there was a gap between the two groups. The former focused on rescue work and information norms in disaster events, while the latter focused on traumatic memory writing from an individual perspective. This study not only enriched the research of network agenda setting theory in the context of disaster events in China, but also provided reference value for building a good interactive relationship between multiple actors in disaster events.

Key words: disaster reports; attribute agenda setting; network agenda setting; government microblog; granger causality analysis

“国潮”影像作品促进受众文化认同的发生机制研究

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摘 要：近年来，国潮影像作品风靡，传承和弘扬了中华优秀传统文化，增强了文化认同，但这种作用如何发生尚不明确。本研究选取舞剧片段《孔子》、《只此青绿》、《河南卫视中国节日》作为样本，利用实验法对被试的观看数据进行测量（N=306），具体过程包括量表前测、观看视频、量表后测，以此探究“国潮”影像作品促进受众文化认同的发生机制。同时，实验设置大屏幕与小屏幕进行对比，探究被试在观看“国潮”影像作品时，屏幕的大小是否对文化认知、文化认同、传播意向的变化产生正向显著影响。结果表明，第一，通过结构方程模型分析，在无观看行为时，观众对于自身文化认知水平的评价越高，其对中华文化的认同和传播意向越高，文化认同对传播意向也有类似正向效应；第二，观看媒介的屏幕大小对受众文化认知、文化认同、传播意向的变化不产生显著影响；第三，观看“国潮”影像作品对受众文化认知、文化认同、传播意向的变化均产生正向显著影响。

关键词：传播学；国潮；屏幕；观看；文化认同

Research on the mechanism of China-Chic video works promoting audience's cultural identity

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Abstract: In recent years, China-Chic video works have become popular, inheriting and carrying forward excellent traditional Chinese culture and enhancing cultural identity. However, how this effect takes place is still unclear. In this study, dance drama clips Confucius, Journey on a Painted Landscape and Chinese Festivals, Henan satellite were selected as samples, and the viewing data of the subjects were measured by experimental method (N=306). The specific process included scale pre-test, video watching and scale post-test, so as to explore the mechanism of China-Chic video works promoting the audience's cultural identity. At the same time, the experiment sets up a large screen and a small screen for comparison, to explore whether the size of the screen has a positive and significant impact on the change of cultural cognition, cultural identity and communication intention when the subjects watch the China-Chic video works. The results show that, first, through the structural equation model analysis, when there is no viewing behavior, the higher the audience's evaluation of their own cultural cognition level, the higher the audience's identification of Chinese culture and communication intention, cultural identity also has similar positive effects on communication intention. Second, the screen size of the viewing media has no significant impact on the change of the audience's cultural cognition, cultural identity and communication

intention. Third, watching China-Chic video works has a positive and significant impact on the change of audience's cultural cognition, cultural identity and communication intention.
Key words: Communication, China-Chic, Screen,Viewing, Cultural identity

基于语料库和统计学的抑郁症患者语言特征研究

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摘　要：由于社会环境的变化和城市生活压力的增加，患上不同程度的抑郁症的人已经变得越来越多，抑郁症已经成为一种常见的心理障碍和心理疾病。此项研究选择中国的抑郁症患者这一群体作为研究对象，收集中国抑郁症患者在微博这一社交平台上的发文作为语料，将这些语料批量处理为数据型的数据后对数据进行统计和分析。研究结果表明，母语为中文的抑郁症患者在社交网络上发布的语言中极情绪词、积极情绪词、第一人称代词、第二人称代词、第三人称代词、咒骂、否定词的使用较为频繁，其中最为频繁的是第一人称代词，而最不经常使用的则是冠词。此项研究意在补充对抑郁症患者的语言学研究，增加学术界对抑郁症患者的关注。
关键词：语言学；语料库；语言特征；抑郁症

Study on the Linguistic Features of Depression Patients Based on Corpus and Statistics

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Abstract: Due to the changing social environment and the increasing pressure of urban life, the number of people suffering from different degrees of depression has grown in numbers. Depression has become a common psychological disorder and mental illness. This study selected Chinese depression patients as the target group, collected Chinese depression patients' posts on the social media platform Weibo as the corpus, processed the corpus into statistic data and then conducted statistical and analysis on the data. The results of the study showed that the language posted by Chinese native speakers with depression on social networks contained more frequent use of negative emotion words, positive emotion words, first-person pronouns, second-person pronouns, third-person pronouns, curses, and negation words, with the most frequent being first-person pronouns and the least frequent being crown words. This study is intended to complement linguistic research on people suffering from depression and to increase academic attention to those people.
Key words: linguistics; corpus; linguistic features; depression

在路上治愈
——流动性视角下《太阳照常升起》中杰克的创伤研究

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摘　要：作为“迷惘的一代”的一员，20世纪美国现代主义作家海明威与《太阳照常升起》中的人物杰克均侨居巴黎，游走于异域空间美国、西班牙等地为治愈战争所致的创伤。本文旨在从流动性视角出发探寻因战争而身体、精神遭受创伤的杰克在不同空间及空间流动过程中创伤是如何刺痛自我，如何进一步撕裂，又是如何走向初步修复的三种不同的创伤体验，以进一步探究流动对创伤治愈的积极意义。
关键词：流动；创伤；转变

Healing on the road:
A Study of Jack’s Trauma in The Sun Also Rises from the Perspective of Mobility

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Abstract: As a member of the “Lost Generation” and an American modernist writer in the 20th century, Hemingway and Jack, the character in The Sun Also Rises, live in Paris, wandering in foreign countries such as United States and Spain to heal the trauma caused by the war. From the perspective of mobility, this essay aims to explore three different traumatic experiences during Jack’s mobility, which are how trauma hurts Jack, how it further tears and how it has been initial worked-through. Thus, the positive significance of mobility for healing the trauma will be explored.
Key Words: Mobility, Trauma, Change

激进构式语法下的“被 XX”构式的生成机制分析

许笑然
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摘　要：“被 XX”构式是由原型被动构式衍生而来的非原型范畴构式，在激进构式语法的角度下分析该结构，其生成体现了句法、语义和概念结构之间的关系。“被”字传达了人们想表达不满和否认态度的语用需求，这种经验共性衍生出[遭受逼迫]义和[否认]义，原来的句法结构与形式也均发生了变化。“被 XX”构式下，XX 为形容词或名词的构式生成比 XX 为不及物动词的生成过程多一步构式压制。本文分析遵循激进构式语法的相关理论，为激进构式语法的发展提供了汉语语料的支撑。

关键词：“被 XX”构式；激进构式语法；生成机制

The Analysis of the Generation Mechanism of “Bei XX” Construction Based on Radical Construction Grammar

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Abstract: “Bei XX” Construction is a non-prototypical construction derived from prototypical passive constructions. The generation of it represents the relations between syntactic structure, semantic structure and conceptual structure. “Bei” expresses people’s pragmatic demands of expressing dissatisfaction and denial. From this common experience [Being Forced] and [Denial] were derived and the original syntactic structure and form have also changed. Under the construction of "Bei XX", the construction generation of an adjective or noun is one step more than that of an intransitive verb. The analysis follows the guidance of radical construction grammar and provides support for the development of the Chinese corpus.

Key words: "Bei XX" construction; Radical construction grammar; Generation mechanis

中国古代科技典籍英译文本对比研究——基于《天工开物》甘嗜篇

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摘　要：中国古代科技典籍是中国先贤的智慧结晶，是对世界做出科技贡献的见证。以《天工开物》为代表的的科技典籍的英译研究有利于优化典籍译本，更好地让外国读者了解中国科技贡献。本文介绍了《天工开物》主要的中文版本和英文全译本，以《天工开物》甘嗜篇为原文，选取王译、任译两种对应的英译本进行对比，从译者文化身份、翻译策略原则以及专有术语翻译技巧三个方面，探究两个译本的异同与特点，以及这些差异和特点背后的原因与局限性，为今后修订及翻译其他中国古代科技典籍提供一些思考，让中国古代科技典籍与中国古代科技在海外更广为人知。

关键词：典籍翻译；《天工开物》；翻译对比；文化

A Comparative Study of the English Translation of Ancient Chinese Scientific and Technological Books ——Based on the chapter Sugar Making of Tian Gong Kai Wu

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Abstract: Ancient Chinese scientific and technological classics are the wisdom of Chinese sages and the testimony of scientific and technological contributions to the world. The research on the English translation of scientific and technological classics represented by Tian Gong Kai Wu is conducive to optimizing the translation of the classics and better letting foreign readers understand China's scientific and technological contributions. This paper introduces the main Chinese versions and the full English versions of Tian Gong Kai Wu. Taking the chapter Sugar Making of Tian Gong Kai Wu as the original text, the two corresponding English versions of Wang and Ren are selected for comparison: the similarities and differences between the two versions, as well as the reasons and limitations behind these differences and characteristics, are explored from the three aspects of the translator's cultural identity, translation strategy principles, and proprietary terminology translation skills. Based on those findings, this paper tries to provide some thoughts for the future revision and translation of other ancient Chinese scientific and technological classics and make the classics and ancient Chinese science and technology more widely known overseas.

Key words: Classics translation; Tian Gong Kai Wu; Translation comparison; Culture

功能对等理论下《梦华录》影视剧中文化负载词的翻译探究

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摘　要：中国优秀影视作品近年来备受关注，国产影视剧的传播成为海外观众了解中国文化的有效途径。本文以《梦华录》海外版英文字幕为例，根据奈达文化分类法，将字幕中的文化负载词分为生态文化负载词、社会文化负载词和语言文化负载词，并从功能对等理论的角度探讨译者所用的翻译方法及其对译文产生的影响。研究发现灵活使用直译、意译、增译、减译、释议、借译等方法可以促进功能对等的实现，但同时也存在因文化负载词空缺而难以实现功能对等的情况。本研究为丰富字幕翻译方法提供一定借鉴作用，有利于进一步推动中华文化走出去。

关键词：功能对等理论；文化负载词；字幕翻译

Exploring the Translation of Culture Loaded Words in the TV Drama "A Dream of Splendor" under the Theory of Functional Equivalence

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Abstract: China's excellent Chinese film and television works have attracted much attention in recent years, which has become an effective way for overseas audiences to understand Chinese culture. This paper takes the English subtitles of the overseas version of "A dream of splendor" as an example and classifies the culture-loaded words in the subtitles into ecological-culture loaded words, social-culture loaded words and linguistic-culture loaded words according to the Nida cultural classification, and explores the translation methods used by the translators and their influence on the translated text from the perspective of Functional Equivalence Theory. It is found that the flexible use of literal translation, free translation, amplification, omission, interpretation and borrowing can facilitate the realization of functional equivalence, but there are also cases where functional equivalence is difficult to be achieved due to the vacancy of culture loaded words. This study provides some reference for the enrichment of subtitle translation methods, which is conducive to further promoting Chinese culture abroad.

Key words: Functional Equivalence, culture-loaded words; subtitle translation

自动驾驶技术公众风险感知的城市规模效应及百度指数预测模型

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摘　要：由于国内目前自动驾驶发展不均衡，公众对于自动驾驶技术的认可度尚未明确。想要探究自动驾驶技术在城市间的关注度差异，本研究基于百度指数公众对自动驾驶的检索，将关键词归纳为与感知风险、信任态度和感知价值相关的三类，分别为“自动驾驶事故”“自动驾驶安全性”以及“自动驾驶性价比”，按照发展水平和地理位置将城市类别划分为四个维度，采用3（关键词类别）*2（城市类别）两因素混合设计，并通过描述性统计、方差分析、相关分析以及回归分析得出结果。研究表明：城市规模、城市沿海地理位置与城市行政级别对公众自动驾驶关注度起正向作用，但南北方城市公众对自动驾驶关注度没有明显差异。城市的经济发展水平、消费水平、科技发展水平、互联网发展水平以及交通运输发展水平越高，公众对自动驾驶技术感知价值越高、感知风险越高、信任越强。城市综合发展指标预测自动驾驶技术将会在北京、上海、广州、深圳、杭州、南京、成都、武汉、长沙、西安“开花结果”。本文补充了自动驾驶技术公众关注度研究，一定程度上突破了大多数技术接受研究样本容量受限的问题，从宏观角度关注到自动驾驶技术搜索行为的地区差异。

关键词：自动驾驶；百度指数；公众关注；感知价值；感知风向；信任

City Scale Effect and the Baidu Index Prediction Model of Public Perceptions of the Risks Associated with Autonomous Driving Technology

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Abstract: The uneven development of autonomous driving in China has resulted in a lack of clarity regarding public perceptions of this emerging technology. The aim of the present study was to compare the awareness of autonomous driving technology in various Chinese cities based on keyword searches of three categories related to perceived risk, trust, and perceived value in the Baidu index. The search terms were “autonomous driving accident,” “autonomous driving safety questioned,” and “autonomous driving cost performance,” representing the categories of perceived risk, trust, and perceived value, respectively. These categories were then classified into four dimensions according to the level of development and geographical location of the cities in which the searches were conducted. Specifically, the three keyword categories * 2 two factors in a mixed design. SPSS Statistics 22.0 served to analyze the descriptive statistics, and ANOVA, correlation analysis, and regression analysis served to interpret the results. The results of the study show that there seems to be a trend in public attention to autonomous driving in China in that the level of a city’s economic development

and consumption, the size of its science and technology sector, and the extent of its internet penetration and transportation infrastructure were positively associated with the level of public concern as well as public perceptions of the value, risk, and trust associated with autonomous driving technology. This study complements previous research on public concern about autonomous driving technology by making use of a larger sample than most technology acceptance studies.

Key words: inlet-engine compatibility; total pressure distortion; strake vortex

情感类自媒体内容生产的女利主义倾向研究——以“画饼文学”为例

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摘要：随着移动互联网的发展，自媒体打破了传统的传播格局并不断发展，产生了各个细分领域，创造了多元的内容生态，情感类自媒体就是其中之一。情感类自媒体立足于大众的情感需求，受众范围广且容易建立共情，在自媒体范畴中拥有较大体量，曾产生过咪蒙和 ayawawa 这两个现象级自媒体，红极一时又遭遇封禁。本文通过对小红书ａｐｐ内“画饼文学”这一流行话题的个案研究与内容分析，研究在新的社交媒体平台中，情感类自媒体如何进行内容生产与价值建构，发现情感自媒体存在低付出高回报，女利主义等不良的价值倡导。情感类自媒体作为青年人满足青年人情感问题需求的途径，对青年人婚恋价值观建设有指导意义。因此，必须加强情感类自媒体的内容监管，鼓励和引导情感类自媒体从业者提高自身媒介素养。
关键词：情感自媒体；女利主义；画饼文学

A study on feminist tendencies in the production of emotional self-media content ——Take "pie literature" as an example

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Abstract: With the development of mobile Internet, We media has broken the traditional communication pattern and developed continuously, creating various segments and diversified content ecology, and emotional We media is one of them. Emotional self-media is based on the public's emotional needs, with a wide range of audiences and easy to establish empathy, and has a large volume in the category of self-media, which has produced two phenomenal self-media, namely Mimeng and Ayawawa, which have become extremely popular and have been banned. In this paper, through a case study and content analysis of the popular topic of "pancake literature" in the Little Red Book app, we study how emotional We media produce content and value construction in the new social media platform, and find that there are undesirable values advocated by emotional We media such as low pay and high return and feminism. As a way for young people to meet the needs of young people's emotional problems, emotional self-media has guiding significance for the construction of young people's marriage values. Therefore, it is necessary to strengthen the content regulation of emotional self-media and encourage and guide emotional self-media practitioners to improve their media literacy.
Key words: Emotional We media; Feminism; pie literature

“重建个人所有制”视阈下个人富裕与社会富裕的统一——兼谈对共同富裕的启示

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摘　要：共同富裕是个人富裕与社会富裕的有机统一。在历史唯物主义创立与发展过程中，马克思从生产力与生产关系相结合的高度探析了不同所有制形式下个人与社会的财富积累状况，并认为个人所有制的重新建立将会统一实现个人富裕与社会富裕。对“重建个人所有制”理论进行深入剖析，我们可以发现劳动是实现个人富裕与社会富裕的核心。而且在个人所有制被重新建立之后，仍然需要通过劳动来确证人的本质，推动物质生产与精神生产的不断发展。社会主义公有制与重新建立的个人所有制具有同构性，前者是后者在共产主义第一阶段的具体体现。在当前中华民族伟大复兴的历史征程中，全面深刻把握和认识马克思“重建个人所有制”理论，对于加快实现共同富裕有着重大意义。

关键词：重建个人所有制；个人富裕；社会富裕；劳动；共同富裕

The Unity of Individual Richness and Social Richness from the Perspective of "Rebuilding Individual Ownership"——Also on the enlightenment for common prosperity

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Abstract: Common prosperity is the organic unity of personal prosperity and social prosperity. In the process of the establishment and development of historical materialism, Marx analyzed the wealth accumulation of individuals and society under different forms of ownership from the perspective of the combination of productive forces and production relations, and believed that the re-establishment of individual ownership would unify the realization of personal wealth and social wealth. Through in-depth analysis of the theory of "rebuilding individual ownership", we can find that labor is the core of achieving personal and social prosperity. Moreover, after the re-establishment of individual ownership, it is still necessary to confirm the nature of witnesses through labor and promote the continuous development of material production and spiritual production. Socialist public ownership and the re-established individual ownership are isomorphic. The former is the concrete embodiment of the latter in the first stage of communism. In the current historical journey of the great rejuvenation of the Chinese nation, a comprehensive and profound understanding of Marx's theory of "rebuilding individual ownership" is of great significance for accelerating the realization of common

prosperity.

Key words: rebuilding individual ownership; Personal wealth; Social affluence; Labor; common prosperity

短视频场域下主流意识形态认同面临的机遇、挑战及应对策略

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摘　要：短视频作为一种盛行于网络空间的新媒介形式，已成为意识形态交锋角逐的主阵地和最前沿。短视频场域的视听化呈现、个性化推荐、裂变式传播特征提升了主流意识形态的传播温度、投递精度及辐射广度。同时，短视频信息传播的多元化、碎片化、娱乐化特点又冲击了主流意识形态的政治权威性、理论系统性与价值崇高性。鉴于此，应有效把好主方向、唱响主旋律、优化主渠道、筑牢主阵地，切实提升主流意识形态认同效果。

关键词：短视频；主流意识形态认同；机遇；挑战；对策

Opportunities and Challenges of Mainstream Ideological Identity in the Short Video Field and and Their Coping Strategies

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Abstract: As a novel medium form prevalent in network space, short videos have become the main position and cutting edge of ideological competition. The short video field has the characteristics of audio-visual presentation, personalized recommendation and fissional transmission, which improves the broadcasting temperature, recommendation accuracy and radiation breadth of the mainstream ideology. In the meanwhile, the diversification, fragmentation and entertainment properties of short video informational dissemination also challenge the political authority, theoretical systematization and lofty value of the mainstream ideology. In view of this, we should effectively take control of the main direction, play the general melody, optimize the major channel, solidify the central position and faithfully promote the recognition of mainstream ideology.

