THE 7TH IEEE INTERNATIONAL CONFERENCE ON TRANSPORTATION INFORMATION AND SAFETY

第七届 IEEE 交通信息与安全国际学术会议

Connected and Resilient Transportation Systems
网联韧性交通系统

会议手册 CONFERENCE GUIDE

August 4-6, 2023
XI'AN, China

中国交通运输协会　ITSS IEEE INTELLIGENT TRANSPORTATION SYSTEMS SOCIETY　CSCE CGC 1887　CHANG'AN UNIVERSITY　WUHAN UNIVERSITY OF TECHNOLOGY　UNIVERSITAS GRANATENSIS 1531

PREFACE

On behalf of the conference Organizing Committee, we are pleased to welcome all of you to the 7th IEEE International Conference on Transportation Information and Safety (ICTIS 2023) at Xi'an, China. Thank you for attending this wonderful three-day conference to share your research ideas and progress in transportation information and safety.

The key to the operation of transportation systems is efficiency, intelligence, safety, reliability and a friendly environment. Those features of the transport systems are among the most important topics in transportation areas, across all modes of transportation, including road, water, rail and air. The theme of ICTIS 2023 is "Connected and Resilient Transportation Systems", which includes a broad range of topics related to the theories, technologies and applications of transportation information and safety technology.

We would like to offer our sincere thanks to the conference sponsors, China Communications and Transportation Association (CCTA), IEEE Intelligent Transportation Systems Society (IEEE-ITSS) and Canadian Society for Civil Engineering (CSCE) for their support. Many people have made significant contributions to the conference organization of ICTIS 2023. We highly appreciate Academic Committee Members for their technical review work. We thank the keynote speakers, invited speakers, and all of the authors for their effort and time to make this event happen. We would also like to thank all members of the Organizing Committee and volunteers.

The conference should be an excellent platform to exchange original new ideas and technical findings. The conference has received 402 full papers from researchers in several countries and regions, among which 362 papers have been accepted by ICTIS 2023. There will be 30 technical sessions of ICTIS 2023. We hope that the technical discussion and idea exchange taking place during the conference will benefit your future research.

We hope you have a wonderful stay in Xi'an, China and enjoy the conference.

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Xiangmo Zhao (Chair)

Professor, President

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Chaozhong Wu (Chair)

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CONFERENCE ORGANIZATION

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VENUE MAP

三楼平面图
Third floor plan

终南厅
Zhong Nan Hall

茶歇
Tea Break

太白厅
Tai Bai Hall

Qin Ling Hall way

秦岭厅A
Qin Ling Hall A

秦岭厅B
Qin Ling Hall B

Poster Corridor

五楼平面图
Fifth floor plan

餐厅
Restaurant

电梯
Elevator

餐厅
Restaurant

餐厅
Restaurant

餐厅入口
Entrance
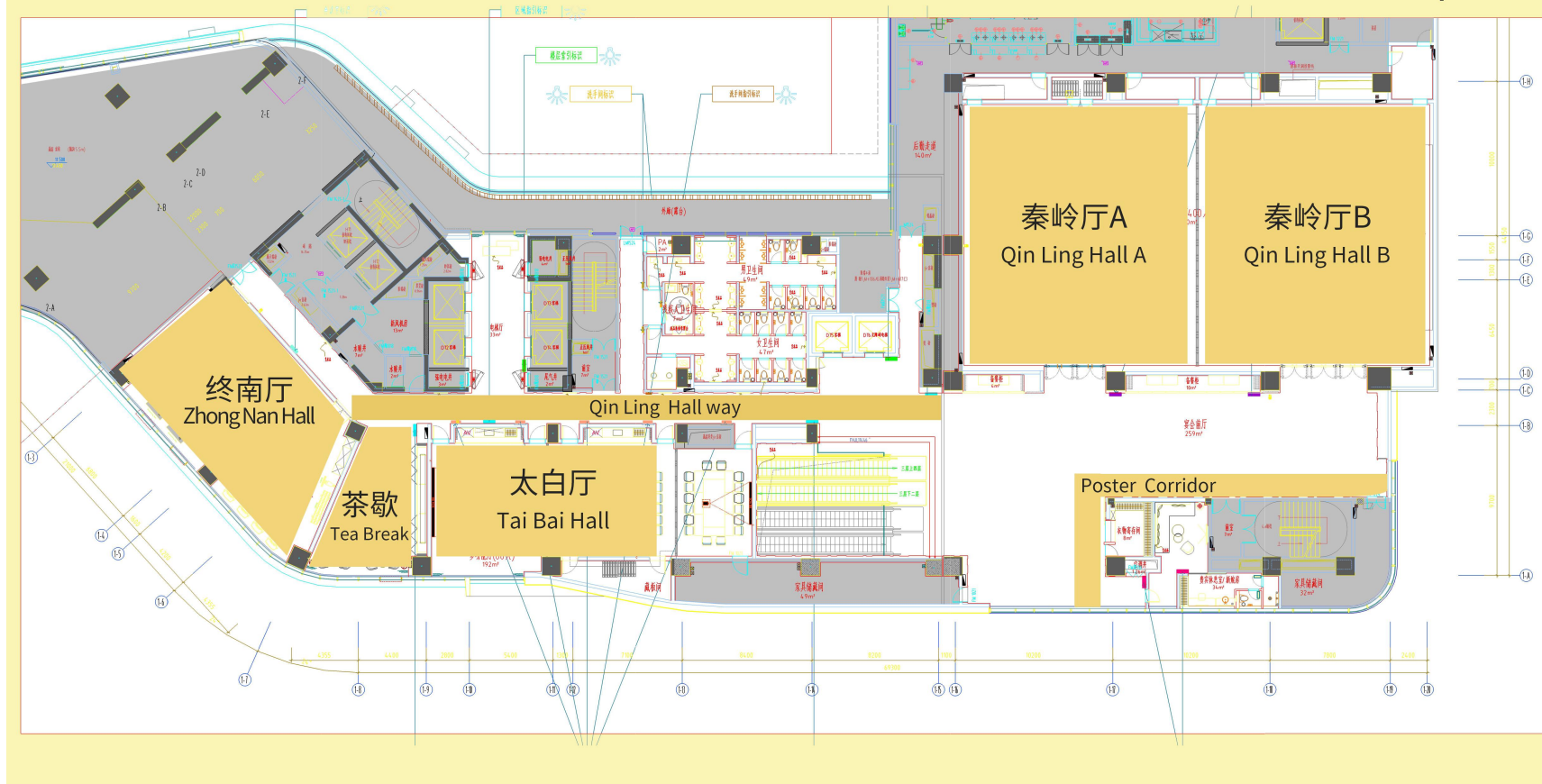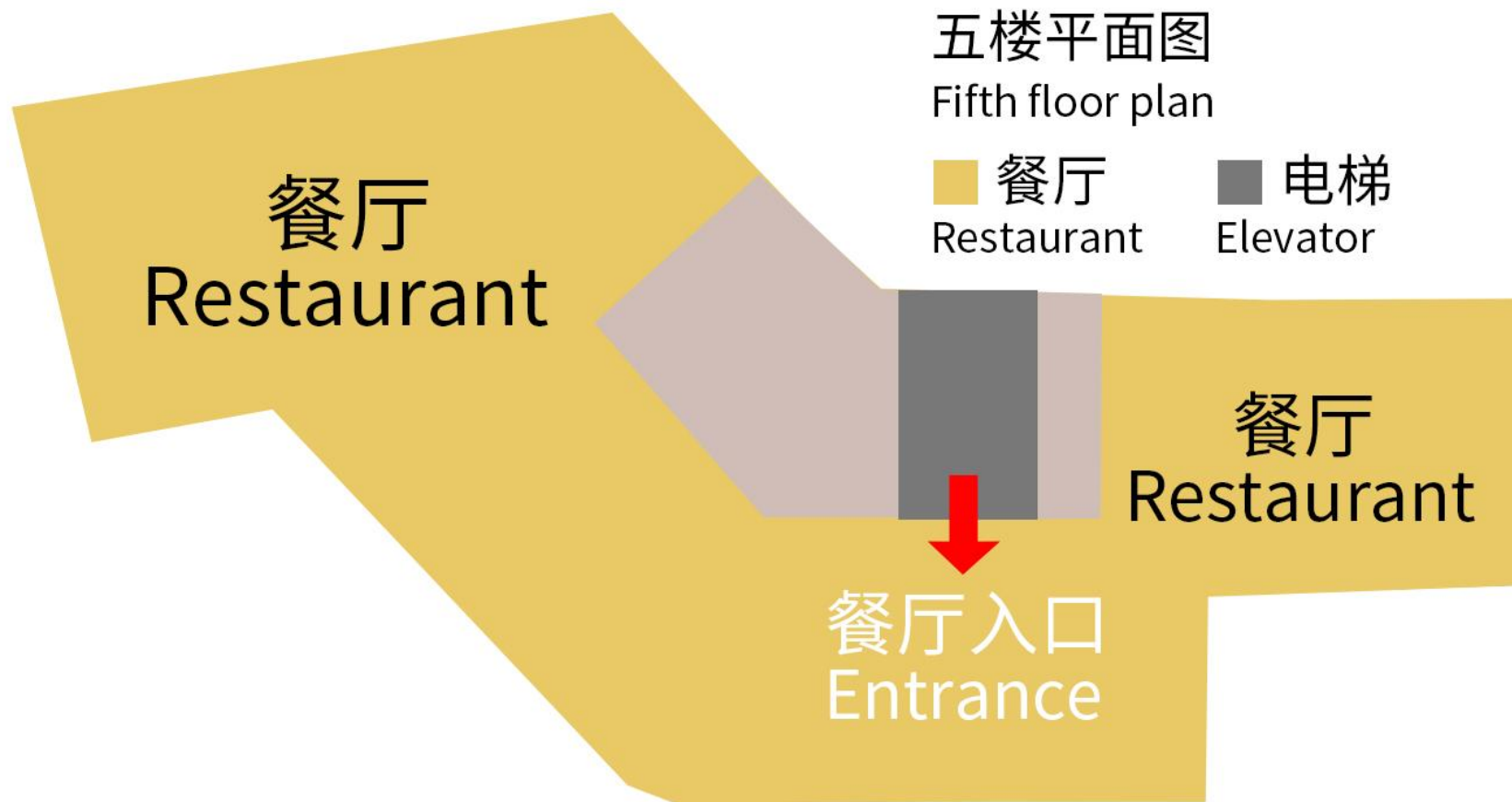
交 通 路 线 图
Traffic Routes

西安咸阳国际机场--西安浐灞悦苑酒店
Xi'an Xianyang International Airport -- Chanba Yueyuan Hotel
距离35公里（车程30分钟）
Distance 35 kilometers (30 minutes by car)

西安北站--西安浐灞悦苑酒店
Xi'an North railway station -- Chanba Yueyuan Hotel
距离13公里（车程22分钟）
Distance 13 kilometers (22 minutes by car)

PROGRAM GLANCE

Registration: Qinling Hallway		
August 04 15:00-21:00	August 05 07:30-15:00	August 06 08:30-10:00

Saturday (August 05，2023)	
8:30-9:05	***Opening Ceremony: Qinling Hall***
9:05-9:35	**Keynote speech:** *Qinling Hall*
9:35-9:50	***Group Photo & Coffee Break: Qinling Hallway***
9:50-11:50	**Keynote speech:** *Qinling Hall*
12:00-13:30	***Lunch Buffet: Nook Restaurant at 5th floor***
13:30-14:40	**A1:** Green, Intelligent, and Connected Vehicles**,** *Qinling Hall-A*
	B1: Traffic Operation and Transportation System Management**,** *Qinling Hall-B*
	C1: Autonomous Ships and Smart Shipping-Part 1, *Taibai Hall*
	D1: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 1, *Zhongnan Hall*
	E1: Poster presentation – Part 1, *Corridor*
14:40-14:50	***Coffee Break: Qinling Hallway***
14:50-16:00	**A2:** Advanced Transportation Information and Control Engineering – Part 1**,** *Qinling Hall-A*
	B2: Transportation Environment and Sustainability – Part 1**,** *Qinling Hall-B*
	C2: Autonomous Ships and Smart Shipping – Part 2, *Taibai Hall*
	D2: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 2, *Zhongnan Hall*
	E2: Poster presentation – Part 2, *Corridor*
16:00-16:10	***Coffee Break: Qinling Hallway***
16:10-18:10	**A3:** Advanced Transportation Information and Control Engineering – Part 2**,** *Qinling Hall-A*
	B3: Transportation Environment and Sustainability –Part 2**,** *Qinling Hall-B*
	C3: Autonomous Ships and Smart Shipping – Part 3, *Taibai Hall*
	D3: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 3, *Zhongnan Hall*
	E3: Poster presentation – Part 3, *Corridor*
17:20-18:30	***Coffee Break: Qinling Hallway***
18:30-20:30	***Welcome Dinner: Qinling Hall***

Sunday (August 06，2023)	
8:30-9:40	**A4:** Waterborne Transportation Intelligent Management – Part 1**,** *Qinling Hall-A*
	B4: Reliability and Green Technology for Ships – Part 1, *Qinling Hall-B*
	C4: Transportation Behavior, Safety, and Security – Part 1, *Taibai Hall*
	D4: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 4, *Zhongnan Hall*
9:40-9:50	*Coffee Break: Qinling Hallway*
9:50-11:00	**A5:** Waterborne Transportation Intelligent Management – Part 2**,** *Qinling Hall-A*
	B5: Reliability and Green Technology for Ships – Part 2**,** *Qinling Hall-B*
	C5: Transportation Behavior, Safety, and Security – Part 2, *Taibai Hall*
	D5: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 5, *Zhongnan Hall*
11:00-11:10	*Coffee Break: Qinling Hallway*
11:10-12:00	**A6:** Waterborne Transportation Intelligent Management – Part 3**,** *Qinling Hall-A*
	B6: Reliability and Green Technology for Ships – Part 3**,** *Qinling Hall-B*
	C6: Smart Resilient and Multimodal Transportation, *Taibai Hall*
	D6: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 6, *Zhongnan Hall*
12:00-13:30	*Lunch Buffet: Nook Restaurant at 5th floor*
13:30-14:40	**A7:** Research Network on Emergency Resources Supply Chain, *Qinling Hall-A*
	B7: Reliability and Green Technology for Ships – Part 4**,** *Qinling Hall-B*
	C7: Salvage and Underwater Technology, *Taibai Hall*
14:40-14:50	*Coffee Break: Qinling Hallway*
14:50-16:00	**A8:** Transportation Infrastructure Design, Monitoring and Planning, *Qinling Hall-A*
	B8: Aviation Intelligent Management and Safety: Theory and Method**,** *Qinling Hall-B*
	C8: Rail Transportation Intelligent Management and Safety, *Taibai Hall*

CONFERENCE PROGRAM

	Saturday (August 05，2023)
	Opening Ceremony and Keynote Speech **Venue:** *Qinling Hall*
	Opening Remarks **Chair: ZHAO, Xiangmo,** Professor, President, Xi'an Technogical University, China
8:30-9:05	**ZHANG, Chunzhi**, Professor, Vice President, China Communications and Transportation of Association **LU, Meng**, IEEE Executive Committee Member /Vice President: Standards Activities **ZHONG, Ming**, Executive Secretary, International Affairs Committee, CSCE **SHA, Aimin**, Professor, President, Chang'an University, China **ARIAS-ARANDA, Daniel**, Professor, University of Granada **YAN, Xinping**, Academician of Chinese Academy of Engineering, Professor, Wuhan University of Technology
	Keynote Speech **Chair: WU, Chaozhong,** Professor, Vice President, Wuhan University of Technology, China
9:05-9:30	**Title: Developments on Technologies for Unmanned and Autonomous Ships** **GUEDES SOARES, Carlos**, University of Lisbon, Fellow of the Portuguese Academy of Engineering
9:30-9:45	***Group Photo and Coffee Break*** Venue: *Qinling Hallway*
9:45-10:10	**Title: Development Activities of ICV and Smart Mobility in China** **LI, Keqiang**, Academician of Chinese Academy of Engineering, Professor, Tsinghua University
10:10-10:35	**Title: Digital Infrastructure-Supported Cooperative & Automated Driving** **LU, Meng**, Executive Committee Member / VP Standards Activities IEEE ITSS
10:35-11:00	**Title: Autonomous Driving, Networks and Data Security** **PANG, Song**, Former Director, Department of Science and Technology, Ministry of Transport
11:00-11:25	**Title: A framework for Combining Lateral and Longitudinal Accelerations to Assess Driver's Driving Style using Unsupervised Approach** **YAMAMOTO, Toshiyuki**, Professor, Vice Director at Institute of Materials and Systems for Sustainability, Nagoya University, Japan
11:25-11:50	**Title: Technology Evolution and Development Trend of Intelligent Transportation Systems** **GUAN, Jizhen**, Former General Secretary of China ITS Association
12:00-13:30	***Lunch Buffet: Nook Restaurant at 5th floor***

TECHNICAL PRESENTATION

A1: Green, Intelligent, and connected Vehicles

CHAIR: Dr. Xuan ZHAO
TIME: August 05, 2023, Saturday, 13:30-14:40
VENUE: *Qinling Hall-A*

INVITED SPEECH: 13:30-13:50
Title: A Vehicle Cooperative Adaptive Cruise Control Method
Presenter: Jin MAO, Professor, Xi'an University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
Understanding Drivers' Emotion Variations During NDRTs in Conditional Automated Driving Using EEG Data	303	13:50-14:00	GUO, Wenhui
Extension Integrated Control of Electric Vehicles AFS/DYC Based on LQR	402	14:00-14:10	ZHENG, Zichen
A Safety Enhancing Framework for Autonomous Vehicles with a Resilience Rationale	425	14:10-14:20	FANG, Yukun
Statistical Characteristics of Driver Acceleration Behavior and its Application in Autonomous Driving	--	14:20-14:30	LIU, Rui

B1: Traffic Operation and Transportation System Management

CHAIR: Dr. Siyuan GONG,
TIME: August 05, 2023, Saturday, 13:30-14:40
VENUE: *Qinling Hall-B*

INVITED SPEECH: 13:30-13:50
Title: No More Road Bullying: An Integrated Behavioral and Motion Planner with Proactive Right-of-Way Acquisition Capability
Presenter: Jia HU, Professor, Tongji University

PRESENTATION	PAPER ID	TIME	PRESENTER
Path Planning for Intelligent Autonomous Vehicles in Container Terminals Based on Dynamic Traffic Flow Assignment	73	13:50-14:00	LUO, Lihua
Regulation Countermeasures of Parking Demand in Megacities with Consideration of People's Livelihood Guarantee	120	14:00-14:10	WANG, Xinyue
Ship Lock Scheduling Method of Three Gorges Based on Improved Ant Colony and Surplus Rectangle Fill Algorithm	380	14:10-14:20	LI, Zhenyao
Selective Vehicle Routing Problem with Reserved Requests and Time Windows	266	14:20-14:30	ZHENG, Wenjia
Application of Big Data Technology in Standardized Operation Management of Urban Rail Transit	176	14:30-14:40	CHEN, Yuanjing

C1: Autonomous Ships and Smart Shipping - Part 1

CHAIR: Dr. Jialun LIU
TIME: August 05, 2023, Saturday, 13:30-14:40
VENUE: *Taibai Hall*

INVITED SPEECH: 13:30-13:50
Title: Safety-Critical Coordinated Control of Autonomous Surface Vehicles Based on Control Barrier Function
Presenter: Zhouhua PENG, Professor, Dalian Maritime University

PRESENTATION	PAPER ID	TIME	PRESENTER
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Research on Cyber-Physical Fusion Test and Verification for Remote-Controlled Ship	82	14:06-14:14	LIN, Nan
Blockchain-Based Validation of Event Advertisement and Trust Evaluation for the Next Generation Navigation System	95	14:14-14:22	YE, Ting
Research on ship path planning algorithm based on an improved RRT algorithm	111	14:22-14:30	CHEN, Ran
Trajectory Generation for Autonomous Surface Ships based on B-spline Curves	166	14:30-14:38	YANG, Fan

D1: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 1

CHAIR: Dr. Weibin ZHANG
TIME: August 05, 2023, Saturday, 13:30-14:40
VENUE: *Zhongnan Hall*