Key words: short video; mainstream ideological identity; opportunity; challenge; countermeasures

中国式现代化的实践超越与价值理解的中国逻辑

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摘 要：中国式现代化是中华民族的伟大创造，中华民族伟大复兴是中国式现代化价值理解的中国指向。中国式现代化基于已然现实存在，破解了西方的“资本至上陷阱”“福利过度陷阱”“修昔底德陷阱”等现代化陷阱，加速中华民族伟大复兴进程。中国式现代化与中华民族伟大复兴具有深度的共进发展逻辑，主要表现为动力机制归依的交互关系、逻辑理路照应的映射关系、发展机理融通的耦合关系；中国式现代化与中华民族伟大复兴又具有鲜明的价值契合性，高效互动，共同助益中国特色社会主义的伟大事业。
关键词：中国式现代化；中华民族伟大复兴；共进发展；价值

The practice Transcendence of Chinese modernization and the Chinese logic of Value understanding

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Abstract: Chinese modernization is the great creation of the Chinese nation, and the great rejuvenation of the Chinese nation is the Chinese orientation of the understanding of the value of Chinese modernization. Based on the existing reality, China’s modernization has broken the western modernization traps such as the “capital first trap”, the “excessive welfare trap” and the “Thucydides trap” and accelerated the process of the great rejuvenation of the Chinese nation. Chinese-style modernization and the great rejuvenation of the Chinese nation have deep logic of co-development, which is mainly manifested as the interactive relationship of dynamic mechanism dependence, the mapping relationship of logical path response, and the coupling relationship of integrated development mechanism. Chinese-style modernization and the great rejuvenation of the Chinese nation have a distinct value compatibility, efficient interaction, and jointly contribute to the great cause of socialism with Chinese characteristics.
Key words: Chinese-style modernization; The great rejuvenation of the Chinese nation; Common development; Value

中国式现代化价值维度探析

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摘　要：实现现代化是全人类近代以来发展的目标和追求。经过不懈奋斗，中国共产党领导人民创造了“中国式现代化”，呈现出现代化新样态，开辟了实现现代化的崭新路径，为世界其他国家现代化发展历程提供了新范式。中国式现代化最终指向的是人的现代化，而人则以价值观为精神内核。因此，从价值维度对中国式现代化进行考察，能够从更深层次领会中国式现代化背后的人本逻辑和价值属性。宏观视域下，中国式现代化是“中国的”、“社会主义的”，还是“共同的”，构筑了其内在价值属性；中观层次下，中国式现代化蕴含了“富强、民主、文明、和谐、美丽”的社会主义核心价值观，形成了其核心价值准则；微观视角下，中国式现代化更加注重人的发展，自我价值、集体主义等观念成为社会发展主旋律。从价值观角度考察中国式现代化，对于培育担时代重任时代新人，实现中华民族伟大复兴历史使命具有重大意义。

关键词：中国式现代化；人本逻辑；价值属性；社会主义核心价值观

An Analysis of the Value Dimension of Chinese Modernization

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Abstract: Realizing modernization is the goal and pursuit of human development since modern times. Through unremitting efforts, the CPC led the people to create a "Chinese path to modernization", presenting a new state of modernization, opening up a new path to modernization, and providing a new paradigm for the modernization development of other countries in the world. Chinese path to modernization ultimately points to the modernization of human beings, and human beings take values as their spiritual core. Therefore, the study of Chinese path to modernization from the value dimension can help us understand the humanistic logic and value attributes behind Chinese path to modernization from a deeper level. From a macro perspective, is Chinese path to modernization "Chinese", "socialist", or "common", which constructs its intrinsic value attribute; At the middle level, Chinese path to modernization contains the socialist core values of "prosperity, democracy, civilization, harmony and beauty", forming its core value criteria; From the micro perspective, Chinese path to modernization pays more attention to human development, and the concepts of self-worth, collectivism and so on have become the main theme of social development. Examining Chinese path to modernization from the perspective of values is of great significance for cultivating new people who shoulder the responsibility of the times and realizing the historical mission of the great rejuvenation of the Chinese nation.

Key words: Chinese modernization; Humanistic logic; Value attribute; The core values of Chinese socialism

习近平关于文化建设重要论述的叙事逻辑

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摘 要：习近平关于文化建设重要论述是由“内容—要求”“价值—目标”“方法—路径”三个叙事维度构成的逻辑整体，深刻回答了“文化建设是什么，为什么进行文化建设，怎样进行文化建设”等重大问题。从“内容—要求”叙事角度看，习近平关于文化建设重要论述指明了新时代文化建设的使命任务、根本遵循、基本原则和方法依归；从“价值—目标”叙事角度看，习近平关于文化建设重要论述促进了马克思主义文化建设理论在中国的发展,引领了新时代社会主义文化强国的建设航向，为世界文明交流互鉴贡献了中国力量；从“方法—路径”叙事角度看，习近平关于文化建设重要论述聚焦于建设具有强大凝聚力和引领力的社会主义意识形态、广泛践行社会主义核心价值观、提高全社会文明程度、繁荣发展文化事业和文化产业以及增强中华文明传播力影响力。

关键词：习近平；新时代；文化建设；叙事逻辑

The narrative logic of Xi Jinping's important discourse on cultural construction

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Abstract: Xi Jinping's important discourse on cultural construction is a logical whole composed of the three-dimensional narrative of "content-requirement", "value-goal" and "method-path", which profoundly answers the major questions such as "what is cultural construction- -why is cultural construction- -how to carry out cultural construction". From the narrative perspective of "content-requirements", Xi Jinping's important discourse on cultural construction pointed out the mission, tasks, fundamental observance, basic principles and methods of cultural construction in the new era; From the perspective of the "value-goal" narrative, Xi Jinping's important discourse on cultural construction has promoted the development of Marxist cultural construction theory in China, Leading the direction of building a strong socialist cultural country in the new era, China's strength to exchanges and mutual learning among world civilizations; From the perspective of the "method-path" narrative, Xi Jinping's important remarks on cultural construction focus on building a socialist ideology with strong cohesion and leading power, widely practicing core socialist values, improving the level of civilization of the whole society, flourishing and developing cultural undertakings and cultural industries, and enhancing the influence of the transmission power of Chinese civilization.

Key words: Xi Jinping; new era; cultural construction; narrative logic

“躺平主义”的生成机理、具象表征与治理策略

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摘 要：“躺平主义”的出圈是源自于现代社会高度“内卷化”的挤轧、承续了以“丧”“佛系”为代表的青年亚文化基因、应对于我国转型时期的社会阶层固化综合型塑的结果。作为一种青年亚文化的新样态，其追随者倡导生活模式的“简约主义”、价值构境的“悲观主义”、话语表达的“戏虐主义”、心理状态的“矛盾主义”，这在某种程度上折射出部分青年群体消极颓丧的人生态度。为有效遏制“躺平主义”所带来的负面影响，必须要从坚定信念、引领价值、健全制度、疏导心理四个层面入手，合力推动“躺平青年”转变为“奋斗青年”，让青春在奋斗实践中绽放绚丽之花。

关键词：“躺平主义”；生成机理；具象表征；治理策略

The formation mechanism, concrete representation and governance strategy of "lying flat doctrine"

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Abstract: The emergence of "lying down doctrine" is the result of the squeeze of the highly "involution" of modern society, the continuation of the subcultural genes of youth represented by "mourning" and "Buddhism", and the consolidation and comprehensive shaping of the social strata in China's transition period. As a new form of youth subculture, its followers advocate the "minimalism" of life mode, the "pessimism" of value structure, the "sadism" of discourse expression, and the "ambivalence" of psychological state, which, to some extent, reflects the decadent attitude of some youth groups towards life. In order to effectively curb the negative impact of "lying down", we must work together to promote the transformation of "lying down youth" into "struggling youth" from the four aspects of firm belief, leading value, improving system, and guiding psychology, so that youth can bloom in the practice of struggle.

Key words: "lying down doctrine"; Formation mechanism; Concrete representation; Governance strategy

时代趋向：意识形态算法铸牢中华民族共同体意识的全新样态

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摘 要：算法推荐技术推动互联网传播方式的深度变革，在传播过程中，具有意识形态属性的算法可以将社会主流思想融入其中，让算法始终承载着科学正确的理论基因。意识形态算法在铸牢中华民族共同体意识中占有重要地位，实现了信息匹配的高度集成，完成了模型设定、角色推演、数据管控等多方面的时代性布局。为新时代发展提供便利的同时，算法推荐技术也面临着协同过滤、黑箱遮蔽、离心定位等时代挑战。因此，为应对算法时代铸牢中华民族共同体意识的焦虑与难题，应做好资质校验、平权规范、换轨升级等相关工作，在疏解与构建中提升铸牢中华民族共同体意识的传播实效。

关键词：意识形态；算法推荐；中华民族共同体；全新样态

Trend of the times: ideological algorithms forge a new form of the sense of community of the Chinese nation

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Abstract: Algorithm recommendation technology promotes the profound reform of Internet communication mode, in the process of dissemination, algorithms with ideological attributes can integrate mainstream social ideas into it, so that algorithms always carry scientific correct theoretical genes. Ideological algorithms occupy an important position in forging the consciousness of the Chinese national community, realizing a high degree of integration of information matching, and completing the epochal layout in many aspects such as model setting, role deduction, and data control. While facilitating the development of the new era, algorithm recommendation technology is also facing challenges such as collaborative filtering, black-box masking, and centrifugal positioning. Therefore, in order to cope with the anxiety and problems of forging the sense of the Chinese national community in the era of algorithms, we should do a good job in qualification verification, equal rights norms, track change and upgrade, etc., and improve the communication effectiveness of forging the sense of the Chinese national community in the process of easing and construction.

Key words: Ideology; algorithm recommendation; Chinese National Community; A whole new look

网络民粹主义对意识形态安全的挑战及其应对

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摘 要：网络民粹主义作为民粹主义在网络空间演变出的新形态，是近年来国内主要流行的政治思潮之一。网络民粹主义的内在本质是人民与精英的二元对立，外在表现为非理性的道德评判，并呈现出与多种社会思潮合流共生的趋势。网络民粹主义的传播对主流意识形态安全构成了严峻挑战，主要表现为：争夺舆论支持，削弱主流意识形态的认同。制造社会分裂，破坏意识形态的稳定秩序。疏离党群关系，消解意识形态政治合法性。为此，应当从夯实网络意识形态阵地，提高治理网络民粹主义本领，削弱网络民粹主义社会土壤等方面系统施策，筑牢网络意识形态安全防线。

关键词：网络民粹主义；意识形态安全；网络舆论

The Challenge of Network Populism to Ideological Security and Its Countermeasures

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Abstract: As a new form of populism in cyberspace, network populism is one of the main popular political trends in China in recent years. The internal essence of network populism is the binary opposition between the people and the elite, and the external performance is irrational moral judgment, and shows the trend of merging with various social trends of thought. The spread of network populism poses a serious challenge to the security of mainstream ideology, which is mainly manifested in: fighting for public opinion support and weakening the identity of mainstream ideology. It creates social division and destroys the stable order of ideology. Alienate the relationship between the party and the masses and dispel the ideological and political legitimacy. To this end, we should strengthen the ideological position of the network, improve the ability to govern network populism, weaken the social soil of network populism, and other aspects of the system to build up the security line of network ideology.

Key words: Network populism; Ideological security; Network public opinion

浅析党跳出历史周期率的两个答案及其关系

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摘 要：中国共产党自成立以来始终以实现共产主义远大理想为目标，着眼于探寻跳出治乱兴衰历史周期率的难题；1945 毛泽东同志在延安提出发展人民民主这条新路，找到了依靠人民群众的力量跳出历史周期率的“第一个答案”；十八大以来，以习近平总书记为核心的党中央明确而富有创造性地提出了自我革命这一重大命题，找到了从党组织内部出发跳出历史周期率的“第二个答案”；从“第一个答案”到“第二个答案”不是一蹴而就的，彰显了我们党作为马克思主义执政党对于跳出“其兴也勃焉，其亡也忽焉”历史周期率难题的探寻之路从未停歇；自我革命与人民监督两者之间是辩证统一的，两者协同发展是我们党应对各种风险挑战、取得伟大胜利的核心密码。

关键词：中国共产党；历史周期率；人民监督；自我革命

An Analysis of the Two Answers of the Communist Party of China to Jump out of the Historical Cycle Rate and Their Relationship

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Abstract: Since its establishment, the Communist Party of China has always been aiming to realize the lofty ideal of communism, focusing on the problem of jumping out of the historical cycle of chaos control; In 1945, Comrade Mao Zedong put forward the new road of developing people's democracy in Yan'an, and found the "first answer" to jump out of the historical cycle rate by relying on the strength of the people; The transition from "the first answer" to "the second answer" is not achieved overnight, which shows that our party, as the ruling party of Marxism, has never stopped exploring the way out of the historical cycle rate problem of "its prosperity is also flourishing, its death is also sudden"; There is a dialectical unity between self-revolution and people's supervision. The coordinated development of the two is the core code for our Party to cope with various risks and challenges and achieve great success.

Key words: the Communist Party of China；Historical cycle rate；People's supervision；Self-revolution

思想·价值·实践：中国式现代化视域下人才培养的三重维度

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摘　要： 中国式现代化是人才引领驱动的现代化，是人才高质量发展的现代化。面向中国式现代化的人才培养，是以人才是第一资源为着眼点，以培养造就大批德才兼备的高素质人才为目标，以全面提高人才自主培养力量、聚天下英才而用之为主要方略，以为党育人、为国育才为根本原则。高素质人才可以为中国式现代化提供基础性、战略性支撑，为赢得国际竞争主动提供比较优势，为引领发展提供强大动力。中国式现代化进程中加强人才培养，必须坚持党管人才原则，坚持为党育人、为国育才；加快建设世界重要人才中心和创新高地，完善人才战略布局；深化人才发展体制机制改革，爱才育才引才用才。

关键词： 中国式现代化；人才；人才强国战略

Thought, Value and Practice: The Triple Dimension of Talent Training from the Perspective of Chinese-style Modernization

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Abstract： Chinese-style modernization is a modernization driven by talents and the modernization of high-quality development of talents. Talent training oriented to Chinese-style modernization is based on talent as the primary resource, with the goal of cultivating a large number of high-quality talents with both ability and political integrity, comprehensively improving the independent cultivation of talents and gathering talents from all over the world as the main method, and taking the education of people for the party and the country as the fundamental principle. High-quality talents can provide basic and strategic support for Chinese-style modernization, provide comparative advantages for winning international competition, and provide strong impetus for leading development. To strengthen talent training in the process of Chinese-style modernization, we must adhere to the principle of party management of talents, and persist in educating people for the party and the country; Accelerate the construction of the world's important talent center and innovation highland, and improve the strategic layout of talents; Deepen the reform of the talent development system and mechanism, love and cultivate talents, attract talents, and use talents.

Key words： Chinese-style modernization；Talent；Strategy of strengthening the country with talents

习近平总书记对党跳出历史周期率的创新性贡献

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摘 要：如何跳出历史周期率是我们党百年探索的重要课题。习近平总书记在治国理政过程中对党如何跳出历史周期率问题进行了深入思考和探索，其探索成果主要体现在以下几个方面：一是通过深化对毛泽东当年提出的“第一个答案”的认识，提出全过程人民民主的重大理念；二是明确提出了党跳出治乱兴衰历史周期率的“第二个答案”即自我革命；三是深刻而系统地阐明“第二个答案”的丰富内涵；四是深刻阐释了“第一个答案”与“第二个答案”之间的辩证关系；五是阐明了党的自我革命与社会革命之间的辩证关系；六是通过深化对“第二个答案”的认识，形成了系统化的“自我革命战略”思想。
关键词：习近平 自我革命 历史周期率 创新性贡献

Xi Jinping's innovative contribution to the party's jump out of the historical cycle

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Abstract： How to jump out of the historical cycle rate is an important topic in our party's century-long exploration. In the process of governing the country, Xi Jinping has deeply thought and explored the issue of how the party can jump out of the historical cycle, and the results of his exploration are mainly reflected in the following aspects: first, by deepening the understanding of the "first answer" put forward by Mao Zedong in those years, he put forward the major concept of people's democracy in the whole process; Second, it clearly puts forward the "second answer" of the party's jump out of the historical cycle of chaos and rise and fall, that is, self-revolution; The third is to profoundly and systematically clarify the rich connotation of the "second answer"; Fourth, it profoundly explains the dialectical relationship between "first answer" and "second answer"; Fifth, it clarifies the dialectical relationship between the party's self-revolution and social revolution; Sixth, through deepening the understanding of the "second answer", a systematic "self-revolution strategy" thinking has been formed.
Key words： Xi Jinping; Self-revolution; Historical cycle rate; Innovative contribution

中国式现代化合规律性与合目的性的统一逻辑

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摘 要：中国式现代化是人口规模巨大、全体人民共同富裕、物质文明和精神文明相协调、人与自然和谐共生、走和平发展道路的现代化。中国式现代化的中国特色不仅深刻反映了中国共产党执政规律、社会主义建设规律、人类社会发展规律，同时也系统彰显了中国共产党以人民为中心的发展思想，具体体现了中国共产党实现中华民族伟大复兴的实践进路，最终指向了中国共产党创造人类文明新形态的价值要求，体现了合规律性与合目的性的统一。为走好实现第二个百年奋斗目标的赶考新路，要坚持和加强党的全面领导、坚持中国特色社会主义道路、坚持以人民为中心的发展思想、坚持深化改革开放、坚持发扬斗争精神，在合规律性与合目的性的统一中坚持和发展中国式现代化。

关键词：中国式现代化；合规律性；合目的性；统一逻辑

The Logic of the Unity Between Rule-obeying and Goal-reaching Nature of Chinese Path to Modernization

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Abstract: Chinese modernization is the modernization of a huge population, common prosperity for all, material and cultural-ethical advancement, harmony between humanity and nature, peaceful development. The China characteristics of Chinese modernization not only deeply reflect the Party’s rule of governance, the law of socialist construction and the law of the development of human society, but also systematically demonstrate the CPC’s people-centered development philosophy, concretely embody the CPC’s practical path to realize the great rejuvenation of the Chinese nation, and finally point to the value requirement of the CPC’s creation of a new form of human advancement, which reflects the logic of the unity between rule-obeying and goal-reaching nature. In order to realize the second centenary goal, we must uphold and strengthen the Party’s overall leadership, follow the path of socialism with Chinese characteristics, apply a people-centered development philosophy, remain committed to deepening reform and opening up, carry forward our fighting spirit, and insist on and strengthen Chinese path to modernization in the unity between rule-obeying and goal-reaching nature.