PRESENTATION	PAPER ID	TIME	PRESENTER
A Statistical Analysis of the Maritime Accidents in 2015-2020 in China Waters	34	13:30-13:40	JIANG, Haiyang
Research on Mining the Causal Factors of Ship Collision Accidents Based on Grounded Theory	35	13:40-13:50	LI, MengQin
Quantitative Analysis on Risk Influencing Factors for Major Maritime Accidents from a Worldwide Perspective	36	13:50-14:00	CHEN, Yihai
Significant HOF Analysis of Ship Grounding Accidents Based on HFACS and FBN	37	14:00-14:10	ZHANG, Lan
A Ship Pilot On-duty State Recognition Model Based Slow Fast Network and Attention Mechanism	39	14:10-14:20	XUE, Han
Real-time Risk Assessment of Autonomous Ships Based on STPA and FTPN	459	14:20-14:30	LIU, PengJie
The Impacts of Personal Protective Measures on the Safety of Pilotage Operations During the COVID-19 Epidemic	472	14:30-14:40	WANG, Huanxin

A2: Advanced Transportation Information and Control Engineering – Part 1

CHAIR: Dr. Yi HE
TIME: August 05, 2023, Saturday, 14:50-16:00
VENUE: *Qinling Hall-A*

INVITED SPEECH: 14:50-15:10
Title: Traffic Cooperative Emergency Management in Major Events
Presenter: Meng LI, Professor, Tsinghua University

PRESENTATION	PAPER ID	TIME	PRESENTER
Regional Traffic Flow Prediction Model Based on Mobile Signaling Data	119	15:10-15:20	XU, Xun
A Lightweight Ship Identification Method for Embedded Devices in Marine Radar Surveillance Systems	200	15:20-15:30	KANG, Zhe
A Scenario-Based Method for Evaluating the Efficiency of Vehicle-Road Cooperative Perception	272	15:30-15:40	LI, Ruifen
Joint Intensity and Event Framework for Vehical Detection in Degraded Conditions	387	15:40-15:50	YANG, Nan

B2: Transportation Environment and Sustainability – Part 1

CHAIR: Dr.Lan YANG
TIME: August 05, 2023, Saturday, 14:50-16:00
VENUE: *Qinling Hall-B*

INVITED SPEECH: 14:50-15:10
Title: Prospects for The Development of Connected and Autonomous Transportation Safety Technology
Presenter: Helai HUANG, Professor, Central South University

PRESENTATION	PAPER ID	TIME	PRESENTER
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Distribution characteristics of water pollutants discharged in the typical petrochemical terminal	14	15:18-15:26	GUO, Jianqun
Characteristics and correlation analysis of fog distribution in the upper Yangtze River waterways	55	15:26-15:34	PENG, Zhenxian
Prediction and mitigation of PM2.5 in coastal ports of China	76	15:34-15:42	YANG, Yuanyuan
The impact of HSR on the regional economy of the Yangtze River Delta - An empirical analysis based on night-time lighting data	118	15:42-15:50	YAN, Jin
Capacity configuration optimization of port multi-energy system integrating wind turbine/photovoltaic/battery/hydrogen	231	15:50-15:58	CHEN, Zhe

C2: Autonomous Ships and Smart Shipping – Part 2

CHAIR: Dr. Linying CHEN
TIME: August 05, 2023, Saturday, 14:50-16:00
VENUE: *Taibai Hall*

INVITED SPEECH: 14:50-15:10 Title: Testing on Planning and Control Functions of Intelligent Ships: Why and How？ Presenter: Jialun LIU, Associate Researcher, Wuhan University of Technology			
PRESENTATION	**PAPER ID**	**TIME**	**PRESENTER**
Research Status and Technology Prospects of Scenario Generation Methods for Ship Collision Avoidance Tests	191	15:10-15:20	LIU, Donghao
Prioritization of Influencing Factors for Remote Control Intelligent Ships Collision Based on Fuzzy Fault Tree Analysis	329	15:20-15:30	WANG, Ziyue
Trigger Event(s) Identification for Switching Operational Mode of Maritime Autonomous Surface Ships	436	15:30-15:40	FAN, Cunlong
Haze Removal and Ship Tracking in Hazy Weather Based on Deep Learning	492	15:40-15:50	ZHAO, Jiansen
Adaptive Coordinated Path Following Control of USVs for Offshore Oil Spill Surveillance	502	15:50-16:00	WANG, Haoliang

D2: Waterborne Transportation Safety, Accident Prevention and Emergency Response –Part 2

CHAIR: Dr. Jinfen ZHANG
TIME: August 05, 2023, Saturday, 14:50-16:00
VENUE: *Zhongnan Hall*

INVITED SPEECH: 14:50-15:10 Title: AIS Data Repair Model Based on Generative Adversarial Network Presenter: Weibin ZHANG, Nanjing University of Science and Technology			
PRESENTATION	**PAPER ID**	**TIME**	**PRESENTER**
The Jump Point Search Algorithm Based Ship Path Planning in the Arctic Environment	40	15:10-15:20	SUN, Youguo
Systematic Analysis of Human Factors in Maritime Transportation	41	15:20-15:30	FAN, Shiqi
Navigation Characteristics Inversion Approach of Inland Waterways Based on Ship Maneuvering Prediction: A Case Study for the Huaihe River	48	15:30-15:40	LAI, Longhua
The CFD-DEM Coupled Numerical Simulation for the Oil Spill in Ice-covered Waters	50	15:40-15:50	LIU, Rong
Feature Analysis of Icebreaker Escort Operations in Ice-covered Arctic Waters	60	15:50-16:00	LI, Jinyu

A3: Advanced Transportation Information and Control Engineering – Part 2

CHAIR: Dr. Zhanwen LIU / Dr. Zhijun CHEN
TIME: August 05, 2023, Saturday, 16:10-17:20
VENUE: *Qinling Hall-A*

INVITED SPEECH: 16:10-16:30
Title: Development and Application of Naturalistic Vehicle Trajectory Dataset (WUT-NGSIM)
Presenter: Yi HE, Associate Professor, Wuhan University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
Evaluation Framework for Train Delays Prediction Models	409	16:30-16:40	YONG, Tiong Kah
Adaptive Keeping Probability Algorithm to Reduce Resource Collisions in LTE-V2X	454	16:40-16:50	WANG, Yuanhao
3D Object Detection with Fusion of Max-sum Encoding and Gaussian Filtering	515	16:50-17:00	LIU, Shengxian
Robust Model Predictive Ship Heading Control with Event-triggered Strategy	569	17:00-17:10	LI, Tailong

B3: Transportation Environment and Sustainability – Part 2

CHAIR: Dr. Xiaofeng MA
TIME: August 05, 2023, Saturday, 16:10-17:20
VENUE: *Qinling Hall-B*

INVITED SPEECH: 16:10-16:30
Title: Collaborative Control of the Inner Boundary and Ramp of the Intelligent Connected No-lane Expressway
Presenter: Yibing WANG, Professor, Zhejiang University

PRESENTATION	PAPER ID	TIME	PRESENTER
Modeling and Control Study of Hydrogen System for Port Hydrogen Equipment	232	16:30-16:40	LI, Gengchen
A Survey on Collaborative Collision Warning of Connected Vehicles at Signal-Free intersections*	432	16:40-16:50	FAN, Haijin
Interrelations between Transportation Infrastructure and Carbon Emissions in the Yangtze River Delta	443	16:50-17:00	XU, Nuo
Dynamic Risk Detection and Early Warning Strategy for Vehicle Collisions at Signal-free Intersections	495	17:00-17:10	FAN, Haijin
Review on Test Method of Highly Automated Vehicles based on Scenarios Testing	523	17:10-17:20	XIA, Li

C3: Autonomous Ships and Smart Shipping – Part 3

CHAIR: Dr. Zhouhua PENG
TIME: August 05, 2023, Saturday, 16:10-17:20
VENUE: *Taibai Hall*

INVITED SPEECH: 16:10-16:30
Title: Ship Emission Reduction via Energy Saving Formation
Presenter: Linying CHEN, Associate Professor, Wuhan University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
Design and Implementation of Ship Obstacle Avoidance System Based on Channel Simulation	511	16:30-16:40	CHEN, Ruishu
Impact Factors and Safety Analysis of Takeover Behavior in Remote Control of Maritime Autonomous Surface Ships	559	16:40-16:50	CHEN, Guanglin
Health Risk Assessment in Maritime Operations and Ship Design: A Framework for addressing Health-related Risks in the Context of Maritime Safety Assessment	560	16:50-17:00	VENTIKOS, Nikolaos P.
Distributed Model Predictive Control of Inland Ship Platoon Considering Internal Collision Avoidance Constraints	571	17:00-17:10	WANG, Chenguang
Time-based Resilience Enhancement with Dual Berth Allocation Strategies in Bulk Cargo Terminals under Machinery Failure Scenarios	573	17:10-17:20	LV, Yaqiong

D3: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 3

CHAIR: Dr. Jinfen ZHANG
TIME: August 05, 2023, Saturday, 16:10-17:20
VENUE: *Zhongnan Hall*

INVITED SPEECH: 16:10-16:30
Title: Factor Diagnosis and Governance Strategies of Ship Oil Spill Accidents Based on Formal Concept Analysis
Presenter: Jihong CHEN, Professor, Shenzhen University

PRESENTATION	PAPER ID	TIME	PRESENTER
An Improved Artificial Potential Field for Vessel Collision-avoidance Path Planning	77	16:30-16:40	JIA, Cheng
Vulnerability Analysis of Strategic Maritime Thoroughfare Network	91	16:40-16:50	HUANG, Daozheng
Benchmark Study on the Statistical and Machine Learning on the Prediction of Arctic Sea Ice Concentration	103	16:50-17:00	WU, Yeyuan
Risk Identification Analysis of Fire Accidents for Passenger Ships by FMEA	130	17:00-17:10	JIANG, Chailu
Feature and Cause Analysis of Global Ship Contact Accidents by Using DEMATEL-AR	131	17:10-17:20	CAI, Dujie

A4: Waterborne Transportation Intelligent Management – Part 1

CHAIR: Dr. Yamin Huang
TIME: August 06, 2023, Sunday, 8:30-9:40
VENUE: *Qinling Hall-A*