Key words: Chinese path to modernization; rule-obeying nature; goal-reaching nature; unified logic

自我革命视域下依规治党的三重逻辑

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摘 要：依规治党是推进党的自我革命、推进新时代党的建设新的伟大工程的重要保障。自我革命视域下依规治党具有深刻的理论逻辑、历史逻辑与实践逻辑，植根于马克思主义中国化时代化的演进历程,在继承马克思主义经典建党学说的基础上,同中华优秀传统文化中的规矩理念相结合,并立足新时代党的自我革命伟大实践及当下治党实际状况，同中国化时代化的马克思主义相承接；发展于中华民族走向伟大复兴的探索征程，建党百年来，中国共产党始终坚持依规治党，坚定不移地加强与完善党内法规制度体系，不断推进以党内法规为脊梁的党的制度规范建设；落实于新时代推进自我革命的实践进程，坚持科学立规与严格执规紧密结合、监督机制与自我革命高效衔接、依规治党与依法治国有机统一、严格约束与关怀激励协调配合，在守正创新中开辟了新时代管党治党的新境界，为党的自我革命提供了权威高效的体制保障。

关键词：依规治党；自我革命；制度治党；监督机制

The Triple Logic of Ruling the Party by Rules from the Perspective of Self-revolution

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Abstract: Ruling the party according to regulations is an important guarantee for promoting the party's self-revolution and the new great project of building the party in the new era. Ruling the party according to rules in the perspective of self-revolution has profound theoretical logic, historical logic and practical logic, which is rooted in the evolution of the modernization of Marxism in China. On the basis of inheriting the classical Marxist theory of party building, it is combined with the rule concept in the excellent traditional Chinese culture, and it is based on the great practice of self-revolution of the party in the new era and the current actual situation of party governance, and it is connected with the modernization of Marxism in China; Developed in the exploration journey of the Chinese nation towards the great rejuvenation, the CPC has always adhered to the rule of the party, unswervingly strengthened and improved the system of intra party laws and regulations, and constantly promoted the construction of the party's rules and regulations with intra party laws and regulations as the backbone since the founding of the party 100 years ago; Implement the practical process of promoting self-revolution in the new era, adhere to the close combination of scientific regulation and strict enforcement of regulations, the efficient connection of supervision mechanism and self-revolution, the organic unity of ruling the party according to regulations and ruling the country according to law, and the coordination of strict restraint and care and incentive, and open up a new realm of party

governance in the new era in the innovation of integrity, providing authoritative and efficient institutional guarantee for the party's self-revolution.

Key words: governing the party according to regulations; self-revolution; governing the party by system; Supervision mechanism

新征程中国共产党宣传思想工作话语体系建构的实践理路

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摘 要：宣传思想工作是一项战略工程、固本工程、铸魂工程，加强和改进宣传思想工作的关键在于建构强有力的宣传思想工作话语体系。话语体系是否完备有效深刻影响我国主流意识形态的建设、中华文化的传播和国际话语权的提升。新时代新征程建构宣传思想工作话语体系，必须要坚持根本，注重增强话语发展的引领力；破解话语困境，加强话语内容的解释力；转换话语方式，提升话语方式的感召力；完善话语机制，把握话语转化力等，不断巩固壮大主流思想舆论，凝聚起全党全国各族人民团结奋进的强大力量。

关键词：中国共产党；宣传思想工作话语体系；社会主义意识形态

New Journey: The Practical Way to Construct the Discourse System of the Publicity and Ideological Work of the CPC

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Abstract: Propaganda and ideological work is a strategic project, a solid foundation project, and a soul-casting project. The key to strengthening and improving propaganda and ideological work is to build a strong discourse system of propaganda and ideological work. Whether the discourse system is complete and effective has a profound impact on the construction of China's mainstream ideology, the spread of Chinese culture and the promotion of international discourse power. To construct the discourse system of propaganda and ideological work in the new era and new journey, we must adhere to the fundamental principle and pay attention to strengthening the leading force of discourse development; Break the discourse dilemma and strengthen the explanatory power of the discourse content; Change the way of discourse and enhance the appeal of the way of discourse; We should improve the discourse mechanism, grasp the power of discourse transformation, and constantly consolidate and strengthen the mainstream ideology and public opinion, so as to gather the strong strength of the whole party and the people of all ethnic groups to work together.

Key words: CPC; The discourse system of propaganda and ideological work; Socialist ideology

论勇于自我革命与把握历史主动的契合互动

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摘 要：勇于自我革命与把握历史主动是习近平总书记多次提及的重要命题。勇于自我革命与把握历史主动根本遵循上同理、血脉根源上同源、基本要求上同向，在理论逻辑、文化逻辑、实践逻辑上高度契合。在此基础上，两者呈现出双向塑造的互动状态：一方面，勇于自我革命为把握历史主动提供重要保障；另一方面，把握历史主动为党的自我革命提供内在动力。两者的契合互动有利于谱写新时代中国特色社会主义更加绚丽的华章。

关键词：勇于自我革命；把握历史主动；契合互动

On the correspondence and interaction between daring self-revolution and grasping historical initiative

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Abstract: Having the courage to revolutionize oneself and grasping the initiative of history are important propositions mentioned by the General Secretary Xi Jinping many times. Having the courage to revolutionize oneself and grasping the initiative of history fundamentally follow the same principles, have the same origin in blood and have the same basic requirements, and are highly compatible in theoretical logic, cultural logic and practical logic. On this basis, the two showed a two-way shaping of the interactive state: on the one hand, the courage to self-revolution to grasp the historical initiative to provide an important guarantee; On the other hand, grasp the history initiative for the party's self-revolution to provide internal power. The synergy and interaction between the two will help write a more splendid chapter for socialism with Chinese characteristics in the new era.

Key words: Have the courage to revolutionize oneself; Grasp the initiative of history; Fit interaction

全过程人民民主：中国式现代化蕴含的独特民主观及伟大实践

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摘 要：全过程人民民主是中国式现代化蕴含的独特民主观，是中国共产党领导人民在推动中国特色社会主义民主政治建设的伟大实践中探索出的民主新路,是超越西方民主模式的中国式现代化民主新生力。全过程人民民主在历史合力作用下应运而生，以“人民至上”塑成本质意蕴，以发展优势形成内在张力，以切实成就汇聚现实效力，以前景突破激发未来活力。全过程人民民主彰显了中国特色社会主义民主的强大生命力，为社会主义民主形式开创新样态，为人类政治文明的发展指明新方向。

关键词：全过程人民民主；中国式现代化；社会主义民主；人类政治文明

The Whole Process of People's Democracy: The Unique Democratic Concept and Great Practice contained in Chinese modernization

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Abstract: The whole process of people's democracy is a unique view of democracy contained in Chinese modernization, a new road of democracy explored by the Communist Party of China leading the people in the great practice of promoting the construction of socialist democratic politics with Chinese characteristics, and a new force of Chinese modernization of democracy beyond the western mode of democracy. The whole process of people's democracy came into being under the combined force of history, shaping the essence of "people first", forming internal tension with development advantages, gathering realistic effects with tangible achievements, and stimulating future vitality with promising breakthroughs. The whole process of people's democracy demonstrates the strong vitality of socialist democracy with Chinese characteristics, creates a new form of socialist democracy, and points out a new direction for the development of human political civilization.

Key words: the whole process of people's democracy; Chinese modernization; Socialist democracy; Human political civilization

论习近平关于中国式现代化重要论述的创新性贡献

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摘 要：习近平关于中国式现代化重要论述在理论和实践上对社会主义现代化作出了重要的创新性贡献。这一论述深刻揭示了中国式现代化的本质内涵、科学阐明了中国式现代化的鲜明特色、创造性论述了中国式现代化的战略目标、突出强调了中国式现代化的推进方式、系统阐发了中国式现代化的本质要求、自主探索了中国式现代化的实现路径。新时代新征程上梳理这一论述的创新性贡献，对于正确理解和大力推进中国式现代化、推动人类文明进步具有重要的理论和实践价值。
关键词：中国式现代化；习近平新时代中国特色社会主义思想；中华民族伟大复兴

On the innovative contribution of Xi Jin Ping's important discourse on Chinese modernization

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Abstract: Xi Jinping's important discussion on Chinese modernization has made an important innovative contribution to the socialist modernization theory with Chinese characteristics. This discussion profoundly reveals the essential connotation of Chinese modernization, scientifically clarifies the distinctive features of Chinese modernization, creatively discusses the strategic objectives of Chinese modernization, highlights the way of promoting Chinese modernization, systematically elucidates the essential requirements of Chinese modernization, and independently explores the path of realizing Chinese modernization. It is of great theoretical and practical value to sort out the innovative contribution of this argument in the new era and the new journey to correctly understand and vigorously promote the Chinese modernization and the progress of human civilization.
Key words: Chinese modernization; Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era ;The great rejuvenation of the Chinese nation

跨越经济异化的“卡夫丁峡谷”——基于政治经济学维度的论析

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摘 要：经济异化是经济发展资本主义社会所出现的特殊形态，它具体体现为从事经济活动的无产者出现异化、实际支配经济的资本家出现异化以及人与人之间的关系出现异化。面对经济异化的“历史之谜”，古典政治经济学肯定了经济异化的天然合理性，黑格尔肯定了经济异化的暂时合理性，马克思对经济异化持完全否定态度。对马克思主义政治经济学理论进行分析，结合国情进行实践探索之后而形成的中国特色社会主义市场经济，在历时态上区别于社会主义计划经济，在共时态上区别于当代的资本主义，是跨越经济异化的“卡夫丁峡谷”的当代体现。

关键词：经济异化；卡夫丁峡谷；政治经济学；中国特色社会主义市场经济

Across the "Kafuding Canyon" of economic Alienation——an analysis based on the dimension of political economy

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Abstract: Economic alienation is a special form of economic development in capitalist society. It is embodied in the alienation of proletarians engaged in economic activities, capitalists actually controlling the economy and the relationship between people. Facing the "historical mystery" of economic alienation, classical political economics affirmed the natural rationality of economic alienation, Hegel affirmed the temporary rationality of economic alienation, and Marx held a completely negative attitude towards economic alienation. The socialist market economy with Chinese characteristics formed after the analysis of Marxist political economy theory and practical exploration in combination with national conditions is different from socialist planned economy in calendar tense and contemporary capitalism in synchrony. It is the contemporary embodiment of "Kafuding Canyon" across economic alienation.

Keyword: economic alienation; Kafuding canyon; Political economics; Socialist market economy with Chinese characteristics

新时代推进依规治党的动力系统探析

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摘 要：坚持依规治党是一种善于以党内法规制度约束和规范自我，并不懈追求自我完善的优秀品格，也是中国共产党锻造坚强有力的马克思主义执政党的重要密码和关键。中国共产党推进依规治党有着完整的动力系统：马克思主义政党的革命性是其“内在源动力”，科学理论的指导是其“思想引领力”，马克思主义政党的人民性是其“价值引导力”，保持中国共产党肌体健康是其“现实督促力”。依规治党永远在路上，深入探析新时代推进依规治党的动力系统，不仅有助于推进依规治党的动力系统内部协同，还有助于保持依规治党的动力系统内外联动，是充分激活依规治党动力系统的必要前提，是新时代深入推进依规治党的内在要求。

关键词：依规治党；动力系统；新时代；党内法规

An Analysis of the Motive System of Promoting Party Governance by Rules in the New Era

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Abstract: Adhering to the rule of the party is an excellent character that is good at constraining and standardizing oneself with intra party laws and regulations, and unremittingly pursues self-improvement. It is also an important password and key for the CPC to forge a strong and powerful Marxist ruling party. The CPC has a complete power system to promote the rule of the party: the revolutionary nature of the Marxist party is its "internal source power", the guidance of scientific the force", and maintaining the health of the CPC is its "reality supervision force". Ruling the party by rules is always on the way. Deeply exploring the power system of promoting the party by rules in the new era will not only help to promote the internal coordination of the power system of ruling the party by rules, but also help to maintain the internal and external linkage of the power system of ruling the party by rules. It is the necessary prerequisite for fully activating the power system of ruling the party by rules, and is the internal requirement of further promoting the party by rules in the new era.

Key words: Rule the party by rules; dynamic system; New era; Inner-party regulations

网络流行语对大学生奋斗观的影响与对策研究

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摘 要：随着网络技术的不断升级和信息化的深入发展，网络文化日益繁荣。网络流行语作为网络文化的重要组成部分，因其生动形象、诙谐趣味、简洁高效等特点为大学生所青睐，并在一定程度上反映大学生的奋斗观，给大学生的奋斗观带来双重影响。在网络流行语的影响下，要通过完善网络流行语监管机制，营造艰苦奋斗社会环境、做好高校思政教育的引导，加强永久奋斗育人效果、提高大学生自我能动作用，塑造接续奋斗良好品格等对策培育大学生马克思主义积极奋斗观。
关键词：网络流行语；大学生奋斗观；影响；对策

A study on network catchwords influence on struggle concept of college students and measures

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Abstract: With the continuous upgrading of network technology and the in-depth development of information technology, network culture is increasingly prosperous. As an important part of network culture, network catchwords are favored by college students because of their vivid images, humorous taste, simplicity and efficiency. And to a certain extent, they reflect college students' concept of struggle, and bring double influence to college students' concept of struggle. Under the influence of network catchwords, it is necessary to improve the supervision mechanism of network catchwords to create a social environment for hard struggle, do a good job in guiding ideological and political education in colleges and universities to strengthen the effect of permanent struggle, improve the dynamic role of college students to shape good character of continuous struggle to cultivate college students' positive struggle concept.
Key words: Network catchwords; Influence; Measures

中国共产党自我革命引领社会革命的致思理路

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摘 要：以党的自我革命引领社会革命是中国共产党在百年奋斗中取得的一条重要经验。从明晰本源中深挖党自我革命引领社会革命的出场境遇，是对马克思主义科学理论内容的守正创新、对中国共产党百年管党治党经验的继承发展和对新时代推动“四个伟大”的顺势研判；从厘清源流中考量党自我革命引领社会革命的内容架构，主要表现在自我革命为社会革命提供精神底色、政治保证、动力泉源以及人民立场；从接续泉源中探寻党自我革命引领社会革命的实践理路，旨在要强化党的理论武装工作、加强党的执政能力建设、健全党内法规制度体系和培育党的问题导向意识，从而为自我革命引领中华民族伟大复兴的社会革命事业汇聚力量。

关键词：中国共产党；自我革命；社会革命

The Communist Party of China's Self-Revolution Leading the Social Revolution

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Abstract: Leading the social revolution with the Party's self-revolution is an important experience gained by the CPC in its century-long struggle. Digging deep into the emergence of the party's self-revolution leading the social revolution from the clear source is a positive innovation in the content of Marxist scientific theory, the inheritance of the CPC's century-old experience in managing the party and the development of the "four greats" in the new era. The content structure of the Party's self-revolution leading the social revolution is considered from the clarification of the source, which is mainly manifested in the self-revolution providing the spiritual background, political guarantee, source of motivation and people's position for the social revolution; The purpose of exploring the practical path of the Party's self-revolution leading the social revolution from the successive sources aims to strengthen the Party's theoretical arming work, strengthen the Party's ruling capacity building, improve the Party's internal legal and institutional system, and cultivate the Party's problem-oriented awareness, so as to gather strength for the social revolution cause of self-revolution leading the great rejuvenation of the Chinese nation.

Key words: Communist Party of China; self-revolution; social revolution

中国共产党历史主动精神的三重逻辑探析

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摘 要：中国共产党在百年征程中形成了伟大的历史主动精神，这既是我们党坚守初心使命、永葆生机活力的关键，也是奋进新征程、建功新时代的强大精神动力，具有着深厚的理论逻辑、历史逻辑和实践逻辑。从历史逻辑来看，中国共产党历史主动精神贯穿于百年党史中，经过新民主主义革命时期、社会主义革命和建设时期、改革开放和社会主义现代化建设新时期以及中国特色社会主义新时代并不断发展。从理论逻辑来看，马克思主义唯物史观为中国共产党历史主动精神提供了理论基础；中华优秀传统文化和中国人民与生俱来的文化基因为其提供了内在动力；马克思主义基本原理同中国实际相结合的理论创新为其提供了不竭源泉。从实践逻辑来看，中国共产党历史主动精神产生于实践并在实践中发展延续，在新时代要以中国共产党历史主动精神继续坚守马克思主义政党的初心使命,持续推进中国共产党的自我革命以及投身中华民族复兴伟业的宏伟实践。
关键词：中国共产党；历史主动精神；三重逻辑

The Triple Logics of the CPC 's Spirit of Historical Initiative

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Abstract: In the course of CPC’s centenary journey, it has developed a great spirit of historical initiative. This is not only the key to our Party's commitment to its original mission and eternal vitality, but also a strong spiritual driving force for forging ahead on a new journey and making achievements in a new era. It also has profound theoretical, historical and practical logic. From the perspective of historical logic, the historical initiative spirit has been constantly evolving throughout the century-long history of the Party. It experienced the period of the new democratic revolution, the period of socialist revolution and construction, the period of reform and opening up, and the new era of socialism with Chinese characteristics. From the perspective of theoretical logic, the historical initiative spirit has profound theoretical support. Marxist historical materialism provides theoretical basis. The best of Chinese cultural traditions and the innate cultural genes of Chinese people provide the internal motivation. The theoretical innovation of combining the basic principles of Marxism with the reality of China provides an inexhaustible source. From the perspective of practical logic, the historical initiative spirit is born in practice and continues to develop in practice. In the new era, the historical initiative spirit should continue to adhere to the original mission of the Marxist political party.It should continue to promote the self-revolution of the CPC and participate in the great practice of national rejuvenation.
Key words: Communist Party of China, the Spirit of Historical Initiative, the Triple Logics

文化自信视域下的中国国家形象建构

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摘　要：国家形象是软硬实力外在化的标识，基于文化自信建构中国国家形象，既是我国国家战略的重要组成部分，也是新时代新征程的使命任务。为提升国家文化软实力、争夺国际话语权、推动全球治理体系改革，必须通过各种方式和途径建构新时代中国国家形象。文化自信是展现国家形象的前提和基础，理想国家形象的塑造也有利于推进文化自信自强。在文化自信视域下，我们要强化新时代中国国家形象的自塑力，提升新时代中国国家形象的他塑力，并且加强自塑和他塑融合基础上的共塑力，以期向世界展示真实、立体、全面的中国。
关键词：文化自信；国家形象；文化软实力；国际传播

Construction of China’s National Image from the Perspective of Cultural Confidence

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Abstract: National image is the symbol of the externalization of soft and hard power. Constructing China’s national image based on cultural confidence, it is not only an important part of national strategy, but also the task of the new era. In order to enhance the soft power of national culture, compete for the right of international discourse, and promote the reform of global governance system, it is necessary to construct the national image of China in the new era through various ways. Cultural confidence is the premise and foundation to show the national image; the building of the ideal national image is also conducive to promoting cultural confidence. From the perspective of cultural confidence, we should strengthen the self-plastic power, enhance the other-plastic power, and strengthen the co-plastic power of China’s national image in the new era, so as to show the real, dimensional and comprehensive China to the world.
Key words: cultural confidence; national image; cultural soft power; international communication

“三牛”精神的生成逻辑、科学内涵与实践要求

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摘　要：“三牛”精神形成于党百年奋斗的历史进程中，得益于中国精神的丰富滋养，植根于全面建设社会主义现代化国家新征程的现实需求，是中国共产党精神谱系的重要组成部分。发扬“三牛”精神，首先要把握好“三牛”精神的科学内涵与实践要求，理清中国共产党为民服务、创新发展、艰苦奋斗的内在要求，在实践中牢固树立起为民服务、创新发展的价值理念，发扬艰苦奋斗的优良作风，做好为民服务的“孺子牛”、创新发展的“拓荒牛”、艰苦奋斗的“老黄牛”，为中华民族的伟大复兴积蓄力量。
关键词：“三牛”精神；生成逻辑；科学内涵；实践要求

The generative logic, scientific connotation and practical requirements of the "Three Bulls" spirit

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Abstract: The spirit of the "three bulls" was formed in the historical process of the party's centennial struggle, benefited from the rich nourishment of the Chinese spirit, and was rooted in the practical needs of the new journey of building a modern socialist country in an all-round way, and was an important part of the spiritual genealogy of the Communist Party of China. To carry forward the spirit of the "three bulls", we must first grasp the scientific connotation and practical requirements of the spirit of the "three bulls", sort out the inherent requirements of the CPC for serving the people, innovating and developing, and working hard, firmly establish the value concept of serving the people and innovating and developing in practice, carry forward the fine style of arduous struggle, do a good job in serving the people as "young cattle", innovative development "pioneer cattle", and arduous struggle "old scalpers", so as to accumulate strength for the great rejuvenation of the Chinese nation.
Key words："Three Bulls" spirit; generate logic; scientific connotation; Practice requirements

“新文科”视域下高校学生历史教育的实践进路

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摘　要：注重学科交叉融合的新文科建设，融合时代科技背景、解决社会实际问题，致力于培养适应未来社会的复合性人才。高校历史教育作为新文科建设的关键一环，须让学生在理解历史智慧、把握历史规律中体悟人、社会和自然的相处之道，进而提升历史素养、增强历史自信。但面对信息智能化的大背景，高校历史教育仍存在“囫囵吞枣”地学史、“崇洋媚外”地思史、“张冠李戴”地用史等学思用不贯通问题，造成部分学生历史认知不足、历史价值不清和历史意识不深。借鉴新文科建设的理念思路，高校历史教育应坚持“交叉融合、渗透叠加、与时俱进”原则，打造跨学科课堂，在主题情境中完善历史认知；活用信息化媒体，在爱国氛围中明晰历史价值；强化问题导向性，在实践教学中深化历史意识。

关键词：新文科；历史教育；高校学生；历史素养；知史爱国

The Practice approach of History education of college students from the perspective of "new Liberal Arts"

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Abstract: Focus on interdisciplinary integration of new liberal arts construction, integration of the era of science and technology background, to solve social practical problems, is committed to training complex talents to adapt to the future society. History education in colleges and universities, as a key part of the construction of new liberal arts, should enable students to understand the historical wisdom and grasp the laws of history to understand the way in which human, society and nature get along, and further enhance their historical confidence. However, faced with the background of information and intellectualization, there are still some problems in the history education of colleges and universities, such as "swallowing the history of earth science without understanding", "worshiping foreign things", and "confuse one thing with another". As a result, some students lack of historical cognition, unclear historical value and deep historical consciousness. Drawing on the ideas of the construction of new liberal arts, history education in colleges and universities should adhere to the principle of "cross integration, penetration and superposition, advancing with The Times", build interdisciplinary classroom, and perfect historical cognition in the theme situation. Make full use of information media to clarify historical value in patriotic atmosphere; Strengthen problem orientation and deepen historical consciousness in practice teaching.