INVITED SPEECH: 8:30-8:50
Title: Safety and Efficiency Warranted Vessel Scheduling in Unidirectional Multi-junction Waterways of Port Waters
Presenter: Wenyuan Wang, Associate Professor, Dalian University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
Research on the Status Quo and Development Mode of Water Transport Industry in Jiangxi, China	12	8:50-9:00	JIANG, Zhonglian
An Automated SAR-based Method for Ship Detection in Maritime Surveillance System	59	9:00-9:10	XU, Zidong
A System Dynamic-based Method for Measuring the Operational Resilience of Container Ports	64	9:10-9:20	HUANG, Jiaju
Evolutionary Game Model of Strategic Transport Passages in the Context of Belt and Road Initiative: A Case of the Strait of Malacca	89	9:20-9:30	HUANG, Daozheng
Performance Analysis of Ship Target Recognition in Multi-Band Infrared Images Based on Deep Learning	104	9:30-9:40	LI, Yuli

B4: Reliability and Green Technology for Ships – Part 1

CHAIR: Dr. Da WU
TIME: August 06, 2023, Sunday, 8:30-9:40
VENUE: *Qinling Hall-B*

INVITED SPEECH: 8:30-8:50
Title: Structural Reliability Aspects for Arctic Ships
Presenter: Wei CHAI, Professor, Wuhan University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
Research on Online Identification Method of Ship Condition Based on Improved DBN Algorithm	87	8:50-9:00	GUO, Xiaodong
A Novel Ship Power System Using Zero Carbon Fuel and its Energy Efficiency Management Method	101	9:00-9:10	HUA, Yu
Spatial-temporal Characteristics Analysis and Vibration Measurement of Cargo Hold in Bulk Carrier for Cargo Performance	177	9:10-9:20	SHI, Zechen
Research on Modelling Method of Ship Hybrid Power System	228	9:20-9:30	TIAN, Zhiqi
Prediction of Equivalent Pivot of Stern Bearing with Inclined Shaft and Iterative Alignment of Shafting	235	9:30-9:40	ZHOU, Zhenjiang

C4: Transportation Behavior, Safety, and Security – Part 1

CHAIR: Dr. Naikan DING
TIME: August 06, 2023, Sunday, 8:30-9:40
VENUE: *Taibai Hall*

INVITED SPEECH: 8:30-8:50
Title: A Novel Traffic Conflicts Simulation Approach—from Correlation to Distribution
Presenter: Yanyong GUO, Professor, Southeast University

PRESENTATION	PAPER ID	TIME	PRESENTER
Fire Risk Assessment and Simulation of Electric Logistics Vehicle based on Data-driven Bayesian Networks	80	8:50-9:00	YU, Yang
Correlation Analysis and Application of Railway Accident Risk Factors Fusing Experience and Data	159	9:00-9:10	WU, Zhaotian
A Method for Constructing Maritime Traffic Networks from AIS Data using DBSACN Algorithm	181	9:10-9:20	TAO, Jiale
Research on Parking Sharing Choice Model in Residential Areas Considering Psychological Latent Variables	271	9:20-9:30	ZHOU, Jiejie
Measuring the Influence of Climate and Weather factors on Urban Public Bicycle Usage - A Case Study of Suzhou	285	9:30-9:40	LI, Na

D4: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 4

CHAIR: Dr. Chengpeng WAN
TIME: August 06, 2023, Sunday, 8:30-9:40
VENUE: *Zhongnan Hall*

PRESENTATION	PAPER ID	TIME	PRESENTER
Identification of Accident Black Spots in Inland Rivers Based on DBSCAN with Adaptive Parameters Determination Method	147	8:30-8:40	GUO, Shilong
Ship Collision Avoidance Method in Starboard-to-starboard Head-on Situations	154	8:40-8:50	LI, Hao
Motion Prediction of Tugboats Using Hidden Markov model	156	8:50-9:00	ZHANG, Zijian
Risk Evolution Analysis of Maritime Traffic Accidents in Coastal Areas of China	168	9:00-9:10	LIU, Yifei
A Multi-modal Automatic Collision Avoidance Approach for Radar-viewing Windows with Multiple Ship Potential Fields	174	9:10-9:20	ZHU, Qinghua
A Spatial-temporal Analysis on Maritime Accidents with Sample Point Density Clustering	180	9:20-9:30	LIU, Weihua
Quantitative Analysis of Collision Avoidance Actions Timing for Stand-on Vessels	194	9:30-9:40	TONG, Yan

A5: Waterborne Transportation Intelligent Management – Part 2

CHAIR: Dr. Wenyuan WANG
TIME: August 06, 2023, Sunday, 9:50-11:00
VENUE: *Qinling Hall-A*

INVITED SPEECH: 9:50-10:10
Title: A Holographic Navigation Scene Map for Waterborne Transportation Control and Management
Presenter: Yuanqiao WEN, Professor, Wuhan University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
Constructing Waterborne Big Data Platform from the Perspective of Resilient Transportation	126	10:10-10:20	LIU, Chenglin
A Big Data Method for the Evaluation of Ship Domain in Regional Historical Data	149	10:20-10:30	ZHAO, Jie
An Improved VMD-GRU Model for Forecasting the Container Freight Volume of Inland Ports	155	10:30-10:40	LI, Xinyuan
A Comparison and Selecting Model for Ship Traffic Organization Schemes Based on Cellular Automata and the Serial Number Sum TheoryA Comparison and Selecting Model for Ship Traffic Organization Schemes Based on Cellular Automata and the Serial Number Sum Theory	182	10:40-10:50	ZHU, Ranchao
Research on the Service Level of Water Transportation from the Perspective of Traffic Differences	288	10:50-11:00	ZHUANG, Siqing

B5: Reliability and Green Technology for Ships – Part 2

CHAIR: Dr. Ailong FAN
TIME: August 06, 2023, Sunday, 9:50-11:00
VENUE: *Qinling Hall-B*

INVITED SPEECH: 9:50-10:10
Title: Digital Modeling of Marine Energy Storage System and Intelligent Power Control
Presenter: Sidun FANG, Professor, Chongqing University

PRESENTATION	PAPER ID	TIME	PRESENTER
Study on Friction and Sliding Wear Performance of Thordon Material under Dry Friction and Starved-water Lubrication	237	10:10-10:20	YANG, Fan
Vibration Characteristics of Additive Manufactured IWP-type TPMS Gradient Lattice Structures	240	10:20-10:30	QIAO, Hui
Research on the Comprehensive Performance Evaluation Framework of Hybrid Energy Storage System for All-electric Ships Based on AHP and Entropy Weight Method	243	10:30-10:40	ZHANG, Mengru
A Fault Diagnosis Method for Marine Hydraulic Steering Gear Based on Bayesian Networks	256	10:40-10:50	CHU, Lanfang
Research on Accelerated Method for Electrochemical Acidity Sensor Monitoring	286	10:50-11:00	ZHOU, Fanhao

C5: Transportation Behavior, Safety, and Security – Part 2

CHAIR: Dr. Ying LI
TIME: August 06, 2023, Sunday, 9:50-11:00
VENUE: *Taibai Hall*

INVITED SPEECH: 9:50-10:10
Title: Real-time Crash Risk Assessments and Dynamic Traffic Flow Controls on Freeways
Presenter: Chengcheng XU, Professor, Southeast University

PRESENTATION	PAPER ID	TIME	PRESENTER
Predicting Drivers' Speeding Behaviour: A Case-based Reasoning Approach	326	10:10-10:20	ZHONG, Qiaoting
Pattern Analysis of Transfer Behavior of Public Transit Passengers via Smart Card Data	374	10:20-10:30	HAN, Pengfei
General Aviation Accident Masking Causation Based on the HFACS Model Analysis	536	10:30-10:40	WANG, Jingjing
Collision Risk Hotspot Identification based on AIS Data and DBSCAN Algorithm	566	10:40-10:50	SUN, Jiawei
Safety Benefits Evaluation of Mixed Traffic Flow with Connected and Automated Vehicles under Snowy Conditions	92	10:50-11:00	DING, Naikan

D5: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 5

CHAIR: Dr. Chengpeng WAN
TIME: August 06, 2023, Sunday, 9:50-11:00
VENUE: *Zhongnan Hall*

INVITED SPEECH: 9:50-10:10
Title: Autonomous Guidance and Control for Marine Vehicles with the Air-sea Cooperative Supporting Mechanism
Presenter: Guoqing ZHANG, Professor, Dalian Maritime University

PRESENTATION	PAPER ID	TIME	PRESENTER
A Fuzzy Logic-based Model for Evaluating Grounding Risk of Inland River Ships	210	10:10-10:20	WANG, Jihui
Assessment of Safety Resilience in Arctic Shipping	255	10:20-10:30	JIANG, Han
Dynamic Evolution Analysis of Ship's Port State Control Inspection Based on Bayesian Networks	268	10:30-10:40	JIANG, Han
Ship Detention Prediction Based on Ensemble Learning Method	310	10:40-10:50	QIAN, Chenyu
Abnormal Behavior Detection and Risk Analysis of Ships in the Yangtze River Estuary	323	10:50-11:00	SHEN, Xinyu

A6: Waterborne Transportation Intelligent Management – Part 3

CHAIR: Dr. Huarong ZHENG
TIME: August 06, 2023, Sunday, 11:10-12:20
VENUE: *Qinling Hall-A*

INVITED SPEECH: 11:10-11:30
Title: Data-driven Control for Autonomous Ships: Recent Advances and Experimental Results
Presenter: Shijie LI, Associate Professor, Wuhan University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
COLREGs-compliant Autonomous Collision Avoidance Method Based on Deep Reinforcement Learning for USVs	389	11:30-11:40	WANG, Zhiwen
Collaboration Scheme for Multi-Ship Collision Avoidance Using Available Maneuvering Margin	394	11:40-11:50	ZHANG, Jinkun
Extraction of Ship Route Using Gaussian Process Regression for Passenger Ships	429	11:50-12:00	GONG, Zhenyu
Semantic-driven Behavior Modeling and Recognition of Tugboat	543	12:00-12:10	CHEN, Jiuji
Design of VTS Radar Image-driven Ship traffic Flow Simulation System	551	12:10-12:20	NI, Wenke

B6: Reliability and Green Technology for Ships – Part 3

CHAIR: Dr. Da WU
TIME: August 06, 2023, Sunday, 11:10-12:20
VENUE: *Qinling Hall-B*

INVITED SPEECH: 11:10-11:30
Title: Data-driven Ship Performance Models - Emphasis on Energy Efficiency and Fatigue Safety
Presenter: Da WU, Assistant Researcher, Wuhan University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
Study on Optimization and characteristics of Ship-based Carbon Capture System Based on Intercooling Process	294	11:30-11:40	WANG, Zhonghao
Ship-based Carbon Capture of LNG Ships under Off-design Conditions	300	11:40-11:50	DONG, Shengjie
Influence Analysis of Podded Propulsors Installation Position Based on Self Propulsion Simulation	309	11:50-12:00	WU, Rui
Experimental Study on Dual-channel Active Control Method for Transverse Vibration of Ship Propulsion Shaft System	321	12:00-12:10	YAN, HanXing
The Effect of Creep on the Lubrication Property of Rubber-plastic Composite Water-lubricated Bearings	345	12:10-12:20	GUO, Xu

C6: Smart Resilient and Multimodal Transportation

CHAIR: Dr. Qingchang LU
TIME: August 06, 2023, Sunday, 11:10-12:20
VENUE: *Taibai Hall*

INVITED SPEECH: 11:10-11:30
Title: Transportation Adaptation Planning: Dealing with Uncertainty Impacts and Efficacy of Climate Change and Adaptation Measures   **Presenter:** Zhong-Ren PENG, Professor, University of Florida

PRESENTATION	PAPER ID	TIME	PRESENTER
Resilience Assessment of Subway Network Based on Monte Carlo Simulation - Xi'an Subway as an Example	468	11:30-11:40	BAI, Fan
Urban Transportation Network Resilience Assessment Based on Entropy Weight Method and GMM Clustering Algorithm	469	11:40-11:50	LIU, Yuanxue
Research on Policy Options to Improve the Controllability of Strategic Material Supply Chain	212	11:50-12:00	ZHU, Lequn
Weighting Attributes of MaaS Bundles from Travelers' Perspective Using Best-worst Scaling	--	12:00-12:10	PAN, Xiaofeng
Modeling and Assessing the Interdependency of Metro-bus Transit Networks under Disruptive Incidents: A Supply-demand-based Approach	--	12:10-12:20	XU, Pengcheng

D6: Waterborne Transportation Safety, Accident Prevention and Emergency Response – Part 6

CHAIR: Dr. Guoqing ZHANG
TIME: August 06, 2023, Sunday, 11:10-12:20
VENUE: *Zhongnan Hall*

PRESENTATION	PAPER ID	TIME	PRESENTER
Container Ship Fire Risk Assessment Based on Dynamic Bayesian Network Model	473	11:10-11:20	WU, Jialing
Developing Risk Reduction Strategies of Typhoon Disaster for Ports from the Perspective of Resilience	506	11:20-11:30	YUAN, Jupeng
Fuzzy Logic Based Approach for Navigation Obstruction Risk of Shipwreck in Yangtze River	552	11:30-13:40	DONG, XiaoHe
Study on Traffic Flow Characteristics of Arriving Ships in Qinzhou Port	556	11:40-11:50	WANG, Xin
Investigating the Causes of Vessel Besetting in the Ice Channel in the Baltic Sea Using AIS Data and Sentinel Imagery	562	11:50-12:00	XU, Sheng
Study on Fire Risk of Pure Car Carrier Vessels Carrying New Energy Vehicle	572	12:00-12:10	YAO, Junjie

A7: Research Network on Emergency Resources Supply Chain

CHAIR: Dr. Wu OUYANG
TIME: August 06, 2023, Sunday, 13:30-14:40
VENUE: *Qinling Hall-A*

INVITED SPEECH: 13:30-13:50
Title: In-situ Measurement and Carrying Capacity Enhancement of Marine Water-lubricated Bearings
Presenter: Wu OUYANG, Professor, Wuhan University of Technology

PRESENTATION	PAPER ID	TIME	PRESENTER
A CNN-based Method for Multisensor and Multiscale Fault Diagnosis of Marine Electric Thruster Bearings under Noise Conditions	427	13:50-13:58	ZHANG, Xueqin
Static and Dynamic Characteristics of a Magnetic-water Double Suspension Rubber-supported Tilting-pad Thrust Bearing	421	13:58-14:06	WANG, Bin
Risk Assessment of Motor Sheath Material with Shaftless Rim-driven Thruster	332	14:06-14:14	WANG, Yanhong
Sensorless PMSM Control Algorithm for Rim-Driven Thruster Based on Second-order Sliding Mode Observer	69	14:14-14:22	YANG, Zhi
Quantitative Study on Wear of Water-lubricated Bearings in Sediment Environment	227	14:22-14:30	WANG, Lun
Effect of Creep on Tribological Properties of Water-lubricated Tail Bearing Materials	224	14:30-14:38	ZHENG, Chao

B7: Reliability and Green Technology for Ships – Part 4

CHAIR: Dr. Ailong Fan
TIME: August 06, 2023, Sunday, 13:30-14:40
VENUE: *Qinling Hall-B*

PRESENTATION	PAPER ID	TIME	PRESENTER
Study on the Performance of Damping Vibration Absorbers of Ship Propeller Shaft Considering Stiffness Variation	385	13:30-13:40	HUANG, Qianwen
A Novel Approach to Green Emissions Reduction and Reliability Improvement in the Maritime Industry: Multi-Table Fusion-Based Full-Life Weight Control Technology	404	13:40-13:50	YU, Siyuan
Research on Thermal Disturbance Control in Supercritical Carbon Dioxide Brayton Cycle	496	13:50-14:00	YU, Wenjie
Analysis of the Impact of Grid-connected AC-DC-AC Power Supply on the Transient Stability of Ship Power Systems Based on VSG	500	14:00-14:10	HAO, Zheng
Thermal-hydraulic Characteristics Analysis of an S-CO2 Printed Circuit Heat Exchanger	517	14:10-14:20	LUO, Xinyu

C7: Salvage and Underwater Technology

CHAIR: Dr. Deshan CHEN
TIME: August 06, 2023, Sunday, 13:30-14:40
VENUE: *Taibai Hall*

INVITED SPEECH: 13:30-13:50 **Title:** Magnetic Sensing and Tracking of Underwater Cable by Flight AUV **Presenter:** Xianbo XIANG, Professor, Huazhong University of Science and Technology			
PRESENTATION	**PAPER ID**	**TIME**	**PRESENTER**
An AUV Formation Control Method Based on Distributed Nonlinear Model Prediction	5	13:50-14:00	SU, Xin
A Multi-Scale Denoising Method for Forward-Looking Sonar Image	29	14:00-14:10	WANG, Zhisen
Structural Design and Experimental Verification of Wave Adaptive Rescue Boat	359	14:10-14:20	WANG, Yansong
Research on the Mechanical Properties of TPU Composite Fiber Membrane and Its Inflatable Structural Components	549	14:20-14:30	LI, Chao
Research on the Causal Chain of Marine Engine Accidents Based on HFACS	568	14:30-14:40	XU, Linlin

A8: Transportation Infrastructure Design, Monitoring and Planning

CHAIR: Dr. Ping WANG
TIME: August 06, 2023, Sunday, 14:50-16:00
VENUE: *Qinling Hall-A*

INVITED SPEECH: 14:50-15:10 **Title:** Charging Station Location Problem **Presenter:** Meng XU, Professor, Beijing Jiaotong University			
PRESENTATION	**PAPER ID**	**TIME**	**PRESENTER**
The Impact of Intercity Railways on Service Industry Agglomeration in Three Great Urban Agglomeration of China	114	15:10-15:20	YANG, Yize
A Method for Analyzing Geographical and Sectoral Distribution of Wider Economic Impact of a Water Transportation Infrastructure Project: A Case Study of Gan-Yue Canal	--	15:20-15:30	ZHONG, Ming
Application of New Generation AI Technology in Autonomous Complex Transportation System	--	15:30-15:40	WANG, Ping
Intelligent Inspection Robot and Digital Maintenance System for Climbing Visual Scanning of Pier Column Structure Diseases	--	15:40-15:50	WANG, Huifeng

B8: Aviation Intelligent Management and Safety: Theory and Method

CHAIR: Dr. Lei Wang
TIME: August 06, 2023, Sunday, 14:50-16:00
VENUE: *Qinling Hall-B*

INVITED SPEECH: 14:50-15:10 **Title:** Vision on Smart Civil Aviation **Presenter:** Yifei ZHAO, Professor, Civil Aviation University of China			
PRESENTATION	**PAPER ID**	**TIME**	**PRESENTER**
Identification of Pilots' Mental Workload under Different Flight Phases Based on a Portable EEG Device	8	15:10-15:18	LIU, Chenglin
Perception of Causal Factors in Flight Operations Between Ab-Initio and Expatriate Pilots	430	15:18-15:26	CHAN, Wesley Tsz-Kin
Research on Trailer Scheduling under a Multi-task Mode at Cargo Hub Airport	476	15:26-15:34	XU, Ziming
Embedding Resilience Attributes in Flight Deck Crew Using a Resilient Growth Model: A Dialogue with Chinese Airlines Pilots	512	15:34-15:42	PANG, Yingqun
A Method of Analyzing Flight Exceedance Events Based on Association Rule and QAR Data	528	15:42-15:50	ZHANG, Nan
Reliability and Validity on Influencing Factors of Pilot Chronic Stress	529	15:50-15:58	LI, Zhuoying

C8: Rail Transportation Intelligent Management and Safety

CHAIR: Dr. Tiantian WANG
TIME: August 06, 2023, Sunday, 14:50-16:00
VENUE: *Taibai Hall*

INVITED SPEECH: 14:50-15:10 **Title:** Fundamental Research on the Operating Safety Risk Assessment of High-speed Trains under Crosswind Conditions **Presenter:** Dongrun Liu, Associate professor, Central South University			
INVITED SPEECH: 15:00-15:10 **Title:** Defect-aware Super-resolution Thermography by Adversarial Learning **Presenter:** Liangliang CHENG, Assistant professor, University of Groningen			
PRESENTATION	**PAPER ID**	**TIME**	**PRESENTER**
Numerical Study on Slipstream-induced Snow Drifting and Accumulation in the Bogie Region	482	15:10-15:20	WANG, Yu
Numerical Study of the Effect of Fresh Air Volume on the Rate of Droplet Removal Rates in the Cabin of High-speed Train	501	15:20-15:30	ZHANG, Hang
Research on the Mechanism of the Influence of Geothermal Distribution on Pressure Fluctuation in the Middle of the Tunnel	509	15:30-15:40	WANG, Junyan
Just-in-Time Railway Transportation of Thermal Coal Considering Safety Inventory and Uncertain Demand	441	15:40-15:50	FENG, Xiaoxue
Experimental Investigation of Vortex-induced Vibration of a Curved Cable-stayed Bridge	531	15:50-16:00	LI, Weilin