Key words: New Liberal Arts； history education；University students；Historical literacy；Know history and love the country

新时代共同富裕：形成基础、主要意涵及实践方略

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摘 要：实现共同富裕是千百年来中华儿女的理想，也是中国共产党矢志不渝的追求。新时代共同富裕来源于马克思主义的伟大构想，植根于中国共产党领导人民革命、建设和改革的伟大实践，体现了中国式现代化的必然要求。新时代共同富裕蕴含着“全体”与“全面”的高度统一、“效率”与“公平”的高度统一、“共建”与“共享”的高度统一、“尽力”与“量力”的高度统一等理论内涵。扎实推进新时代共同富裕，要坚持党的全面领导、推动高质量发展、优化收入分配结构、改善文化民生环境，从而为其夯实政治根基、奠定物质基础、提供制度保障、凝聚精神力量。
关键词：新时代；共同富裕；主要意涵；实践方略

Common Prosperity: Forming the Foundation, main implications and practical strategies

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Abstract: Common prosperity is the pursuit of the sons and daughters of the Chinese nation. Common prosperity in the new era comes from the great vision of Marxism and the great practice of the Communist Party of China. It embodies the inevitable requirement of Chinese-style modernization. The theoretical connotation of common prosperity in the new era is a high degree of unity between "whole" and "comprehensive", "efficiency" and "fairness", "joint construction" and "sharing", as well as "trying our best" and "measuring our ability". To achieve common prosperity in the new era, we need to uphold the Party's overall leadership, promote high-quality development, optimize the income distribution structure, and improve the cultural and people's livelihood environment, so as to consolidate the political foundation, lay the material foundation, provide institutional guarantees, and gather spiritual strength for it.
Key words: new era; common prosperity; main implication; practical strategy

新征程上推进青年文化自信自强的思考
——基于文化虚无主义的视角

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摘　要：青年强，则国家强。青年文化自信自强是事关国家发展和民族复兴的大事要事。近年来文化虚无主义依托网络平台载体呈现出复苏、抬头之势，构建出“以洋为美”的文化倾向、“娱乐至上”的文化表征、“消极庸俗”的文化本质、“网络社群”的文化圈层来动摇青年的理想信念、误导青年的价值理念、异化青年的道德观念、削弱青年的集体志念。我们要在坚持破立并举中匡扶主流文化地位、疏导结合中培植青年文化自信、攻守兼备中捍卫文娱文化安全、刚柔并济中维护网络文化环境，打破文化虚无主义者编织、捏造的谎话和谣言。

关键词：青年；文化自信自强；文化虚无主义
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Abstract: When the youth is strong, the country is strong. The self-confidence and self-improvement of youth culture is an important matter concerning national development and national rejuvenation. In recent years, relying on the carrier of the network platform, cultural nihilism has shown a revival and rise, constructing the cultural tendency of "foreign beauty", the cultural representation of "entertainment first", the cultural essence of "negative vulgarities", and the cultural circle of "network community" to shake the ideals and beliefs of young people, mislead the values of young people, alienate the moral concepts of young people, and weaken the collective aspirations of young people. We should uphold the status of mainstream culture while upholding both breaking and standing, cultivate the cultural confidence of young people by combining guidance and guidance, safeguard the safety of cultural entertainment and culture while defending both offense and defense, maintain the network cultural environment while combining hardness and flexibility, and break the lies and rumors fabricated by cultural nihilists.

Key words: youth; Cultural self-confidence and self-improvement; Cultural nihilism

深刻把握新时代伟大斗争的出场背景、科学内涵及实践要求

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摘 要：敢于斗争，是我们党的鲜明品格，没有伟大斗争就没有伟大胜利。党的十八大以来，以习近平同志为核心的党中央“团结带领全党全军全国各族人民撸起袖子加油干、风雨无阻向前行，义无反顾进行具有许多新的历史特点的伟大斗争”，推动我国迈向全面建设社会主义现代化国家新征程。新时代的伟大斗争既是科学方法，又是实际行动，更是精神品质，开展新时代的伟大斗争必须坚持科学理论的方向指导，加强党的全面领导根本原则，立足人民至上的前提旨归，讲究科学斗争的基本途径以及发扬斗争精神的意志品质。深刻把握新时代伟大斗争的出场背景、科学内涵及实践要求，对于全面建设社会主义现代化国家，实现中华民族伟大复兴具有重要意义。
关键词：新时代；伟大斗争；出场背景；科学内涵；实践要求

Deeply grasp the background, scientific connotation and practical requirements of the great struggle in the new era

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Abstract: The courage to fight is the distinctive character of our Party. Without great struggle, there will be no great victory.The great struggle of the new era contains not only scientific methods, but also practical actions and spiritual qualities. To carry out the great struggle in the new era, we must adhere to the direction of scientific theory, strengthen the fundamental principle of the Party's overall leadership, base ourselves on the premise of the supremacy of the people, and pay attention to the basic ways of scientific struggle and the will quality of carrying forward the spirit of struggle. Accurately grasping the scientific connotation of the great struggle in the new era and fully implementing the practical requirements of the great struggle in the new era are of great significance for building a socialist modern country in an all-round way and realizing the Chinese Dream of the great rejuvenation of the Chinese nation.
Keywords: New era; Great struggle; Background; Scientific connotation; Practical requirements

耦合与超越：系统观念视域下中国式现代化鲜明特征阐析

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摘 要：坚持系统观念既是习近平新时代中国特色社会主义思想的世界观和方法论，也是我们认识世界和改造世界的基本要求。中国式现代化作为一个拓新命题，表现出系统观念的鲜明特质，是对坚持系统观念的具体运用。尤其是中国式现代化的鲜明特征与系统观念中蕴含的丰富内涵相耦合：突出系统观念的结构性、彰显系统观念的秩序性、体现系统观念的整体性、凸显系统观念的协调性、反映系统观念的开放性。深刻理解中国式现代化鲜明特征中所内含的系统观念特质以及对西方式现代化的巨大超越，有助于增强以中国式现代化全面推进实现中华民族伟大复兴的实践自觉。
关键词：系统观念 中国共产党 中国式现代化 鲜明特征

Coupling and Transcendence: An Analysis of the Distinctive Characteristics of Chinese Modernization from the Perspective of System Concept

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Abstract: As a new proposition, Chinese-style modernization shows the distinctive characteristics of the system concept and is a concrete application of adhering to the system concept. In particular, the distinctive characteristics of Chinese modernization are coupled with the rich connotation contained in the system concept : highlighting the structure of the system concept, highlighting the order of the system concept, reflecting the integrity of the system concept, highlighting the coordination of the system concept, and reflecting the openness of the system concept. A deep understanding of the systematic conceptual characteristics inherent in the distinctive characteristics of Chinese-style modernization and the great transcendence of Western-style modernization is conducive to enhancing the practical consciousness of comprehensively promoting the realization of the great rejuvenation of the Chinese nation with Chinese-style modernization.
Keywords: System concept ; Chinese Communist Party ; Chinese modernization ; Distinctive characteristics

新时代共同富裕思想的理论探源、主要内容及路径选择

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摘 要：进入新时代，以习近平为核心的党中央对实现共同富裕提出了一系列新思想、新理念、新论断，共同构成了新时代共同富裕思想。这一思想坚持以马克思主义为指导，汲取中华优秀传统文化中共同富裕因素，总结共产党百年奋斗经验，不断回应人民对美好生活的殷切期盼，具有丰富而扎实的内涵。新时代共同富裕思想是在全面建设现代化过程中推进共同富裕的指南针。为此，要坚持以人民为中心，以创新赋能经济高质量发展，在坚持基本经济制度的同时完善收入分配机制，巩固农村脱贫成果，促进公共服务均等化，在党的领导下推动共同富裕取得更大成果。

关键词：新时代；共同富裕；理论探源；主要内容；路径选择

中图分类号： **文献标志码：**A

Abstract: Entering the new era, the CPC Central Committee with Xi Jinping as the core has put forward a series of new ideas, new ideas and new judgments on the realization of common prosperity, which jointly constitute the thought of common prosperity in the new era. This thought adheres to the guidance of Marxism, draws on the factors of common prosperity in the fine traditional Chinese culture, summarizes the experience of the Communist Party in a hundred years of struggle, and constantly responds to the people's ardent expectations for a better life, and has rich and solid connotations. The thought of common prosperity in the new era is a compass to promote common prosperity in the process of comprehensive modernization. To this end, we need to put the people first, enable high-quality economic development through innovation, improve the income distribution mechanism while adhering to the basic economic system, consolidate the achievements of poverty alleviation in rural areas, promote equal access to public services, and promote greater achievements in common prosperity under the leadership of the Party.

Key words: new era; common prosperity; theoretical exploration; main content and path selection

《〈共产党人〉发刊词》中党建思想的逻辑理路及现实启示

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摘 要：抗日战争进入相持阶段之际，毛泽东在《〈共产党人〉发刊词》中紧密结合马克思列宁主义建党原则和中国共产党的建设实际，以建设一个什么样的党的核心目标、为什么建设党的价值意蕴以及怎么样建设党的实践途径为逻辑理路，系统论述了党的建设伟大工程的思想。重温文中关于党的建设伟大思想，对新时代推进全面治党向纵深发展具有重要的方法论启示。

关键词：《〈共产党人〉发刊词》；毛泽东；党的建设；现实启示
中图分类号： **文献标志码：**A

The Logical Way and Realistic Enlightenment of the Party Building Thought in "The Communist"

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Abstract: When the Anti Japanese War entered the stalemate stage, Mao Zedong, in his "The Communist" Publication, closely combined the Marxist Leninist principles of party building and the reality of the CPC's construction, systematically expounded the thought of the great project of party building on the logical path of what kind of party's core goal to build, why the value of building the party, and how to build the party's practical ways. Reviewing the great thought of party building in the article has important methodological implications for promoting comprehensive party governance in the new era.

Key words: inlet-engine compatibility; total pressure distortion; strake vortex

基于全媒体推进主流意识形态传播的实践理路

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摘要：“意识形态工作是为国家立心、为民族立魂的工作。”党的二十大报告不仅再次强调了意识形态工作的重要性，而且提出了明确的工作要求。报告指出：“要加强全媒体传播体系的建设，塑造主流舆论新格局，建设具有强大凝聚力和引领力的社会主义意识形态”。可见，借助全媒体传播体系建设,抓好意识形态工作将是当前及未来相当长一段时期内具有战略性与全局性意义的重要任务。全媒体时代，做好意识形态工作要精准识变，把握意识形态工作的新变量，树立问题意识和底线思维。要坚持以马克思主义为核心导向，以社会主义核心价值观为主线，建构以内容为根本、渠道为载体、技术为支撑的立体化全媒体传播体系。

关键词：全媒体时代 主流意识形态 思想政治教育

The practical way to promote the spread of mainstream ideology based on the whole media

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Abstract: "Ideological work is the work of establishing the heart and soul of the country and the nation." The report of the 20th CPC National Congress not only emphasizes the importance of ideological work again, but also puts forward clear work requirements. The report points out that "we should strengthen the construction of the all-media communication system, shape a new pattern of mainstream public opinion, and build a socialist ideology with strong cohesion and leadership". It can be seen that the ideological work will be an important task of strategic and overall significance at present and for a long time in the future with the help of the construction of the all-media communication system. In the current all-media era, to do ideological work well, we need to accurately identify changes, grasp the new variables of ideological work, and establish problem awareness and bottom line thinking. Adhere to Marxism as the core guidance, take the core socialist values as the main line, and build a three-dimensional communication system with content as the basis, channel as the carrier, and technology as the support.

Key words: All-media era ;Mainstream ideology ;Ideological and political education

绿色发展视域下能源革命的困境与路径——以汽车产业能源转型为例

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摘　要：全球气候变化已成为人类生存发展的严重威胁和人民追求美好生活的绊脚石。新时代提升绿色发展能力需要深入推进能源革命，能源供需矛盾、能源结构转型亟待破题。汽车产业从传统矿石能源主导向绿色能源主导转变的过程是能源革命的一个典型样本，有助于分析我国治理现代化和参与全球治理进程中能源治理问题和能源转型困境，应从技术创新、产业调整、体制机制完善和国际合作等方面探索我国深入推进能源革命的路径，推进产业绿色化转型。

关键词：绿色发展；绿色化转型；汽车产业；能源革命

The dilemma and path of energy revolution from the perspective of green development ——Take the energy transition of the automotive industry as an example

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Abstract: Global climate change has become a serious threat to the survival and development of mankind and a stumbling block to people's pursuit of a better life. To improve the ability of green development in the new era, it is necessary to deeply promote the energy revolution, and the contradiction between energy supply and demand and the transformation of energy structure urgently need to be solved. The process of transformation of the automobile industry from traditional ore energy to green energy is a typical sample of energy revolution, which is helpful to analyze China's governance modernization and participation in the process of global governance energy governance and energy transition dilemma, should explore China's path to further promote energy revolution from the aspects of technological innovation, industrial adjustment, institutional mechanism improvement and international cooperation, and promote industrial green transformation.

Key words: Green Development； Green transformation； Automotive Industry； Energy Revolutio

中华苏维埃共和国时期毛泽东人民权力主体思想及其当代启示研究——纪念毛泽东诞辰 130 周年

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摘 要：毛泽东领导井冈山斗争和中央苏区建设整整七年时间。1931 年 11 月 7 日至 20 日，中华苏维埃第一次全国代表大会在中央苏区首府瑞金召开，宣告中华苏维埃共和国的诞生。这是中国历史上第一个工农民主专政的政权，是中国共产党在局部地区执政的重要尝试。毛泽东坚持围绕苏维埃“组织革命战争、改良群众生活”两大任务，对苏维埃政权建设从理论与实践结合做了重要探索，形成了苏区政权建设思想，“人民主权”观即人民国家权力主体思想是其核心内容。毛泽东深刻论述了苏维埃政权的工农民主专政性质决定了人民的国家权力主体地位，揭示了这一主体地位的基本内涵；突出了普选的直接民主意义和作用，确立了苏维埃代表大会的基本政治制度；保障人民的国家权力监督主体地位；概括“真心实意为群众谋利益”的党的执政理念。毛泽东的人民国家权力主体思想是人民民主专政思想的早期形态，是创立人民代表大会制度的思想源头和经验准备，具有重要的当代价值和启示，特别是对于坚持人民监督和自我革命的统一，深入推进全面从严治党和反腐败斗争具有重要指导意义。

关键词：毛泽东；中华苏维埃；人民国家权力主体；人民监督和自我革命

Research and contemporary implication on Mao Zedong's Thought of People's State Power Subject in Soviet Republic of China --commemorate Mao Zedong 130 anniversary

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Abstract: Mao Zedong led the Jinggangshan struggle and the construction of the Central Soviet Area for seven years. From November 7 to 20, 1931, the First National Congress of the Chinese Soviet Union was held in Ruijin, the capital of the Central Soviet Area, announcing the birth of chinese soviet republic. This is the first regime of democratic dictatorship of workers and peasants in Chinese history, and it is an important attempt by the Communist Party of China（CPC） to be in power in local areas. Mao Zedong adhered to the two major tasks of "organizing revolutionary wars and improving people's lives" in the Soviet Union, and made an important exploration of the Soviet regime construction from the combination of theory and practice, forming the Soviet regime construction thought, with the concept of "people's sovereignty", that is, the people's state power subject thought as its core content. Mao Zedong profoundly discussed that the nature of the democratic dictatorship of workers and peasants of the Soviet regime determined the people's dominant position of state power

and revealed the basic connotation of this dominant position. It highlights the direct democratic significance and role of universal suffrage, and establishes the basic political system of the Soviet Congress; Safeguard the people's status as the subject of state power supervision; Summarize the Party's ruling idea of "sincerely seeking benefits for the masses".To ensure the people's principal position in the supervision of the state power . Mao Zedong's thought of the subject of people's state power is the early form of people's democratic dictatorship and has important contemporary value.In particular,they serve as important guidance for consolidating unity of the people's supervision and self-revolution,deepening comprehensive and strict Party self-governance and fighting corruption.