POSTER

E1: Poster Presentation-Part 1

TIME: August 05, 2023, Saturday, 13:30-14:40
VENUE: *Corridor*

SITE	POSTER TITLE	PAPER ID
Session VIII: Waterborne Transportation Safety, Accident Prevention and Emergency Response		
1	Semantic Feature Extraction and Classification Inference of Ship Trajectories Using Coding Sequences: A Case Study of the Taiwan Strait	47
2	A Data-driven Risk Analysis of Arctic Ship Navigation Accidents	88
3	Research on Human Factors of Ship Grounding Accident Based on HFACS	236
3	Characterization of Wave Features Based on Momentum Sources of Sphere Structure	322
4	Comparative Analysis and Simulation of LNG Leakage and Diffusion under Different Wind Speeds	455
6	Fuzzy Bayesian-based Approach for Collision Probability Prediction between Commercial and Fishing Vessels	548
Session IX: Waterborne Transportation Intelligent Management		
7	Association Tracking of Vessels Using X-Band Radar Data in Complex Waterborne Environment	116
Session X: Autonomous Ships and Smart Shipping		
8	Research on Collision Avoidance Decision-making of Multiple Intelligent Ships Based on Route Exchange	94
9	Vessel Trajectory Prediction with a Gated Spatio-Temporal Graph Aggregation Network	178
10	Distributed Situational Awareness for Maritime Autonomous Surface Ships in Mixed Waterborne Transport: An Ontology-based Framework	265
11	An Autonomous Decision-making Algorithm for Ship Collision Avoidance Based on DDQN with Prioritized Experience Replay	279
12	Passive Smart Ships Oil Detection Sensor Based on LC Resonance	318
13	AGV Path Planning and Optimization with Deep Reinforcement Learning Model	456
Session XII: Reliability and Green Technology for Ships		
14	Research on Energy Efficiency Test Method of Inland River Hybrid Ship	85
15	Fluid Mixing Optimization Strategy of Catalytic Reactor for Marine SCR System	307
Session XIII: Aviation Intelligent Management and Safety: Theory and Method		
16	Study on Aircraft Diversion Path under Scattered Thunderstorm Condition	467
Session XIV: Multimodal and Emerging Transportation Systems		
17	High-speed Rail Express Transshipment Hub Location and Transportation Timeliness Evaluation	2
18	Research on Location-routing Problem of Highway and High-speed Railway Multimodal Transportation Considering Timeliness Demand	225

E2: Poster Presentation-Part 2

TIME: August 05, 2023, Saturday, 14:50-16:00
VENUE: *Corridor*

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2	Survey on Existing Technologies in Autopilot Systems: Current Status and Future Perspectives	341
3	Time-constrained Shortest Path Search Algorithm for Urban Road Network	440
4	Lane Detection with the Fusion of CBAM Attention Mechanism and Channel Shuffle Module	466
5	A Multimodal Vehicle Trajectory Prediction Method with Spatio-temporal Feature Fusion	486
Session II: Green, Intelligent, and Connected Vehicles		
6	A Cooperative Truck Platooning Approach on Ramp Merging Area of Highway in Mixed Traffic	140
7	Research on Distance Calculation Method of Autonomous Vehicle Based on Direct Sparse Vision	219
8	Understanding Drivers' Emotion Variations During NDRTs in Conditional Automated Driving Using EEG Data	283
9	Vehicle Trajectory Prediction Considering Multi-Vehicle Interaction Using Deep Learning	493
10	A Cooperative Truck Platooning Approach on Ramp Merging Area of Highway in Mixed Traffic	499
11	Safety Risk Identification of Lithium-ion Battery Based on Kolmogorov Complexity	504
Session V: Transportation Infrastructure Design，Monitoring and Planning		
12	Joint Optimization of Parcel Delivery Periodic Location-routing and Prepositioning Disaster Response Facilities	134
13	Potential Urban-railway-feeder Bus Stations Mining and Economic Benefit Evaluation Based on Taxi GPS Data	189
14	Optimization of Bus Routes at Urban Rail Transit Stations Based on Link Growth Probability	192
15	Exploring the Comprehensive Optimization Model for Location Strategy of Bridging Depots: Based on Metro Vulnerability and Information Entropy	377
16	A Vision-based Ship Speed Measurement Method Using Deep Learning	433
17	Hybrid Intersection with Pre-signal: An Innovative Approach to Increase Intersection Capacity	442
18	Principal Component Analysis of Multi-sensor Monitoring for LNG Leakage	450
19	Study on the Effects of Replacing Mineral Powder with HGM on the Cooling Performance and Road Performances of Asphalt Pavement	579
20	Study on the Properties of M-phenylene Type Unsaturated Polyester Resin Modified Asphalt Mixtures	580

E3: Poster Presentation-Part 3

TIME: August 05, 2023, Saturday, 16:10-17:20
VENUE: *Corridor*

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Session III: Traffic Operation and Transportation System Management		
1	Simulation-driven Multi-segment Variable Speed Limits on Freeway	275
2	Research on the Cascading Failure of Multi-Layer Public Transport Network with Subway Service Interruption	465
3	Comprehensive Multi-Layered and Time-Dependent Congestion Control Strategy for Mixed Traffic Flow	537
Session IV: Transportation Behavior, Safety, and Security		
4	Classification of Driving Modes Based on Driving Styles under Natural Environment	86
5	Roadside Multi-sensor Data Fusion Based on Adaptive Federal Kalman Filtering	186
6	A Novel Cyber-Threat Awareness Framework based on Spatial-Temporal Transformer Encoder for Maritime Transportation Systems	274
7	The Impact of Risk Cognitive Bias on Female Drivers' Risk-taking Driving Behavior	284
8	Risky Behavior of Pedestrians Crossing the Street in Front of New Energy Vehicles	289
9	A Study on Cyclists' Risk-taking Behavior Intention on Shared Roads with Autonomous Vehicles	291
10	The Effect of Driver Fatigue on Takeover Reaction Time under Human-Machine Co-Driving	420
11	Impacts of Automated Vehicles on Human-driving Vehicle Behaviors on Highways: A Literature Review	458
12	COVID-19 Impact Analysis on Travel Behavior Change: A Case Study of Suzhou, China	470
13	Using LightGBM with SHAP for Predicting and Analyzing Traffic Accidents Severity	508
14	Modelling Intercity Travel Mode Choice Behavior based on the Logistic Regression Stacking Fusion Algorithm	522
15	A Study on Autonomous Vehicles' Driving Behavior Based on Open Road Test Data	533
16	Path Planning of Underground Mining Area Transportation Scene Based on Improved A* Algorithm	534
17	Analyzing Traffic Conflict Risk at Diverge Area of Left Off-Ramp of Underground Interchanges Using Multinomial Logistic Regression	574
Session VI: Transportation Environment and Sustainability		
18	Multi-dimensional Wind Energy Utilization Potential Assessment Method for Port	63
19	Optimal Emission Reduction Investment Sharing of Shipping Companies and Ports Based on the Sharpley Value Method	83
20	Multi-dimensional Solar Energy Utilization Potential Assessment Method for Port	386

OPENING REMARK SPEAKERS

Chunzhi ZHANG	Professor Vice President of China Communications and Transportation Association Ms. Zhang Chunzhi: Vice President of China Communications and Transportation Association, President of General Aviation and UAV Development Promotion Branch; She is also a visiting professor of Civil Aviation University of China, Civil Aviation Management Cadre College of China and Civil Aviation Flight College of China. Experts of data Center expert database of Civil Aviation Administration of China and industry experts of Nanjing University of Aeronautics and Astronautic; She is a lifetime director of the China Women's Foundation and a director of the China Torchbearers' Federation. She has served as Party Secretary and deputy Director of Operation Monitoring Center of Civil Aviation Administration of China, Deputy Director of Operation Management Center of Air Traffic Administration Bureau, Deputy Director of service, General manager of Product Department and Marketing Department of Air China, spokesman of Air China, Secretary general of 2008 Olympic and Paralympic Games and other positions. She has won the honorary titles of Beijing Model Worker, National March 8th Red Flag bearer, Beijing Olympic Games and Paralympics National Advanced Individual, National Model Worker, the Most Beautiful Jiangxi Person in Beijing, the Most Beautiful Airline person in the 68th Miss World, the first Top Ten Outstanding News Spokesperson of Chinese Enterprises, the Best News Spokesperson of China's Top ten brands and so on.
Meng LU	Executive Committee Member / VP Standards Activities, IEEE (Institute of Electrical and Electronics Engineers) Intelligent Transportation Systems Society Dr. Meng Lu (The Netherlands) Executive Committee Member / VP Standards Activities, IEEE (Institute of Electrical and Electronics Engineers) Intelligent Transportation Systems Society; Steering Committee Member, IEEE Future Networks Technical Committee. Previously, Strategic Innovation Manager at Peek Traffic B.V. (NL); Program Manager at the Dutch Institute of Advanced Logistics (NL). Active involvement in R&D and innovation projects since 2005 in the domains of ITS, logistics, (renewable) energy, and impact assessment. Since 2016 Expert, ISO/TC 204 - Intelligent transport systems (January 2021 - April 2023 also Head of Delegation (NL)), CEN/TC 278 - Road transport and traffic telematics, and IEEE. PhD at LTH (Faculty of Engineering), Lund University, Sweden; Master's title and degree of Engineering in The Netherlands and P.R. China.
Ming ZHONG	Professor Wuhan University of Technology Dr. Ming Zhong is the Executive Secretary, International Affairs Committee of CSCE, a Professor at Intelligent Transportation Systems Research Center (ITSC), Wuhan University of Technology (WHUT) and an adjunct professor at Department of Civil and Environmental Engineering, University of Waterloo. He is an awardee of Hubei ChuTian Chair Professor in 2010 and Hubei "Hundred Talents" Professor in 2014. He has served on several technical committees of professional organizations in China and North America, including Transportation Research Board (TRB), Transportation Association of Canada (TAC), Canadian Institute of Transportation Engineers (CITE), China Highway and Transportation Society (CHTS) and etc.. He served as the Chair of Transportation Division of Canadian Society for Civil Engineering (CSCE) from 2012 to 2014. To date, Dr. Ming Zhong have been granted research funding from various federal, provincial and local organizations in Canada and China. His research interests include land use transport interaction modeling, travel behavior analysis and travel demand modeling, traffic monitoring program and data analysis, intelligent transportation systems (ITS), and remote sensing/GIS applications in transportation. To date, he has published more than 110 journal papers (with 80+ SCI/SSCI/EI), more than 160 conference papers and 110+ other non-referred publications & presentations. Most of his work has been published on the following journals, such as Transportation Research: Part C, Environment Planning: B, Urban Studies, Sustainability, Journal of Transportation Engineering, Journal of Computing in Civil Engineering, Transportation Research Records, and Journal of Transportation Planning and Technology.