Key words: Mao Zedong;Chinese Soviet;the People's State Power Subject;the public oversight and the self-revolution

中国式现代化的内在特质

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摘 要：中国式现代化是以实现中华民族伟大复兴为目标的社会革命，是推进中国社会全面发展的重要机制，是科学社会主义与中国具体实际相结合的伟大创举。中国式现代化之所以能够取得显著成就原因在于中国式现代化内在包含传承性特质、人民性特质、实践性特质、世界性特质，将中国式现代化发展根基、价值目标、实践路径、价值旨归全然展现。因此，深入分析中国式现代化内在特质，有助于为理解现代化、西方现代化提供多维视角，为广大发展中国家提供全新方案。
关键词：现代化；中国式现代化；内在特质

The inner character of Chinese modernization

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Abstract: Chinese modernization is a social revolution with the goal of realizing the great rejuvenation of the Chinese nation, an important mechanism to promote the all-round development of Chinese society, and a great initiative that combines scientific socialism with China's specific conditions. The reason why Chinese modernization can achieve remarkable achievements lies in the fact that Chinese modernization contains inheritability, people's character, practice character and world character, which fully demonstrates the development foundation, value goal, practice path and value purview of Chinese modernization. Therefore, in-depth analysis of the inherent characteristics of Chinese modernization will help to provide a multidimensional perspective for understanding modernization and Western modernization, and provide a new solution for developing countries.
Key words: Modernization; Chinese-style modernization; Intrinsic trait

理论·历史·实践：中国共产党文化建设的三重维度

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摘 要：高度重视文化建设是中国共产党一百多年伟大成就的重要历史经验，是立党、兴党、强党的制胜密码。从理论渊源看，中国共产党文化建设蕴含着马克思主义文化理论、中华优秀传统文化、国外政党文化建设经验的丰富理论内核，是文化建设的思想精髓。从中国共产党百余年历史进程看，文化建设根植于“救国”、“立国”、“富国”及“强国”进程中的文化实践，一以贯之推动实现中华民族伟大复兴。从实践经验看，中国共产党百余年来进行文化建设始终坚持马克思主义指导地位、坚持党的领导、坚持以人民为中心、贯彻“解放思想、实事求是”思想路线、坚持立足中国和放眼世界相统一，因势而谋、应势而动、顺势而为地科学回答中国之问、世界之问、人民之问、时代之问。
关键词：中国共产党；文化建设；理论渊源；历史进程；实践经验

Theory, History and Practice: Three Dimensions of the Cultural Construction of the CPC

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Abstract: Attaching great importance to cultural construction is an important historical experience of the great achievements of the CPC for more than one hundred years, and is the key to building, rejuvenating and strengthening the Party. From the perspective of theoretical origin, the cultural construction of the CPC contains the rich theoretical core of Marxist cultural theory, excellent traditional Chinese culture, and foreign party cultural construction experience, which is the ideological essence of cultural construction. From the perspective of the historical process of the CPC for more than 100 years, cultural construction is rooted in cultural practices in the process of "saving the country", "building the country", "enriching the country" and "strengthening the country", and has consistently promoted the great rejuvenation of the Chinese nation. From the perspective of practical experience, the CPC has always adhered to the guiding position of Marxism, the leadership of the Party, the focus on the people, the ideological line of "emancipating the mind and seeking truth from facts", the unity of being based on China and looking at the world, and the scientific answer to China's, the world's, the people's, and the times in its cultural construction for more than 100 years.
Key words: CPC; Cultural construction; Theoretical origin; Historical process; practical experience

京张高铁文化要素在车站空间中的视觉显著性验证

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摘 要：由地域文化转译生成的导视系统在提高车站乘车效率与彰显城市文脉中发挥着关键作用。本文以京张高铁太子城站为例，运用眼动与虚拟现实技术，分析其类型空间中图像、文字、标志导视等不同元素的视觉显著性特征。实验共采集有效数据 92 份，通过眼动指标数据与可视化图表，验证并总结视觉显著性特征。提出车站导视系统布局及空间优化参考意见，为高铁站导视系统设计与布局提供新思路。

关键词：京张铁路；文化生产；文化转译；眼动技术；虚拟现实

Verification of Visual Significance of Cultural Elements of Beijing-Zhangjiakou High-speed Railway in Station Space

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Abstract: The high-speed railway station symbol system, generated from regional culture translations, not only improves transfer efficiency but also reveals the area’s unique urban cultural context. In this study, we used an eye-tracking technique and virtual reality technology to examine the visual cognitive preferences of the existing cultural translation method used by the Beijing– Zhangjiakou high-speed railway. Then, considering the design and layout of the existing station symbol system, we analyzed the visual saliency of different elements such as images, words, and symbols in three types of spaces in the Taizicheng high-speed railway station. A total of 94 students from different majors were selected to participate in the experiment, with 92 datapoints eventually being deemed valid. The results underscore the validity of the Beijing–Zhangjiakou cultural translation and offer a reference for station layout and spatial optimization. Finally, they provide new ideas for the design and layout of station symbol systems.

Keywords: Beijing-Zhangjiakou Railway; Cultural Production; Cultural Translation; Eye-Tracking; VR

网络空间著作权算法实施的挑战及应对

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摘要：算法融入著作权法律实施过程，对著作权法保护、鼓励创作和促进文化发展繁荣的两大目标，既发挥作用也带来挑战。虽然算法应用帮助降低了侵权内容的识别成本，但算法本身并不具备判定法律意义侵权的功能，而平台在避风港规则下选择直接删除、平台对用户行使的管理“权力”未必与著作权法的初衷相吻合。著作权算法实施对著作权既有制度带来挑战，一方面由于算法技术还没有完善到可以代替原有的法律侵权事实认定环节，另一方面在于算法实施打破了避风港规则的调整框架。网络服务提供商从提供纯技术服务转变为利用技术可以实现对用户作品干预和管理的角色转变，以及依赖算法技术形成的“移除”“屏蔽”等平台权力是促使避风港规则失调的原因。为平衡网络服务提供商、著作权人以及网络用户的利益，应当重建著作权人与网络服务提供者的合作机制，合理分配著作权人及网络服务提供者的义务，构建及时有效的反馈沟通机制和多元审查、解决机制，以实现著作权法促进社会文化传播和保护著作权人权利的两大目标。
关键词：算法检测侵权；避风港规则；著作权；注意义务；合作机制；

Abstract : The integration of algorithms into the implementation process of copyright law plays both a role and challenges the two goals of copyright law protection, encouraging creation and promoting cultural development and prosperity. Although the application of algorithms has helped reduce the cost of identifying infringing content, the algorithm itself does not have the function of determining infringement in legal significance, and the platform's choice to directly delete under the safe harbor rule and the management "power" exercised by the platform over users may not be consistent with the original intention of the Copyright Law. The implementation of copyright algorithms poses challenges to the existing copyright system, on the one hand, because the algorithm technology has not yet been perfected to replace the original legal infringement fact determination link, and on the other hand, the implementation of algorithms breaks the adjustment framework of the safe harbor rules. The shift of network service providers from providing purely technical services to using technology to achieve intervention and management of user works, as well as relying on algorithmic technology to "remove" and "block" platform power are the reasons for the imbalance of safe haven rules. In order to balance the interests of network service providers, copyright owners and network users, the cooperation mechanism between copyright owners and network service providers should be reconstructed, the obligations of copyright owners and network service providers should be reasonably distributed, and a timely and effective feedback and communication mechanism and multiple review and resolution mechanisms should be established, so as to achieve the two major goals of the Copyright Law of promoting social and cultural dissemination and protecting the rights of copyright owners.
Keywords: algorithm detection infringement; Safe Harbor Principle; copyright; diligence obligations ; Alternative Dispute Resolution;

让与担保的信托路径研究——基于担保信托制度的思考

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摘　要：让与担保作为一项灵活且有效的融资手段在我国民商事活动中得到了广泛运用。但由于我国目前仍采用严格的物权法定、所有权绝对理念以及禁止流押的规定，让与担保在我国无法寻找到合法化的土壤。有鉴于此，本文转换思路，试图在信托架构中为让与担保寻求合法化的出路。沿着此思路，罗马法中的担保信托被追寻到，其与让与担保具有很大的相似性。但由于我国缺少关于担保信托的理论与实践，为此，本文主要分析了法国与意大利的担保信托经验，选取其中符合我国国情的适当规定，在结合我国理论与实践的基础上，建立与完善我国担保信托制度，为让与担保构建信托出路。
关键词：让与担保；担保信托；信托行为；法国信托法

Analysis of the fiduciary path of cession of guarantees

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Abstract: Assignment of guarantees is widely used as a flexible and effective financing tool in civil and commercial activities in China. However, since China still adopts the strict concept of legal title in rem, absolute ownership and the prohibition of flowing pledge, the cession guarantee cannot find the ground of legalization in China. In view of this, this paper shifts its thinking and attempts to find a way out of the legalization of ceded warranties in the trust structure. Along this line, the security trust in Roman law is traced to its great similarity to a cession of security.However, due to the lack of theory and practice of security trust in China, this paper mainly analyzes the experience of French and Italian security trusts, selects the appropriate provisions that meet our national conditions, establishes and improves the security trust system in China on the basis of combining our theory and practice, and builds a fiduciary way out for the assignment of security.
Key words: Assignment of guarantees; Guaranteed Trusts; Fiduciary behavior; French Trust Law

私人数字货币交易行为法律适用和监管对策探析

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摘　要：区块链热潮下的私人数字货币交易行为并不罕见，给司法实践和金融秩序监管造成不利影响。应当厘清私人数字货币的技术属性和法律属性，正视其财产地位和当事人的财产利益保护，谨慎对待相关法律行为效力判断，纾解新兴领域“同案不同判”困局。同时重视我国“一刀切”式监管对司法实践的影响，借鉴国外经验转变私人数字货币金融监管态度，提高法律位阶，适当采用激励性法律规制，追求个人私益和社会公益的平衡保护，实现民商法和金融法相互促进。
关键词：私人数字货币；交易行为效力；监管

Analysis of legal risks of private digital currency trading and supervision

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Abstract: Private digital currency transactions under the blockchain boom are not uncommon, adversely affecting judicial practice and financial order supervision. The technical and legal attributes of private digital currencies should be clarified, their property status and the protection of the parties' property interests should be squarely faced, and the validity judgment of relevant legal acts should be cautiously treated, so as to alleviate the dilemma of "different sentence for the same case" in emerging fields. In the meantime, it attaches importance to the impact of China's "one-size-fits-all" supervision on judicial practice, draws on foreign experience to change the attitude of private digital currency financial supervision, improves the legal rank, appropriately adopts incentive legal regulation, pursues balanced protection of personal private interests and social welfare, and realizes the mutual promotion of civil and commercial law and financial law.
Key words: private digital currency; the effectiveness of trading actions; Supervision

数字平台中轴辐协议的反垄断规制

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摘　要：随着我国聚焦经济发展的新业态新模式，数字平台发展成为不可忽视的经济增长点，但同时也带来愈演愈烈的数字竞争。数字经济使数字平台中垄断协议呈现出不同于传统经济形式的新特点，其中以轴辐协议为代表的反垄断规制面临诸多难题，比如，数字平台中轴辐协议高隐蔽性特点、法律责任识别原则适用问题以及轴辐类共谋意思的认定问题。面对这些问题，本文从反垄断立法与执法的积极回应、法律责任识别原则的缓和以及轴辐类算法共谋意思的认定路径三个角度做出了回应。

关键词：数字平台；轴辐协议；算法共谋

Anti-monopoly regulation of hub-and-spoke agreement in digital platform

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Abstract: With focusing on new forms and new models of economic development, digital platform development has become an economic growth point that cannot be ignored, but it also brings increasingly fierce digital competition. The digital economy makes the monopoly agreement in the digital platform present new features different from the traditional economic forms. Among them, the anti-monopoly regulation represented by the hub-and-spoke agreement faces many difficulties, such as the high concealment of the hub-and-spoke agreement in the digital platform, the application of the principle of legal liability identification and the identification of the hub-and-spoke collusion. In the face of these problems, this paper makes a response from three perspectives: the positive response of anti-monopoly legislation and law enforcement, the relaxation of the principle of legal liability identification, and the identification path of the collusive intent of the hub-and-spoke algorithms.

Key words: digital platform; hub-and-spoke agreement; algorithm collusion

解释论视角下删除权的规范构造

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摘 要：当今社会，数字技术被广泛应用于各个领域，个人信息的提供为算法决策的科学性与准确性提供了保障。与此同时，数字化生存模式对记忆遗忘规律造成冲击，如何删除个人信息广受人们关注。我国《民法典》第 1037 条和《个人信息保护法》第 47 条对删除权作出相应规定，明确了删除权的适用规则。基于解释论的立场，可以将《个人信息保护法》第 47 条所列情形区分为符合信息处理者需求的“删除”，以及法律规定要求的“删除”，由此充分理解法律规范背后对各方主体的利益衡量并完成逻辑证成。同时，还应关注结果层面上删除权的实现效果，通过对“删除”履行标准的解释落实对信息主体权利的保护。

关键词：删除权；个人信息；利益衡量；个人信息保护法

Normative Structure of the Right to Erasure From the Perspective of Hermeneutics

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Abstract: In contemporary society, digital technology is widely used in various fields, and the availability of personal information provides a guarantee of scientific and accurate algorithmic decision-making. At the same time, the digital survival model has impacted on the law of memory forgetting, and how to delete personal information is widely concerned. Article 1037 of the Civil Code and Article 47 of the Personal Information Protection Law of China provide corresponding provisions on the right to erasure and clarify the rules of application of it. From the perspective of Hermeneutics, the cases listed in Article 47 of the Personal Information Protection Law can be distinguished into "erasure" that meets the needs of the information processor and "erasure" that is required by the law, so as to fully understand the measurement of the interests of each party behind the legal norms and complete the logical proof. Meanwhile, we should also pay attention to the effect of the realization of the right to erasure at the result level, and implement the protection of the rights of information subjects through the interpretation of the performance standard of "erasure".

Key words: the right to erasure; personal information; interest measurement theory; Personal Information Protection Law

美国信用报告制度中个人信息保护问题研究——并及对中国的启示

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摘　要：为了更好地保护个人信息权益，美国在信用报告制度中详细作出了关于信息收集、信息使用和法律责任的规定，包括对信用报告目的的限制、信息提供者的义务、对信用报告内容的限制、对信用报告信息准确性争议的处理等信息收集方面的规定，以及信用报告机构或信息使用者的披露义务、身份盗用的防止措施、特殊信用报告使用者的义务等信息使用方面的规定，加之监管主体及其各自职责、程序合规的责任、违反信息保护规定的责任等个人信息保护义务人相关责任的规定。目前我国的信用报告制度在信息收集、信息使用和外部监管方面仍然存在不足之处，存在信息主体知情权及同意权保障制度不完善、征信机构负面信息保留时限不合理、信息准确性的保障措施缺乏可操作性、信息披露制度不完善、未设立身份盗用防范规则以及监管体系不合理等问题。对此，建议适当借鉴美国立法，在我国立法中设立信息处理的默示同意规则、类型化规定负面信息保留时限、增加信息准确性的保障措施、细化信息披露相关规定、设立身份盗用防范规则并完善我国信息保护义务人的监督体系，以衡平保护个人信息权益和征信行业的良性发展。

关键词：美国；信用报告制度；征信；个人信息保护；消费者

A Study on the Protection of Personal Information in the U.S. Credit Reporting System --And Implications for China

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Abstract: In order to better protect the rights and interests of personal information, the U.S. has made detailed provisions on information collection, information use and legal liability in the credit reporting system, including provisions on information collection such as restrictions on the purpose of credit reports, obligations of information providers, restrictions on the content of credit reports, and handling of disputes over the accuracy of credit report information, as well as provisions on disclosure obligations of credit reporting agencies or information users, identity provisions on the use of information such as measures to prevent identity theft and obligations of special credit report users, plus provisions on the responsibilities of supervisory bodies and their respective duties, responsibilities for procedural compliance, responsibilities for violation of information protection regulations, and other responsibilities related to personal information protection obligors. At present, China's credit reporting system still has shortcomings in information collection, information use and

external supervision, and there are problems such as imperfect system of guaranteeing information subjects' right to know and consent, unreasonable time limit for credit agencies to retain negative information, lack of operability of information accuracy guarantee measures, imperfect information disclosure system, failure to establish rules to prevent identity theft and unreasonable supervision system. In this regard, it is recommended to draw appropriate reference from the U.S. legislation, establish the rules of implied consent for information processing in China's legislation, type the time limit for retaining negative information, increase the safeguards for information accuracy, refine the provisions related to information disclosure, establish the rules for preventing identity theft and improve the supervision system for information protection duty-bearers in China, so as to protect the rights and interests of personal information and the benign development of credit industry in a balanced manner.

Key words: United States; credit reporting system; credit collection; personal information protection; consumers

网络直播合同违约金条款研究

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摘　要：随着网络直播逐渐衍化为当今社会的基础媒介之一，网络主播违约诉讼案件频发，网络直播合同违约金条款存在较大争议。本文主要采用案例实证分析等研究方法，探究网络直播合同的法律性质、违约金条款的效力以及违约金金额的认定等问题。应当根据平台或经纪机构是否对主播实施了管理判断网络直播合同的性质，网络直播合同一般应被认定为非劳动合同。网络直播合同违约金条款作为有效的格式条款，在通常情况下不构成显失公平。人民法院应当依据《民法典》等相关规定，以当事人的合同收入作为计算损失的基准，以损失的130%为分界线，综合考虑网络直播行业特点、合同履行情况、当事人过错程度等因素，并根据公平原则和诚实信用原则对违约金金额予以认定。

关键词：网络直播合同；合同性质；违约金条款；效力；金额

Research on the liquidated damages clause of webcast contract

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Abstract: With the gradual evolution of webcast into one of the basic media of today's society. Lawsuits for breach of contract by network anchors are frequent, and there are great disputes over the payment of penalty for breach of contract by network broadcast. This paper mainly uses case empirical analysis and other research methods to explore the legal nature of the webcast contract, the effectiveness of the penalty clause and the determination of the amount of the penalty. The nature of the webcast contract should be judged according to whether the platform or brokerage institution has implemented management on the anchor. The webcast contract should generally be recognized as a non-labor contract. As an effective standard clause, the penalty clause of the webcast contract does not constitute a significant injustice under normal circumstances. According to the Civil Code and other relevant provisions, the people's court shall take the contract income of the parties as the basis for calculating the losses, take 130% of the losses as the dividing line, comprehensively consider the characteristics of the webcast industry, the performance of the contract, the degree of fault of the parties and other factors, and determine the amount of liquidated damages in accordance with the legal principles of fairness and honesty.

Key words: webcast contract; nature of contract; penalty clause; validity; amount

认罪认罚案件证据开示范围二元论

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摘　要：认罪认罚制度的核心是事实认定的真实性与被告人的自愿性。向被告人进行证据开示直接关乎案件的事实认定与自愿性地保障。其中，全面开示模式能够防范错案风险、保障被告人权利，但增加控方负担、提升协商难度；部分开示模式可以降低控方负担、提升司法效率、降低协商难度，但增加错案风险、损害被告人权利。鉴于此，笔者提出定罪证据与量刑证据开示范围二元论。定罪证据采全面开示原则，量刑证据采控方裁量原则，并探讨裁量权的规制。

关键词：证据开示；开示范围；全面开示；裁量开示；二元论

Dualism on the Scope of evidence Discovery in guilty plea cases

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Abstract: The core of the system of guilty plea is the truth of the fact and the voluntary of the defendant. The discovery of evidence to the defendant is directly related to the fact determination and voluntary protection of the case. Among them, the full disclosure mode can prevent the risk of wrong case and protect the rights of the defendant, but increase the burden of the prosecution and enhance the difficulty of negotiation. Partial discovery mode can reduce the burden of the prosecution, improve judicial efficiency and reduce the difficulty of negotiation, but increase the risk of misrepresentation and damage the rights of the defendant. In view of this, the author puts forward the dualism of the scope of discovery of conviction evidence and sentencing evidence. The principle of full discovery of conviction evidence, the principle of prosecution discretion of sentencing evidence, and the regulation of discretion.