Aimin SHA	Professor President of Chang'an University Aimin Sha, President of Chang'an University and Vice Chairman of the China Highway and Transportation Society, member of the Energy and Transportation Department of the Ministry of Education's Science and Technology Committee, Director of the WTC Department Committee, member of the Road Construction and Operation Environment Committee of the International Road Federation. He has received two second prize National Science and Technology Progress Awards, one second prize National Teaching Achievement Award, and five first prize Provincial and Ministerial-level Science and Technology Awards. Additionally, he has presided over or participated in the preparation of 12 national and ministerial industry standards. He is a leading talent in the National High-level Talent Special Support Program, National Candidate for the New Century Talents Project and has been recognized with the Transportation Industry's Special Contribution Award for Science and Technology. He is also a recipient of the first National Innovation Advancement Award.
Daniel ARIAS-ARANDA	Professor University of Granada Graduated in Business Administration and Management and in Economics from the Carlos III University of Madrid, he is a doctor in Economic and Business Sciences from the Complutense University of Madrid. He has been Associate Professor at the Complutense University of Madrid from 1997 to 1999. Since 1999 he has been Associate Professor, Full Professor (2003) and obtained a position as Professor of Business Organization at the Faculty of Economic and Business Sciences of Granada in 2011. His research has focused on Operations Management, Innovation Management, Management of Service Companies, Relationship between the implementation of advanced Enterprise Resource Planning (ERP) Systems and Supply Chain Management and Simulation. From his different public responsibilities, he has been Secretary of the Department of Business Organization of the University of Granada (2004-2006), Vice Dean of the Faculty of Economic and Business Sciences of said university (2006-2008), Director of the Center for Planning and Business Development of the Technological Park of Health Sciences (2008-2011) and Coordinator of the Double Master in Economics and International Management (University of Granada-SRH Hochschule Berlin) (2011-2015). He has been Principal Investigator and has participated in numerous national and international competitive research projects related to the implementation of advanced ERP for Supply Chain Management. He currently teaches at the Higher Technical School of Roads, Canals and Ports Engineering, at the Faculty of Labor Sciences and Human Resources and at the Faculty of Economic and Business Sciences of the University of Granada.
Xinping YAN	Professor Director of the Academic Committee of Wuhan University of Technology (WUT) Academician, Chinese Academy of Engineering Doctoral Supervisor, Intelligent Transportation System Research Center and School of Transportation and Logistics Engineering in WUT. Director of State Key Laboratory of Maritime Technology and Safety, Base for International Science & Technology Cooperation Smart Shipping and Maritime Safety, and Collaborative Innovation Platform for Smart River Ministry of Transport. Prof. Xinping Yan is also the deputy director of the Energy and Transportation Department of the Science and Technology Commission of the Ministry of Education, a member of the Transportation Engineering Discipline Evaluation Group of the Academic Degrees Committee of the State Council, and a member of the Expert Committee of the Ministry of Transportation. Prof. Xinping Yan has long been engaged in the teaching and research work of transportation engineering, and is committed to the research of waterway transportation intelligence, safety and green technology.

KEYNOTE SPEAKERS

Carlos GUEDES SOARES	Professor Member of the Portuguese Academy of Engineering Carlos Guedes Soares is a Distinguished Professor of the Engineering Faculty (Instituto Superior Técnico) of the University of Lisbon and Scientific Coordinator of the Centre for Marine Technology and Ocean Engineering (CENTEC), which is a research centre of the University of Lisbon that is rated as "Excellent" and funded by the Portuguese Foundation for Science and Technology. He concluded his postgraduate studies at the Massachusetts Institute of Technology, USA in 1976, and at the Norwegian Institute of Technology of the University of Trondheim, in 1984 and has since then been at the University of Lisbon (Technical University of Lisbon until 2013). He has supervised and co-supervised more than 75 PhD students and has co-authored more than 900 journal papers. He has been Chair or Co-Chair of various conferences in the series of OMAE, ESREL, IMAM, ISSC, ICCGS, MARSTRUCT, MARTECH and RENEW. He has been Editor of the Reliability Engineering and Systems Reliability Journal for about 30 years, the last 10 of which as Editor-in-Chief. He is Co-Editor in Chief of the Journal of Marine Science and Applications and is member of the Editorial Board of more than 15 Journals. He is a Fellow of SNAME, RINA, IMarEST, ASME, Portuguese Engineering Association (Ordem dos Engenheiros), Member of ASCE, AGU, ESRA and SRA and a Fellow of the Portuguese Academy of Engineering.
Keqiang LI	Professor Tsinghua University Academician, Chinese Academy of Engineering Dr. Keqiang Li, the Academician of Chinese Academy of Engineering, currently is the professor at School of Vehicle and Mobility, Tsinghua University, and also the director of State Key Laboratory of Intelligent Green Vehicle and Mobility, the CTO of National Innovation Center of Intelligent and Connected Vehicles, the director of the Center for Intelligent Connected Vehicles and Transportation, Tsinghua University, and the director of Committee of Experts of China Industry Innovation Alliance for the Intelligent and Connected Vehicles. He worked in Japanese and Germany automotive companies and academic institutions for many years including Visiting Professor at Tokyo University of Agriculture and Technology and the University of Tokyo, Aachen University of technology (Germany), Research Fellow at National Traffic Safety & Environment Lab. (Japan) and Technical Center of Automotive Body, Isuzu Automobile Corp. (Japan). He is an expert in the field of automotive intelligence. His main research areas include the theoretical research and engineering application of the dynamic design and control of intelligent vehicle driving system. He has been a recipient of "Changjiang Scholar Program Professor", National Technological Invention Award, and National Scientific and Technological Progress Award in China, etc. He has authored about 200 journal/conference papers and is a co-inventor of over 80 patents in China and Japan.
Toshiyuki YAMAMOTO	Professor Vice Director at Institute of Materials and Systems for Sustainability Prof. Toshiyuki Yamamoto is currently Vice Director and Professor at Institute of Materials and Systems for Sustainability, Nagoya University, Japan. He specializes in travel behavior analysis, intelligent transportation system, and traffic safety. He is a member of the International Association for Travel Behaviour Research, Japan Society of Civil Engineers, Japan Society of Traffic Engineers, Standing Committee on Traveler Behavior and Values ADB10 of Transportation Research Board, and serves as an Associate Editor for the journal Transportation.

Song PANG	Senior Engineer Former Director, Department of Science and Technology, Ministry of Transport Song Pang, born in 1961, Senior Engineer, Former Director, Department of Science and Technology of the Ministry of Transport. He is currently Vice Chairman of the National Automobile Standardization Technical Committee, and an adjunct professor of China University of Political Science and Law. He has long been dedicated to Transportation Planning, Intelligent Transportation, Network Security, and Cadre Education. He once served as the leader of the Autonomous Driving Research Group of the Ministry of Transport.
Jizhen GUAN	Former General Secretary of China ITS Association Jizhen Guan, his main research is Intelligent Transportation. He is the Vice Chairman of the China Intelligent Transportation Systems Association, member of the National ITS Standardization Technical Committee, Vice Chairman of the China Society of Transportation System Engineering, Vice Chairman of the Editorial Committee of "Transportation System Engineering and Information", and the Vice Chairman of the Intelligent shared Mobility Working Committee of China Automotive Engineering Society. He is also an expert in the 863 Program, a member of the overall group of experts for the National Key R&D Program "Comprehensive Transportation and Intelligent Transportation" and an expert in the joint expert group for the four ministries' "Urban Transportation Civilization and Smooth Traffic Improvement Action Plan".

OPENING CEREMONY HOST

Xiangmo ZHAO	Professor President of Xi'an Technological University Xiangmo Zhao, President of Xi'an Technological University, National Candidate for the New Century Talents Project, recipient of the National May 1st Labor Medal, a deputy to the 14th National People's Congress. He has long been dedicated to research and teaching in the fields of Transportation Information Engineering and Control, Vehicle Safety and Comprehensive Performance Testing, Autonomous Driving and Intelligent Connected Vehicle Testing Technology. He has served as a member of the 6th and 7th State Council Transportation Engineering Discipline Evaluation Groups, the leader of the "Changjiang Scholars and Innovative Teams Development Program" by the Ministry of Education, and the person in charge of the "Vehicle-Road Information Perception and Intelligent Transportation System" Higher school subjects innovation engineering. He is also in charge of the Autonomous Driving Closed Field Test Base (Xi'an) of the Ministry of Transport.
Chaozhong WU	Professor Vice president of Wuhan University of Technology Chaozhong Wu, Professor, Vice President of Wuhan University of Technology. He is a leading talent in science and technology innovation supported by the National High-level Talent Special Support Program and serves as the Executive Director of the China Intelligent Transportation Systems Association. Professor Wu has been long dedicated to research on Intelligent Driving and Traffic Safety. In the past five years, he has presided over the National Key R&D Program project "Research and Development of Digitization Software Technology for Transportation Infrastructure" and the National Natural Science Foundation joint fund project "Intelligent Vehicle Environment Fine Perception, Deep Integration, and Dynamic Modeling Methods". His scientific achievements have been recognized with the first prize of the China Intelligent Transportation Association Technology Invention Award and the second prize of the Hubei Province Technology Invention Award.