Key words: Discovery of evidence; Scope of disclosure; Full disclosure; Discretionary disclosure; dualism

我国数据跨境流动中标准合同制度研究

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摘　要：数据跨境流动给全球数字经济贸易带来了价值与风险，如何构建既满足保障国家和数据安全，又不会对商业活动中的数据跨境流动造成非必要阻碍的监管规则逐渐成为各国数据跨境流动领域的热点问题。当下世界主要经济体已开始构建并推行各自数据跨境流动监管模式，在该领域制定并出台标准合同以规范日益增多的数据跨境流动。我国相关法律制定起步晚，仍处于填补漏洞空白、完善体系规则的阶段。为解决我国目前在数据跨境流动领域标准合同制度之困境，应借鉴域外立法对标准合同的体系定位与制度设计等方面进行细化与完善。
关键词：数据跨境流动；标准合同；安全评估

Application of Standard Contract in Date Cross-border Transmission in China

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Abstract: Date cross-border transmission brings both value and risk to the global digital economy trade, and how to build regulatory rules that not only meet the requirements of safeguarding national security and data security, but also do not cause unnecessary hindrance to the commercial activities of date cross-border transmission has gradually become a hot issue in the field of date cross-border transmission in various countries. The world's leading economies have begun to build and implement their own models for regulating date cross-border transmission, developing and introducing standard contracts in this area to regulate the growing number of date cross-border transmission. Relevant laws in China started late and are still in the stage of filling the gaps and improving the system rules. For the ask of solving the dilemma of applying standard contracts in the field of date cross-border transmission in China, the system positioning and system design of standard contracts should be refined and improved with reference to overseas legislation.
Key words: data cross-border transmission; standardized contract; Security Assessment

车联网中的群体利益保护

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摘　要：车联网技术的发展使得我们对数据的使用需求以及数据本身都产生了不同的变化，群体维度的数据保护的问题变得愈发尖锐。现行以个体保护为核心，以知情同意为前提，以匿名化处理为基础的隐私保护模式对个体的保护已经难以满足隐私保护的要求，更无法对群体维度上数据所引发的安全问题予以回应。对此，可以改变现有数据保护模式，改变以个体保护为核心的数据保护观念，建立个体保护与群体保护双向的保护模式。
关键词：车联网 数据保护 群体数据 数据安全

Group Dimension of Privacy in Internet of Vehicles

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Abstract: The development of Internet of Vehicles technology has led to different changes in both the demand for data use and the data itself, making the issue of group privacy protection increasingly acute. The current privacy protection model, which is centered on individual protection, based on informed consent, and relies on anonymization processing, is no longer able to meet the requirements of privacy protection for individuals, nor can it respond to security issues raised by group-level data. Therefore, it is possible to change the existing data protection model, change the data protection concept centered on individual protection, and establish a two-way protection model for both individual and group privacy protection.
Key words: Internet of Vehicles Data Protection Group Dimension of Privacy Data security

比较法视野下共谋共同正犯的成立

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摘　要：自日本开创共谋共同正犯概念以来，用何种理论合理地将共同犯罪中共谋者的行为赋予正犯性成为问题研究的核心。随着实践中判例将组织犯罪、集团犯罪中共谋者正犯化的刑罚趋势，司法实践迫使理论发展下的这一修正的正犯概念仍需要合理的建构理论支撑。借助英美法系“共谋犯”相似概念的对比，借助犯罪支配理论和实质正犯理论基础，引入美国“平克尔顿原则”对共谋共同正犯的成立范围进一步阐释。进而结合我国共同犯罪立法模式的背景，对共同犯罪人内部关系进行类型化梳理，以审慎态度对待域外共谋行为正犯化这种特色概念在我国的司法实践的适用。

关键词：共谋共同正犯；共谋犯；单一制共犯论；刑事责任

The Establishment of Conspiracy to Commit Joint Criminality in a Comparative Law Perspective

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Abstract: Since the inception of the concept of conspiracy to commit joint positive crimes in Japan, the question of what theory can reasonably be used to confer positive criminality on the acts of conspirators in joint crimes has been at the heart of research. With the trend of jurisprudence in practice to criminalise conspirators in organised crime and group crime, judicial practice has forced the development of a revised concept of positive criminality that still needs to be supported by a sound constructive theory. In this regard, the concept of "conspiracy to commit a crime" in the common law system is compared with that of "conspiracy to commit a crime" in the United States, and the "Pinkerton principle" in the United States is introduced to further explain the scope of conspiracy to commit a crime. In addition, in the context of China's joint criminality legislation, a typology of the internal relationship between joint criminals is presented, and a cautious approach is taken to the application of the distinctive concept of criminalisation of conspiracy in judicial practice in China.

Key words: conspiracy to commit a common positive offence; conspiracy to commit a crime; unitary conspiracy theory; criminal liability

信用法治视角下网约车监管机制完善研究

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摘　要：近年来，学者对于完善网约车监管路径的探讨大多基于协同治理理论，致力于构建政府、平台、行业协会、第三方中立机构等社会多元主体合作的治理模式，然而平台自我规制、政府监管与社会监督之间缺乏耦合机制，难以形成强大的治理合力，导致网约车行业合规率普遍低下。以信用为基础的信用监管则有效弥补了网约车分散监管之间的规制罅隙，为网约车协同治理模式的优化提供了解决思路。本文通过分析网约车分散监管的规制弊端，指出引入信用监管从而联合社会多元主体协同治理的必要性，并对网约车领域信用监管创新路径的构建提出了相应的建议，以期为网约车行业的健康可持续发展营造良好的治理环境。

关键词：网约车 政府监管 信用监管 协同治理

Research on the Improvement of Supervision Mechanism of Online Ride-hailing from the Perspective of Credit Rule of Law

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Abstract: In recent years, most scholars' discussions on the path of improving the regulation of online vehicles are based on the theory of cooperative governance, which is dedicated to building a governance model with the cooperation of multiple social actors such as the government, platforms, industry associations and third-party neutral institutions. However, the lack of coupling mechanism between platform self-regulation, government supervision and social supervision makes it difficult to form a strong governance synergy, resulting in a generally low compliance rate in the ride-hailing industry. Credit-based credit supervision effectively bridges the regulatory gap between the decentralized supervision of online ride-hailing, and provides a solution for the optimization of the collaborative governance model of online ride-hailing. By analyzing the regulatory drawbacks of decentralized regulation of online ride-hailing, this paper points out the necessity of introducing credit supervision to unite the collaborative governance of multiple social entities, and proposes corresponding suggestions for the construction of innovative paths of credit regulation in the field of online vehicles, with a view to creating a good governance environment for the healthy and sustainable development of the online taxi industry.

Key words: ride-hailing; government supervision; credit supervision; collaborative governance

数据保护模式中的利益均衡构想
——以司法裁判趋向为导向

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摘　要：当今数据保护模式争论已然发展到一定阶段，无论是以权利还是行为规制的细化完善都成为法律学者和市场参与者所关注的重要问题。针对这一交叉背景下关涉多个法学学科与经济现状的论题，本文以利益均衡为视角，在分析司法判决思路转变的实践反应下，以数据使用权模式为切入展开构想。
关键词：数据利益；数据使用权；司法裁判；利益均衡

The Idea of Balance of Interests in Data Protection Model -- Oriented by the Trend of Judicial Adjudication

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Abstract: Nowadays, the debate on data protection mode has developed to a certain stage, and both the refinement and perfection of the regulation of rights and behaviors have become an important issue concerned by legal scholars and market participants. In view of the topic related to multiple legal disciplines and economic status under this cross background, this paper takes the interest balance as the perspective, analyzes the practical reaction of the judicial decision thinking transformation, and starts with the data access right model.
Key words: data benefits; data access right; judicial adjudication; balance of interests

负有照护职责人员性侵罪的理解与适用

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摘 要：《刑法修正案（十一）》新增“负有照护职责人员性侵罪”加强了对未成年女性的保护、完善了刑法体系、回应了社会关切。负有照护职责人员性侵罪的增设并未提高性同意年龄，该罪所保护的法益仍然是性自主权。本罪的设置重点强调的是基于负有照护职责人员这类主体身份的特殊性，行为人对未成年女性精神上的支配或影响是“双方实质上处于特殊关系”的核心要素，其认定应着眼于由不平等关系所产生的“心理强制”。作为身份犯应当对特殊责任人员这一构成要件作实质理解，从严把握。司法认定过程中，从刑法谦抑性角度出发应对“性行为发生”、恶劣情节等概念不应采取过宽解释。同时，应明确本罪与强奸罪存在明显界限，两者属于互斥关系。为避免打击面过宽，应当规定一定的出罪事由以更好地实现法益的适度保护。

关键词： 负有照护职责人员性侵罪；性同意年龄；性自主权；照护职责

The comprehension and application of Crime of Sexual Assault by Persons with Duty of Care

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Abstract: The addition of the crime of sexual assault by a person with caretaking responsibilities to the Criminal Law Amendment (XI) strengthens the protection of female minors, improves the criminal law system, and responds to social concerns. The creation of the crime of sexual assault by a person with caretaking responsibilities does not raise the age of sexual consent, and the legal interest protected by the crime remains the right to sexual autonomy. The focus of this crime is on the special status of the subject with caregiving duties, and the mental domination or influence of the perpetrator on the minor female is the core element of the "special relationship between the two parties", and its determination should focus on the "psychological coercion" arising from the unequal relationship. The determination should focus on the "psychological coercion" arising from the unequal relationship, and effectively protect minor females from sexual abuse in such situations. At the same time, from the doctrinal point of view, the scope of application of this crime is limited to the situation where a "special duty officer" obtains the substantial consent of a minor female and has sexual relations with her, and the purpose of adding this crime is to fill the loopholes in the process of determining the traditional crime of rape. The crime is antithetical to the crime of rape, and the essential difference between the two is whether the crime is committed against the will of the woman.As a status crime, we should have a substantive understanding of the constitutive requirements of the special responsible person and strictly grasp it. In the process of judicial determination, from the perspective of the modesty of the criminal law, the concepts of "occurrence of sexual acts" and bad circumstances should not be interpreted too leniently. At the same time, it should be clear that there is a clear boundary between this crime

and rape, which are mutually exclusive. In order to prevent the scope of the attack from being too broad, certain reasons for the crime should be stipulated to better realize the appropriate protection of legal interests.

Key words: Crime of Sexual Assault by Persons with Duty of Care；Age of sexual consent；

个人信息泄露问题的侵权法保护
——以因果关系及损害认定为视角

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摘　要：随着大数据时代的到来，新型信息侵权行为对传统侵权责任构成要件的认定提出了挑战。首先，数据损害因具有无形性、潜在危险性的特殊性,个人信息侵权行为的损害认定极具难度，具体表现为泄露风险对损害概念的突破、损害数额难以量化、精神损害的难以举证等方面。其次，由于自然人与数据处理者之间存在明显的信息不对称的弱势地位，司法实践中自然人往往处于无法证明损害与侵权行为之间的因果关系，具体表现为无法锁定是哪一环节出现信息泄露，侵权人确定困难、举证责任过重、高度可能证明标准难以实现等方面。 故我国个人信息保护立法应综合考虑数据信息的特殊性，对个人信息泄露的侵权保护问题进行完善，具体包括延伸传统“损害”概念；参考差额说评估未来侵害风险等新型损害；参考合理盖然性标准认定因果关系；根据两造举证能力分配举证责任，把握证明标准等路径。

关键词：民商法学；个人信息泄露；损害认定；因果关系；侵权保护

Tort protection for personal information leakage- From the perspective of causation and damage determination

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Abstract: With the advent of the era of big data, new types of information infringement pose challenges to the determination of the constituent elements of traditional tort liability. First of all, due to the characteristics of data damage, such as intangibility, latent, unknown, and difficulty in assessment, it is extremely difficult to determine the damage of personal information infringement, which is specifically manifested in the breakthrough of the concept of damage caused by leakage risk, the difficulty in quantifying the amount of damage, and the difficulty in proving moral damage. Secondly, due to the obvious weak position of information asymmetry between natural persons and data processors, in judicial practice, natural persons are often unable to prove the causal relationship between damage and infringement, which is manifested in the inability to pinpoint which link of information leakage, the difficulty of determining the infringer, the excessive burden of proof, and the difficulty of achieving the standard of proof with a high degree of probability. Therefore, China's personal information protection legislation should comprehensively consider the particularity of data information, and improve the infringement protection of personal information leakage, including extending the traditional concept of "damage"; Assess new types of damage such as the risk of future infringement with reference to the difference; Refer to the reasonable probability standard to determine the conditional relationship; Assign the burden of proof according to the ability of the two creations to present evidence, and grasp the standard of proof.

Key words: Civil and Commercial Law; Personal information leakage; Determination of damages; Causality; Protection for Infringement

智能投顾行政规制路径之转变

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摘　要：金融创新中具有代表性的服务为智能投顾，2022 年，依托银行业金融机构智能投顾服务暂停服务，我国智能投顾进入“寒冬”。从行政监管角度分析，“机构”监管模式不适应智能投顾发展，“命令-控制”监管形式下法律监管制度滞后，适用“确定性”规则冲击智能投顾。通过从“机构监管”到“功能监管”方向转变，“命令-控制型”到“实验型”规制形式转变，“确定性规则”到“包容性”原则适用转变，以期为智能投顾提供行政规制的独到之解。

关键词：智能投顾；行政规制；功能监管；实验型监管；包容性监管

The transformation of intelligent investment administrative regulation path

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Abstract: The representative service in financial innovation is robo-advisors. In 2022, relying on the suspension of intelligent investment consulting services of banking financial institutions, China's intelligent investment consulting will enter the "cold winter". From the perspective of administrative supervision, the "agency" supervision mode is not suitable for the development of intelligent advisory services, the legal supervision system under the form of "command-control" supervision lags behind, and the application of "deterministic" rules impacts intelligent advisory services. Through the transformation from "institutional supervision" to "functional supervision," the transformation from "command-control" to "experimental" regulation form, and the transformation from "deterministic rules" to "inclusive" principle application, it is expected to provide a unique solution to administrative regulation for intelligent investment consulting.

Key words: Robo-advisors; Administrative regulationpressure ; Functional supervision; Experimental supervision; Inclusive regulation

Uncertainty analysis and comprehensive evaluation of life cycle carbon emissions of electric railway traction power supply system

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Abstract: Electric railway traction power supply system (ERTPSS) is a key component of an electric railway that differs from other transport modes. There are few reports on its carbon emissions. Emission factor method was used to construct the carbon emission model of ERTPSS to calculate the life cycle total carbon emission (LC-TCE) of the case. The uncertainty was analyzed, and the key materials under different production scenarios were evaluated with energy consumption, environmental impact, economic cost and other indicators. Results showed that material consumption of ERTPSS is the largest contributor (more than 80%) to the LC-TCE. Steel, copper, cement, quicklime and aggregate are the key materials (the contribution rates are 15.45%, 28.44%, 13.73%, 4.60% and 0.14% respectively) and the key factors affecting the uncertainty. The production scenario of key materials affects the carbon emission contribution rate and its coefficient variation (CV). The CV of recycled steel and copper (14.83% and 11.36%) is lower than that of virgin steel and copper (13.99% and 10.60%), but the CV of fly ash cement and recycled aggregate (13.88% and 14.17%) is higher than that of virgin cement and aggregate (16.49% and 14.60%). The former is due to the difference in production level and time, the latter is due to the difference in data representativeness, the production site and level. Materials produced under different scenarios differ in carbon emission, environmental effect and economic costs. Recycled steel, industrial waste cement, and aggregates mixed with construction waste or waste concrete are close to the positive ideal solution (PIS), indicating that these materials are preferred. The results provide methodological support for the LC-TCE accounting of ERTPSS and the optimization of materials in construction and maintenance

Key words: traction power supply system; life-cycle carbon emissions; uncertainty analysis; comprehensive evaluation

CO_2协同磁场强化铁碳微电解自养反硝化

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摘 要：铁碳微电解自养反硝化（CEAD）技术在去除污水中的硝酸盐氮（NO_3^--N）方面具有很好的应用前景，而提高腐蚀析氢速率、减缓沉淀钝化和减少碳排放是突破本技术瓶颈的关键所在.本研究揭示了 CO_2 和磁场（MF）介导下的 CEAD 过程的新特性，包括总氮（TN）去除率、氧化亚氮（N_2O）排放、铁氧化物转化和微生物群落变化.向反应器供给 CO_2，TN 去除率可从 51.89±2.62%提升至 91.79±2.90%；施加 10 mT 磁场，TN 去除率可进一步提高至 95.73±1.79%.施加 CO_2 和 MF 减少反硝化过程中 N_2O 的排放，35 mT 磁场强度下的 N_2O 排放因子最小，为 0.0033±0.0002 $kgN_2O/kgTN$.CO_2 和 MF 均促进 Fe_3O_4 向 FeO(OH)的转化，有利于持续供给电子供体和减少传质阻力. CO_2 富集了 *Denitratisoma* 和未分类的 *Rhodocyclaceae*，并参与了微生物代谢过程.两种优势微生物在 10 mT 的磁场强度下丰度最高，分别为 9.66%和 17.17%.本研究探讨 CO_2 和 MF 对 CEAD 过程的影响，并为解决工艺技术瓶颈提供可靠指导.

关键词：铁碳微电解；自养反硝化; CO_2；磁场；氧化亚氮；铁氧化物；微生物群落

CO_2 and magnetic field enhance Fe-C micro-electrolysis autotrophic denitrification

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Abstract: A process combining micro-electrolysis and autotrophic denitrification (CEAD) technology was a promising application prospect for nitrate removal. Improving the rate of corrosion hydrogen evolution, slowing down precipitation passivation and reduce carbon emissions was the key to break through the bottleneck of this technology. This study reveals new properties of CEAD process mediated by CO_2 and magnetic field (MF), including total nitrogen (TN) removal efficiency, N_2O emissions, iron oxide transformation, and variation of microbial community. CO_2 was supplied to the reactor, the TN removal efficiency increased from 51.89±2.62% to 91.79±2.90%, and the TN removal efficiency further increased to 95.73±1.79% under 10 mT. CO_2 and MF reduce the emission of N_2O, and the emission factor under 35 mT is the smallest, which is 0.0033±0.0002 $kgN_2O/kgTN$. Both CO_2 and MF promote conversion of Fe_3O_4 to FeO(OH), which is conducive to the continuous supply of electron donors and the reduction of mass transfer resistance. With CO_2 addition, *Denitratisoma* and unclassified *Rhodocyclaceae* were most dominant in the biofilms. CO_2 participated in microbial metabolisms. The abundance of the two microorganisms was the highest under 10 mT, which was 9.66% and 17.17%, respectively. This study investigates the effects of CO_2 and MF on CEAD process and provides reliable guidance for solving process bottleneck.

Key words: Iron-carbon micro-electrolysis; Autotrophic denitrification; Carbon dioxide; Magnetic field; Nitrous oxide; Iron-compounds; Microbial community

北运河微塑料污染的时空分布特征研究

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摘　要：城市河流的微塑料污染已引起国内外的广泛关注。为了解北运河微塑料的污染现状，以表层水和沉积物为研究对象，调查了汛期和非汛期微塑料的丰度及组成特征，讨论了微塑料的时空分布规律，并阐述了北运河微塑料的来源。结果表明，北运河表层水中微塑料的丰度为 4.9—22.1 items·L^{-1}（汛期）和 3.10—14.8 items·L^{-1}（非汛期），沉积物中微塑料的丰度为 740—2880 items·kg^{-1}（汛期）和 160—1690 items·kg^{-1}（非汛期）。与国内外其他河流对比，北运河水体和沉积物微塑料污染处于中等水平。水体和沉积物的微塑料丰度呈现明显的时空分布不均。表层水和沉积物均以≤0.5 mm 的透明/白色 PE 和 PP 为主要微塑料类型。根据微塑料的污染特征推测北运河微塑料的来源可能为人类日常生活、旅游业、渔业活动和污水排放。

关键词：微塑料；北运河； 城市河流；时空分布；组成特征

Spatial and temporal distribution characteristics of microplastic pollution in the Beiyun River

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Abstract: Microplastic pollution in urban rivers has attracted wide attention at home and abroad. In order to understand the current situation of microplastics pollution in the Beiyun River, the abundance and composition characteristics of microplastics in flood season and non-flood season were investigated by taking surface water and sediment as the research objects. The spatio-temporal distribution of microplastics was discussed, and the sources of microplastics in the Beiyun River were expounded. The results showed that the abundance of microplastics in surface water of Beiyun River was 4.9–22.1 items·L^{-1} (flood season) and 3.10–14.8 items·L^{-1} (non-flood season). The abundance of microplastics in sediments is 740–2880 items·kg^{-1} (flood season) and 160–1690 items·kg^{-1} (non-flood season). Compared with other rivers at home and abroad, the microplastic pollution of water and sediment in the Beiyun River is at a moderate level. The abundance of microplastics in water and sediment showed uneven spatial and temporal distribution. Transparent/white PE and PP of less than 0.5 mm were the mainly composed in the surface water and sediment. According to the pollution characteristics of microplastics, it is speculated that the sources of microplastics in the Beiyun River may be human daily life, tourism, fishery activities and sewage discharge.

Key words: Microplastics; Beiyun River; Urban rivers; Spatial and temporal distribution; Composition characteristi

Applications of metal-organic framework (MOF)-based sensors for aqueous pollutants：A review

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Abstract: With advances in toxicological research and the development of detection techniques, the presence of trace pollutants in water bodies and their persistent hazards are increasingly being discovered by humans. In recent years, different types of MOF-based sensors with high selectivity and sensitivity have been developed and applied to detect various pollutants that may exist in water environment. In this review, the sensing mechanism and operation principle of fluorescent, electrochemical and photoelectrochemical sensors are systematically summarized. Recent development of MOF-based sensors for sensitive detection of inorganic anions, metal ions and organic compounds are introduced. Meanwhile, application cases of various sensing systems in real water samples are also summarized for the first time. In addition, Future challenges and application potentials for MOF sensors are also presented in the hope of providing ideas for construction of more advanced sensing platforms.

Research on the Prediction of National Residential Renovation Waste Generation based on Back-Propagation Neural Network

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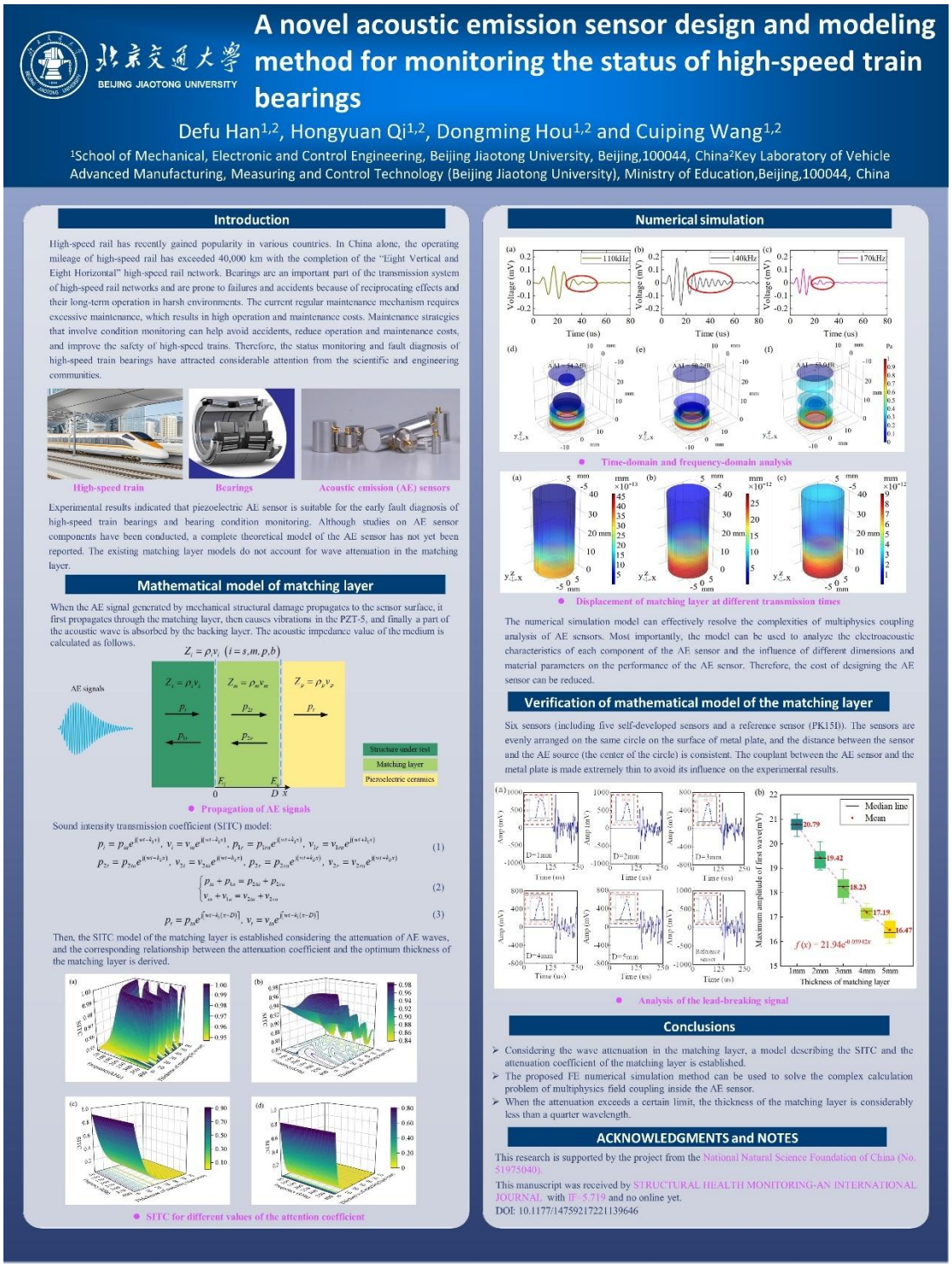
Abstract: The amount of residential building renovation waste occurring from 2006 to 2020 in 31 provinces, autonomous regions, and municipalities directly under the central government (except for Hong Kong, Macao, and Taiwan) was estimated using the sales area, and a BP neural network prediction model was established based on this data, and the residential building renovation waste was predicted for the next 5 years in 31 provinces nationwide. The trained BP neural network was tested for goodness of fit R=>0.9, and the predicted values were in high agreement with the estimated values. According to the results of the BP model prediction, in 2025, the occurrence of residential building renovation waste in China is expected to reach 156,512,500 tons, with 30.0%, 34.6%, 14.6%, and 25.3% growth in North China, Northeast China, Southwest China, and Northwest China, respectively, and 10.0% and 9.5% decrease in East China and South Central China compared with 2020. For the spatial and temporal distribution characteristics of residential building renovation waste emissions in China, the study shows that: high production areas of residential renovation waste from multi-point distribution to a concentrated distribution trend, the occurrence of the top ten provinces are showing the characteristics of a large economic volume and dense population distribution.

Keywords: Office building renovation waste; occurrence prediction; BP neural network; spatial and temporal distribution characteristics

A novel acoustic emission sensor design and modeling method for monitoring the status of high-speed train bearings

韩得福，侯东明



Three-Dimensional Contact Surface Modeling and Stress Analysis of Interference Fit Based on Cylindricity Error

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Three-Dimensional Contact Surface Modeling and Stress Analysis of Interference Fit Based on Cylindricity Error

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Abstract

- The main failure mode of a wheel–axle assembly, which is an important moving part of rail vehicles, in the interference fit zone is partial fatigue.
- Given that neither the plane analytical method nor the axisymmetric finite element method can reveal the local and stochastic contact stress concentration at the end of the wheel seat.
- A method for obtaining random interpolation points on the circumferential contour was proposed.

Introduction

- As important moving components of rail vehicles, the wheel and axle are connected via an interference fit [1], which bears the coupled effect of the axial force, radial force, shear force, bending moment, and torque load [2]. Statistical results have shown that the end of a wheel seat is a highly prone area for fatigue cracks, and its distribution is local and random.
- The 2D axisymmetric finite element analysis method can explain the stress concentration problem at the end of the wheel–axle assembly [3].
- The 3D contact model with a hypothetical contour surface can effectively solve the issue of uneven distribution of the contact stress, the random distribution of the local cracks at the end of the interference fit cannot be satisfactorily explained.
- The uneven contact stress in the interference fit zone of the wheel–axle assembly of rail vehicles belongs to a 3D random contact mechanics problem, and its 3D random factors mainly originate from the cylindricity error induced during axle machining.

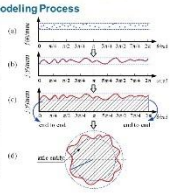

Interpolation algorithm

- $f_{k,i}(\theta) = A_{k,i} f_{k,i} + B_{k,i} f_{(k+1),i} + C_{k,i} f_{k,i}' + D_{k,i} f_{(k+1),i}'$
- $f_i(\theta) = \sum_{k=1}^{m-1} f_{k,i}(\theta)\,\delta\left(k - \left(\left[\frac{\theta}{\Delta\theta}\right]+1\right)\right)$
- $g_i(z) = E_i z^3 + F_i z^2 + G_i z + H_i$
- $S_i\left(f(\theta),\theta,z\right) = g_i(z) f_i(\theta) + \left(1 - g_i(z)\right) f_{i+1}(\theta)$
- $S\left(f(\theta),\theta,z\right) = \sum_{i=1}^{n-1} S_i\left(f(\theta),\theta,z\right)\,\delta\left(i - \left(\left[\frac{z}{\Delta z}\right]+1\right)\right)$

Contour Modeling of Random Cylindrical Contact Surface

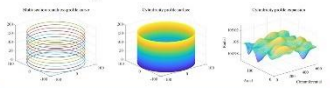
- **Cylindricality Error Contour Modeling Process**

The circumferential contour of the layer can be obtained by the line interpolation of the interpolation nodes in the same circumferential contour plane. Finally, the adjacent circumferential contour is interpolated to obtain the cylindricity contour.



- **Cylindricity Modeling**

Surface interpolation is performed on the spatial circumferential contour to complete the cylindricity contour modeling.



Three-dimensional Contact Finite Element Model of Wheel–axle assembly

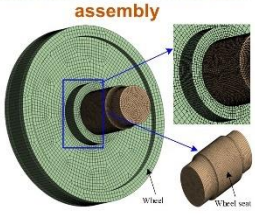


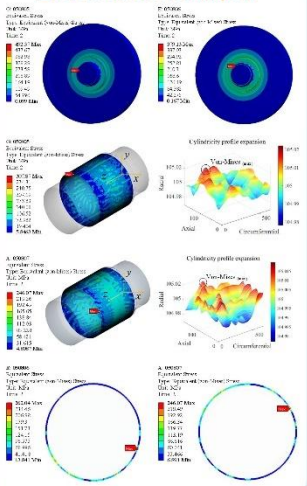
Table 1 Model parameters

Model parameters	Parameter Value (mm)
Axle length	172
Inner ring diameter of wheel	210
Cylindricity tolerance	$t = 0.05$
Interference	$\delta = 0.22$

Table 2 Wheel–axle material properties

Material Properties	Parameter Value
Elastic modulus of axle, E_1/MPa	210000
Poisson's ratio of axle, μ_1	0.28
Elastic modulus of wheel, E_2/MPa	206000
Poisson's ratio of wheels, μ_2	0.3

Inhomogeneity Analysis of Wheel–axle Contact Stress Based on Small samples



Conclusion

- (1) The random surface profile of the axle due to the existence of cylindricity is the main reason for the uneven distribution of the equivalent contact stress on the wheel–shaft mating surface, which reveals the mechanism of the local fatigue failure of the axle.
- (2) The maximum stress value of the 3D random contact model based on the cylindricity can be used to evaluate the strength in the design of wheel–axle assemblies.
- (3) There is a need to reduce the stress concentration in the wheel–axle interference fit area, whose machining accuracy should be improved, particularly at the end of the wheel seat. Based on our research, it is recommended that the cylindricity of the axles should not exceed 0.046 mm

Acknowledgement

This work was supported by project of Research on Crack Detection of Brake Hoops of Wheel-axle Based on Acoustic Emission Technology (No. M13L00420) from CRRC QINGDAO SIFANG CO., LTD..

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基于双目视觉测量技术的张拉平面膜结构气动特性研究

张锐瑞

Research on Aerodynamic Characteristics of Stretched facial mask Structure Based on Binocular Vision Measurement Technology

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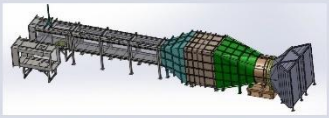
Abstract

The tensioned flat facial mask structure has the characteristics of light texture, good seismic performance and beautiful shape, and is mainly used in the plane roof structures of public facilities such as ***stadiums, theaters, airport terminals***, etc. [1]. However, due to its soft texture, it has become a typical wind-sensitive structure. Many damage accidents of membrane structures are ***caused by strong winds.***

Tensioned Membrane Structure

Tear of tension membrane

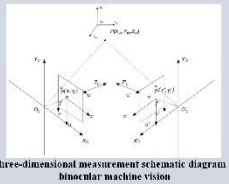


Beijing Jiaotong University DC Wind Tunnel

The ***unsteady aerodynamic effect***（非定常气动效应）is the main reason for the instability and failure of the tensioned membrane structure. Therefore, this paper carried out the aerodynamic characteristics research of the tensioned membrane structure based on the ***binocular vision DIC measurement technology***（双目视觉DIC测量技术） in the wind tunnel test.

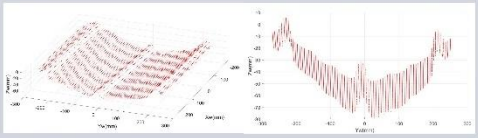
Displacement identification

The binocular stereo vision technology is similar to the human eyes. When the human eye perceives the three-dimensional world, due to the difference of the pupil distance between the eyes, it will produce parallax when observing the object, so the two-dimensional image information obtained is different, and through the comprehensive processing of the brain, it will finally form the three-dimensional sense of vision.



Three-dimensional measurement schematic diagram of binocular machine vision

Identification results:



3D reconstruction of model

Front view of model

Application of DIC

The ***full-field dynamic displacement*** of the plane tensioned membrane structure is obtained by binocular vision DIC measurement technology.

Figure1 shows the configuration of ***uniaxially stretched membrane***（单轴拉伸膜）(along x direction) and the vertical displacements of the membrane is along z direction. The mean displacement and standard deviation of each line are obtained from the time series of vertical displacements.

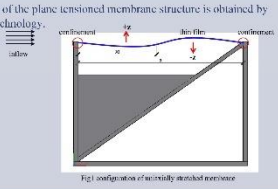
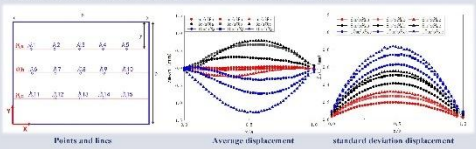


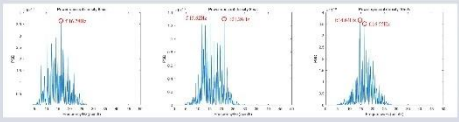
Fig1 configuration of uniaxially stretched membrane

Following fig shows the ***average displacement*** of each characteristic line under wind speed 6m/s, 8m/s and 10m/s,and another shows the ***standard deviation displacement*** of each characteristic line under wind speed 6m/s, 8m/s and 10m/s.



Points and lines　　Average displacement　　standard deviation displacement

Following fig shows the power spectral density of feature point 8 under three wind speeds



Aerodynamic analysis of tensioned facial mask structure based on ANSYS:

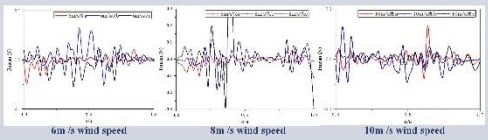
By introducing the displacement time history obtained in the three-dimensional DIC test into ANSYS, according to the wind-induced coupling vibration equation of the structure:

$$M\ddot{X}(t) + C\dot{X}(t) + KX(t) = F(t, X, \dot{X}, \ddot{X}) \quad (1)$$

$$C = \alpha M + \beta K \quad (2)$$

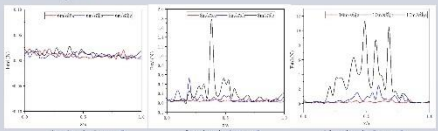
In formula (1). M. C and K respectively represent the mass, damping and stiffness matrices of the structure, and $X(t)$ is displacement, $\dot{X}(t)$ is velocity, $\ddot{X}(t)$ is acceleration, and $F(t, X, \dot{X}, \ddot{X})$ is aerodynamic force on the structure.

Following fig shows the average aerodynamic forces, which are calculated by the FE model, on the characteristic line under three different wind speeds:



6m /s wind speed　　8m /s wind speed　　10m /s wind speed

Following fig shows the standard deviation of aerodynamic force on the characteristic line at different wind speeds:



6m /s wind speed　　8m /s wind speed　　10m /s wind speed

Conclusion

- When analyzing the influence of different wind speeds on the model displacement, it is found that the greater the wind speed, the greater the average displacement of the maximum displacement section of the model. the greater the displacement standard deviation of the maximum displacement section of the model, and the more obvious the vibration effect.
- The free end boundary of the model is asymmetric, and further tests need to be designed to find out the reason for the asymmetry.
- At present, only the above phased results have been obtained, and the follow-up research will continue.