PREVIOUS CONFERENCE INFORMATION

The 1st International Conference on Transportation Information and Safety (ICTIS 2011)

Wuhan, China

June 29th ~July 2nd 2011

The 1st International Conference on Transportation Information and Safety (ICTIS 2011), which was sponsored by China Communications and Transportation Association (CCTA), American Society of Civil Engineers (ASCE) and Canadian Society for Civil Engineering (CSCE), and organized by Wuhan University of Technology (WUT), was held from June 30th through July 2nd 2011 successfully in Wuhan, China. The theme of ICTIS 2011 is "Transportation Safety in Information Age", which includes a broad range of topics related to the research and applications in transportation safety and information systems/technology. The conference showcases international experiences in transportation research and development, and provides a platform for both domestic and overseas experts to exchange successful stories and share lessons learned in research and practice.

ICTIS 2011 is a high level of international academic conferences in transportation field which combined three national associations in China, the United States and Canada. 355 papers coming from 15 countries were collected and published. At of the end of September 2011, all 355 papers published in the "Proceedings of the 1st International Conference on Transportation Information and Safety" were indexed by EI. More than 280 scholars from all over the world took part in this academic event. The conference lasts 3 days. There were 3 plenary sessions, a total of 8 experts made keynote speeches. In the 13 technical sessions, 25 experts made invited speeches, and 152 paper authors made presentations. Participants respectively on two aspects of traffic information and traffic safety theme made extensive discussion and communication.

The 2nd International Conference on Transportation Information and Safety (ICTIS 2013)

Wuhan, China

June 28th ~July 1st 2013

The 2nd International Conference on Transportation Information and Safety (ICTIS 2013) was sponsored by Wuhan University of Technology, co-sponsored by China Communications and Transportation Association (CCTA), American Society of Civil Engineers (ASCE) and Canadian Society for Civil Engineering (CSCE). The conference was held at the Holiday Inn Riverside Wuhan. The theme of ICTIS 2013 is "Transportation Safety in the Age of Internet of Things", which includes a broad range of topics related to the theories, technologies and applications in transportation safety and information technology. More than 280 experts and scholars of transportation field from 15 countries and regions participated the academic events.

The conference received a total of 494 academic abstracts from domestic and foreign, and nearly 400 effective full manuscripts. 75 domestic and foreign experts were arranged for over 700 peered paper reviewers. Finally the conference proceedings included a total of 355 papers from fifteen countries and regions. At the end of November 2013, all 339 papers published in the "Proceedings of the 2nd International Conference on Transportation Information and Safety" (ISBN 9780784413036) were indexed by EI.

The conference lasted three days. On June 29th, there were 3 plenary sessions, a total of 10 domestic and foreign experts made keynote speeches. On the second and third days, there were 12 technical sessions, consists of a total of 24 invited speeches and 113 academic reports. The conference gives a good communication on transportation information and safety.

The 3rd International Conference on Transportation Information and Safety (ICTIS 2015)

Wuhan, China

June 25th ~June 28th 2015

The 3rd International Conference on Transportation Information and Safety (ICTIS 2015) was held from June 25th to June 28th 2015 in Wuhan, China. The theme of ICTIS 2015 is "Transportation Information and Safety in the Age of Big data". Experts, scholars and practicing engineers of transportation systems are invited to the conference to discuss a broad range of topics related to the theories, technologies and applications of transportation information and safety technology. The conference shows international experiences in the research of multimodal transportation (including road, railway, navigation, aviation, and urban road) and development, and provide a platform for both domestic and overseas scholars and practicing engineers to exchange successful stories and share lessons learned in research and practice.

The conference received a total of 283 academic abstracts from domestic and foreign countries. Finally the conference proceedings included a total of 166 papers from 15 countries and regions. Selected papers were published as a special issue in an international journal called "Transportation Information and Safety". All the accepted papers were published in the "Proceedings of the 3rd International Conference on Transportation Information and Safety" and were indexed by EI.

The conference lasted four days. A total of 11 domestic and foreign experts made keynote speeches. On the second and third days, there were 10 technical sessions, consists of a total of 23 invited speeches and over 100 academic report. The conference gives a good communication on transportation information and safety.

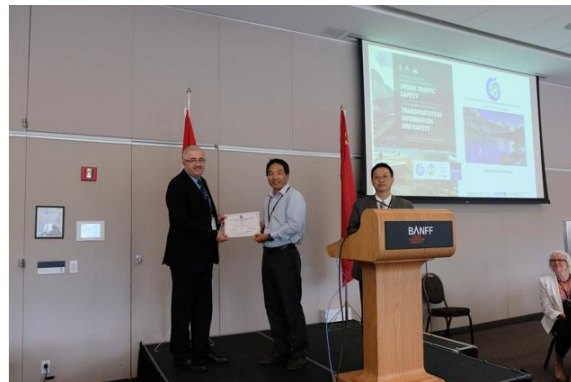## The 4th International Conference on Transportation Information and Safety (ICTIS 2017)

BANFF, CANADA

AUGUST 8-10, 2017

The 4th International Conference on Transportation Information and Safety (ICTIS 2017) was co-held with the 9th International Conference on Urban Traffic Safety, organized by the Office of Traffic Safety, City of Edmonton, Canada. The theme of ICTIS 2017 is "Transportation Information and Safety in Intelligent and Connected Environments". Experts, scholars and practicing engineers of transportation systems are invited to the conference to discuss a broad range of topics related to the theories, technologies and applications of transportation information and safety technology. The conference shows international experiences in the research of multimodal transportation (including road, railway, navigation, aviation, and urban road) and development, and provide a platform for both domestic and overseas scholars and practicing engineers to exchange successful stories and share lessons learned in research and practice.

The conference received more than 300 academic abstracts from domestic and foreign countries. Finally the conference proceedings included a total of 198 papers from 13 countries and regions. All the accepted papers were published in the "Proceedings of the 4th International Conference on Transportation Information and Safety" and were indexed by EI.

The conference lasted three days. A total of five domestic and foreign experts made keynote speeches. On the second and third days, there were 22 technical sessions, consists of a total of 11 invited speeches and over 60 academic reports. The conference gives a good communication on transportation information and safety.
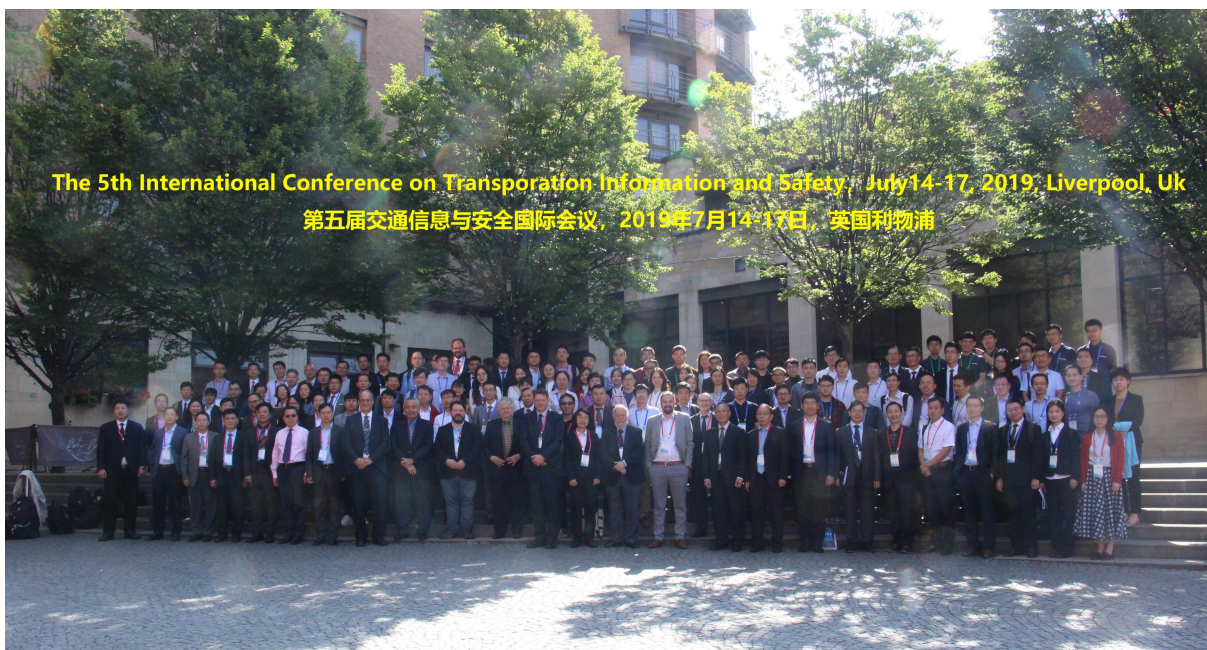
The 5th International Conference on Transportation Information and Safety (ICTIS 2019)

Liverpool, UK

July 14-17, 2019

The 5th International Conference on Transportation Information and Safety (ICTIS 2019) was held from July 14th to July 17th 2019 in Liverpool, UK. ICTIS 2019 was sponsored by China Communications and Transportation Association, American Society of Civil Engineers, Canadian Society for Civil Engineering and IEEE Intelligent Transportation Systems Society. The theme of ICTIS 2019 is "Smart, Safe and Sustainable Transport". Experts, scholars and engineers of transportation systems all over the world are invited to the conference to discuss a broad range of topics related to the theories, technologies and applications of transportation information and safety technology.

ICTIS 2019 had received 306 full papers from researchers in 11 countries and regions, among which 243 papers have been selected for publication in the ICTIS 2019 Proceedings through IEEE. There were 24 technical sessions of ICTIS 2019.

The 5th International Conference on Transportation Information and Safety，July14-17, 2019, Liverpool, Uk
第五届交通信息与安全国际会议，2019年7月14-17日，英国利物浦

The 6ᵗʰ International Conference on Transportation Information and Safety (ICTIS 2021)

Wuhan, China

October 22-24, 2021

The 6ᵗʰ International Conference on Transportation Information and Safety (ICTIS 2021) was held from October 22ᵗʰ to July 24ᵗʰ 2021 in Wuhan, China. ICTIS 2021 was sponsored by China Communications and Transportation Association, Canadian Society for Civil Engineering and IEEE Intelligent Transportation Systems Society. The theme of ICTIS 2021 is "New Infrastructure Construction for Better Transportation". Experts, scholars and engineers of transportation systems all over the world are invited to the conference to discuss a broad range of topics related to the theories, technologies and applications of transportation information and safety technology.

ICTIS 2021 had received 365 full papers from researchers in 11 countries and regions, among which 246 papers have been selected for publication in the ICTIS 2021 Proceedings through IEEE. There were 30 technical sessions of ICTIS 2021.

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