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CRTS III 型板式无砟轨道自密实混凝土灌注过程的数值模拟研究

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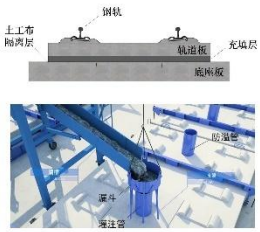
CRTS III型板式无砟轨道自密实混凝土灌注过程的数值模拟研究

作者：张浩楠 吴楷　　邮箱：22121253@bjtu.edu.cn

研　究　简　介



CRTS III型板式无砟轨道是我国具有完全自主知识产权的轨道结构，该无砟轨道的主要特点是采用了自密实混凝土（Self-compacting Concrete，SCC）作为轨道板下充填层材料，其施工质量的好坏直接决定了轨道结构的耐久性及服役寿命。研究人员对SCC的现场施工工艺进行了大量的探索和优化，但既有研究多集中在现场施工经验的总结，极少从理论上研究不同施工参数对自密实混凝土灌注过程的影响规律。

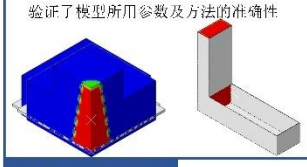
本研究基于耦合的欧拉-拉格朗日（CEL）方法，通过有限元软件ABAQUS，建立了直线地段CRTS III型板式无砟轨道自密实混凝土灌注过程的**流固耦合模型**，实现了SCC从漏斗中流出、在层间扩散直至填满层间的**全过程模拟**。基于该模型，**从理论上研究了不同施工参数对SCC灌注过程的影响规律和机理**，重点分析了漏斗高度、漏斗数量等参数对填充率、轨道板垂向位移以及扣压装置垂向力等关键指标的影响，为SCC灌注工艺的优化、智能灌注装备的研发和无砟轨道的智能建造提供了理论指导。

模　型　介　绍

模型验证

◆ 前人研究表明，SCC的流变特性可以用Herschel-Bulkley模型描述，本研究中的流固耦合模型均采用该流变模型来描述

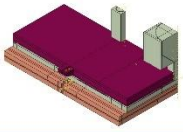
◆ 本研究建立了L型箱试验和坍落度试验的流固耦合模型，基于相关文献试验数据与本研究模拟数据的误差在合理范围之内验证了模型所用参数及方法的准确性



SCC灌注模型

◆ 本文对无砟轨道及SCC灌注施工设备进行全尺寸建模，构建四分之一模型，同时对轨道结构进行适当简化

◆ 模型主要包含轨道板、充填层、底座板和扣压装置（简化为拉、压杆）等结构

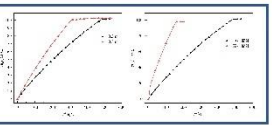


扫码观看全过程灌注模拟的计算结果视频

研　究　内　容

体积填充率

■ 漏斗高度从0.3 m增加到0.7 m（下同），灌注时间从490 s降低至310 s，约节省37%时间；对于单孔灌注，SCC灌满充填层需约490 s，而双孔仅需约160 s，约节省67.3%时间

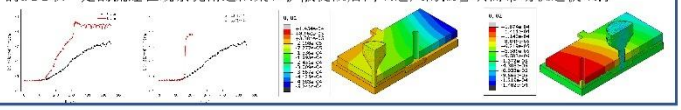


轨道板垂向位移

■ 灌注开始前，轨道板因重力而轻微下沉；漏斗越高，轨道板最终上浮量越大，约从0.22 mm增加至0.36 mm；单孔灌注时，最大垂向位移山负值缓慢增大，双孔则先保持不变而后迅速增大，随后基本保持不变；相较于单孔灌注，双孔灌注的轨道板最终上浮量约从0.22 mm增加至0.28 mm

■ 单孔灌注时，轨道板最大垂向位移出现在板边中部，这是由于SCC率先扩散至板边中部，受阻挡后产生局部堆积，进而导致最大垂向位移出现在该区域；堆积量随灌注的进行逐渐增大，因而轨道板垂向位移相应增加；漏斗越高，涨满后SCC对轨道板的压强越大，故最终上浮量较大

■ 双孔灌注过程中的最大垂向位移主要出现在观察孔附近。这是由于在双孔灌注接近饱满时，两侧的SCC以一定的流速在观察孔附近汇集、扩散受阻后向上进入防溢管从而带动轨道板上浮

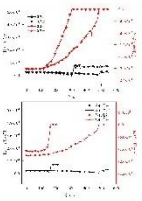


扣压装置垂向力

■ 灌注开始前，轨道板因重力下沉，主要为压杆受力；随着灌注进行，压杆垂向力逐渐减小至0，拉杆开始发挥作用，拉杆垂向力急剧上升并基本稳定

■ 漏斗越高，拉杆垂向力越大，约从3.5 kN显著提高至约8.7 kN，约为2.5倍；双孔灌注的拉杆垂向力的拉杆垂向力约为单孔的2.4倍

■ 无论是单孔灌注还是双孔灌注灌注过程中拉、压杆垂向力的变化规律与轨道板垂向位移的变化规律基本保持一致



结　　论

➢ 相较于提高漏斗高度，增加漏斗数量可以更显著地提高灌注效率

➢ 灌注过程中，轨道板最大垂向位移先基本保持不变，随后由负值转变为正值并逐渐增大；单孔灌注的最大垂向位移位于板边中部，双孔为观察孔附近

➢ 灌注过程中，扣压装置垂向力的变化规律与轨道板垂向位移的变化规律基本保持一致，即随着灌注的进行，轨道板垂向位移由负值转变为正值并继续增大，压杆垂向力相应降低至零后拉杆开始受力

大直径薄壁磁性液体密封设计及仿真研究

郭昀奇，李德才，臧国宝，戚志强，张志力

大直径薄壁磁性液体密封设计及仿真研究

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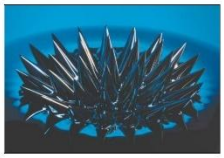
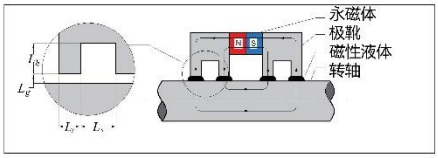
北京交通大学机械与电子控制工程学院

摘　要

磁性液体密封是一种新型的密封方式。在航空、航天等领域，要求在轴径大、空间小的情况下密封性能好，这给磁性液体密封设计带来困难。因此，研究大直径薄壁磁性液体密封是很有必要的。本研究用有限元方法分析了密封间隙大小和轴偏转角度对磁性液体密封的磁场分布的影响。同时，还模拟了转轴在装配过程中的所受磁场力的情况。本文的研究内容可作为大直径薄壁磁性液体密封设计的参考。



磁性液体



磁性液体密封原理图

磁性液体密封

基 础 理 论

从磁性液体的Bernoulli方程推导出磁性液体密封的耐压能力计算公式；利用磁性液体H-B模型，推导了磁性液体密封的转矩计算公式。

- **耐压能力计算公式**

$$P+\frac{1}{2}\rho_f V^2+\rho_f gh-\mu_0\int_0^H MdH=C$$

$$\Delta P_{max}=\mu_0\sum_{i=1}^{n}\int_{H_{i\min}}^{H_{i\max}}MdH$$

- **转矩计算公式**

$$T=r_1\cdot(\tau_s+k\dot{\gamma}^n)\cdot 2\pi Nr_1\cdot l_t$$

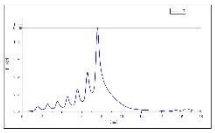
$$=2N\pi r_1^2L_t\tau_s+2N\pi k r_1^2L_t\left(\frac{r_1\omega}{L_g}\right)^n$$

$$=2N\pi r_1^2L_t\tau_s+\frac{2N\pi k\omega r_1^{(2-n)}L_t}{L_g^n}$$

仿 真 研 究

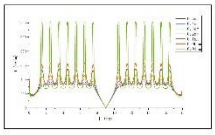
- **密封设计要求**：
  ①密封转轴直径＞300mm；
  ②密封转轴宽度＜20mm；
  ③密封耐压能力≥0.08MPa。
- **ANSYS Maxwell仿真假设**：
  ①假设轴承、外壳等零件的磁导率为1；
  ②假设磁性液体磁导率为1；
  ③假设多组圆柱磁铁提供的磁场分布均匀。

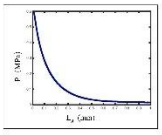
- **仿真结果及分析**：
  ① 装配过程中转轴所受磁场力最大值为1.436kN，可以设计装配专用工装，减少装拆过程中对零件及操作人员的伤害；
  ② 密封间隙设计不应大于0.3mm，否则不能满足耐压能力要求；
  ③ 轴偏转角度对耐压能力的影响相对较小，但考虑轴承和密封的寿命，设计时应尽可能保证同轴度。



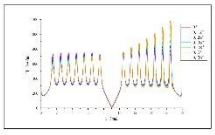
装配过程中转轴所受磁场力（Lg=0.1mm）

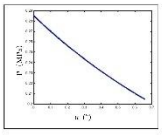
磁场强度云图（Lg=0.1mm）





密封间隙对磁场分布及耐压能力的影响（Lg=0.01mm～1mm）





轴偏转角度对磁场分布及耐压能力的影响（α=0°～0.66°；Lg=0.1mm）

注：α＞0.66°转轴外径将与极靴内径发生剐蹭

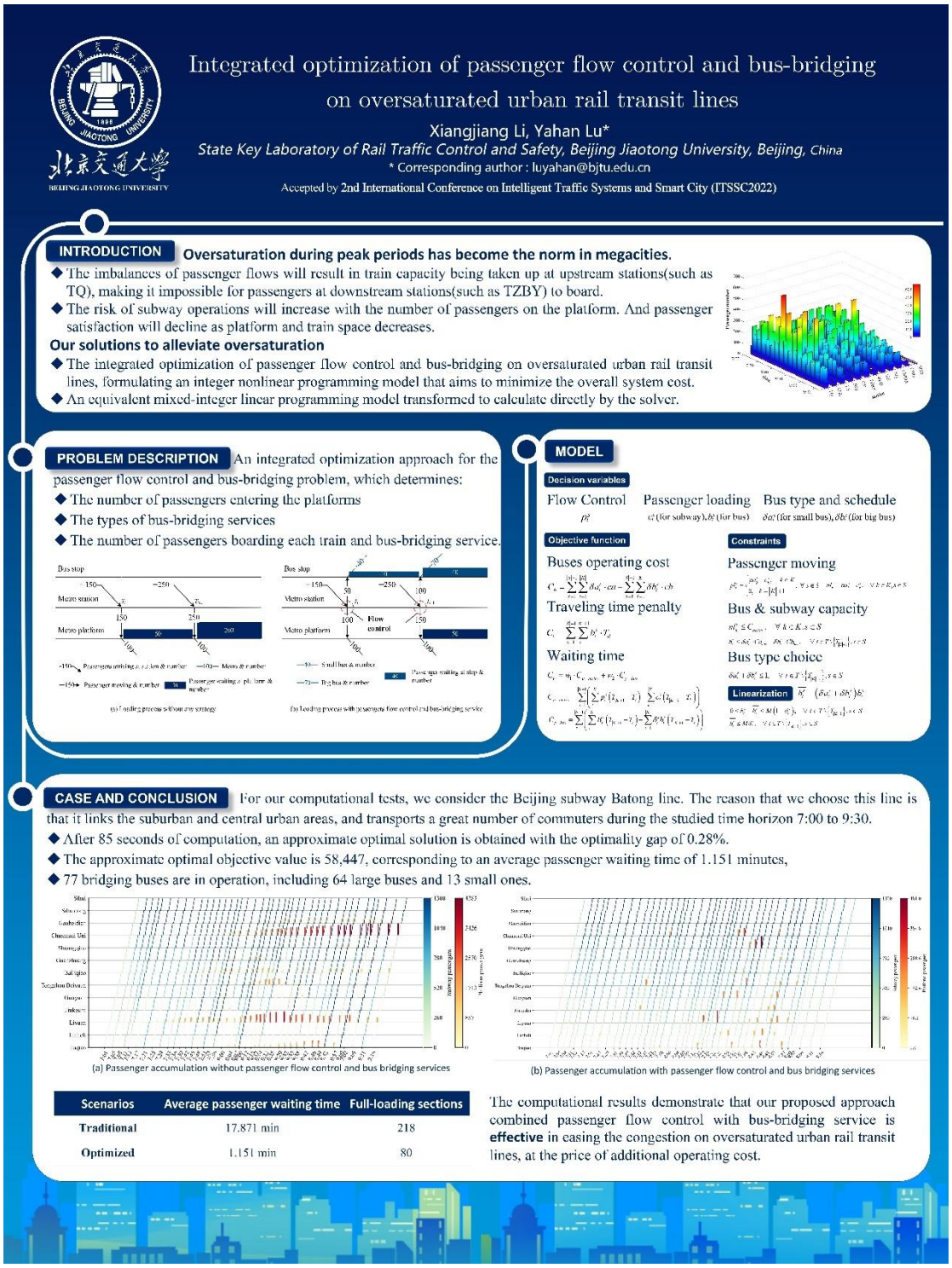
结　　论

① 推导了磁性液体密封的耐压公式、磁性液体密封的转矩计算公式。
② 通过有限元方法，分析了大直径磁性液体密封转轴在装配时所受的磁场力。
③ 通过有限元方法，分析了密封间隙和轴偏转角度对磁性液体密封间隙中磁场分布的影响，为密封零件设计中的公差设计提供指导。

文章原文：Guo Yunqi, Li Decai, Zang Guobao, Qi Zhiqiang, Zhang Zhili. Research on a Large Diameter Magnetic Fluid Seal With Thin-Wall Parts[J]. Frontiers in Materials,2022. DOI: 10.3389/FMATS.2022.932662

Integrated optimization of passenger flow control and bus-bridging on oversaturated urban rail transit lines

李相江



Accelerate Adversarial Training with Loss Guided Propagation for Robust Image Classification

徐昌凯

Accelerate Adversarial Training with Loss Guided Propagation for Robust Image Classification

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➢ Background

- **Adversarial training is an effective method to train robust image classification models.**
- **Existing methods artificially set a large fixed number of propagations to generate adversarial examples to improve robustness, which has high time consumption.**
- **There is no effective strategy to automatically set the optimal number of propagations which can reduce the time consumption while achieve comparable robustness.**

Training	AT-1	AT-3	AT-10	ATTA-1	ATTA-3	ATTA-10
Robustness	38.67%	49.62%	51.23%	49.87%	53.08%	54.91%
Time/min	139	275	760	138	265	712

Table1. The robustness and training time of AT-k and ATTA-k methods.

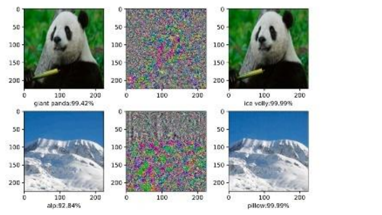

Fig1. We show two adversarial examples. Left: The natural images with their labels and scores. Middle: The adversarial noise. Right: Adversarial examples with their predicted labels and scores.

➢ Methods & Results

- **AT** $\min_{\theta} \mathbb{E}_{(x,y)\sim D}\left[\max_{\delta\in B(x,\epsilon)} \mathcal{L}\left(\theta, x_{adv}, y\right)\right]$
- **TRADES** $\min_{\theta} \mathbb{E}_{(x,y)\sim D}\left[\mathcal{L}\left(f(x), y\right) + \max_{\delta\in B(x,\epsilon)} \mathcal{L}\left(f(x), f\left(x_{adv}\right)\right)/\lambda\right]$
- **FAT** $\min_{\theta} \mathbb{E}_{(x,y)\sim D}\left[\min_{\delta\in T(x,\epsilon)} \mathcal{L}\left(\theta, x_{adv}, y\right)\right]$
  s.t. $\mathcal{L}\left(\theta, x^{i}_{adv}, y^{i}\right) - \min_{y\in\mathcal{Y}} \mathcal{L}\left(\theta, x^{i}_{adv}, y\right) \geq \rho$

$$\min_{\theta,\varphi(k)} \mathbb{E}_{(x,y)\sim D}\left[\max_{\delta\in T(x,\epsilon)} \mathcal{L}\left(\theta, x^{k}_{adv}, y\right) + \varphi(k)\right]$$

- **ATLGP** $\min_{\theta} \mathbb{E}_{(x,y)\sim D}\left[\max_{\delta\in T(x,\epsilon)} \mathcal{L}\left(\theta, x^{k}_{adv}, y\right)\right]$
  subject to : $\frac{\mathcal{L}\left(\theta, x^{k-1}_{adv}, y\right)}{\mathcal{L}\left(\theta, x^{k}_{adv}, y\right)} \geq \beta, \beta \in (0,1), k \geq 2$

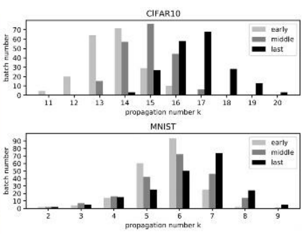

Fig2. The "batch number" (label of the y-axis) means the number of different batches when the same threshold is reached. Propagation number has approximate normal distribution on different testing batches.

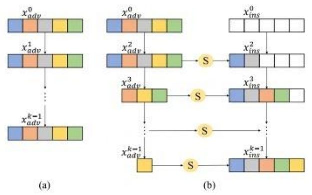

Fig3. The generation of a batch (the batch size is 5) of adversarial examples of PGD-k (a) and ATLGP-β (b). S is the select function to "early stop" the propagation of training instances that satisfy the condition.

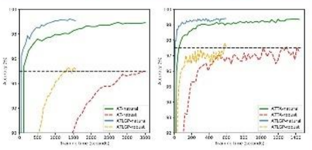

Fig4. The trade-off between accuracy and training time. Left: ATLGP-0.9 and AT-40. Right: ATLGP-0.4 and ATTA-10.

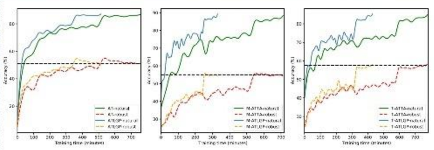

Fig5. The trade-off between accuracy and training time. Left: ATLGP-0.98 and AT-10. Middle: M-ATLGP-0.6 and M-ATTA-10. Right: T-ATLGP-0.95 and T-ATTA-10.

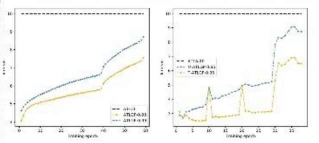

Fig6. The mean propagation number at different training stages. Left: AT-10 and ATLGP. Right: ATTA-10, M-ATLGP, and T-ATLGP.

Training method	Evaluated against			Time (min)	k mean
	Natural	PGD-20	AA		
FAST	55.12%	25.13%	17.87%	61	1
Free (m = 8)	**62.13%**	25.88%	18.02%	647	8
ATLGP-0.9	62.02%	26.15%	19.21%	267	2.95
+DAWNBench	59.97%	26.21%	19.19%	**57**	2.95
ATLGP-0.98	61.24%	26.7%	**19.77%**	492	5.25
+DAWNBench	59.21%	**26.87%**	19.37%	102	5.25

Table2. Performance comparisons of FAST, Free, and ATLGP on CIFAR100 validation. We choose FAST and Free(m =8) as two baselines cause they get the best robustness in their original papers. For a fair comparison with FAST, we use the same training tricks as FAST (masked as " +DAWNBench").

Training method	Evaluated against		Time (min)
	Natural	PGD-20	
FAST	81.56%	47.32%	68
Free(m = 8)	85.47%	47.83%	652
YOPO-5-3	86.54%	48.17%	343
M-ATTA-10	86.65%	54.91%	712
M-ATLGP-0.2	84.37%	49.68%	252
+ DAWNBench	81.58%	49.73%	**54**
M-ATLGP-0.6	87.24%	54.99%	332
+ DAWNBench	83.24%	54.91%	71
M-ATLGP-0.95	**87.43%**	**55.19%**	480
+ DAWNBench	84.56%	55.23%	97

Table3. Performance comparisons of FAST, Free, YOPO, ATTA, and ATLGP on CIFAR10 validation. We choose FAST, Free(m = 8), YOPO-5-3, and M-ATTA-10 as four baselines.

➢ Conclusions

- **The proposed ATLGP can achieving comparable robustness with less time consumption on MNIST, CIFAR10 and CIFAR100 datasets.**
- **We believe that the difference for each data instance widely exists in various datasets and infer that it will become more obvious with the complexity of data distribution.**

➢ Publication

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