ISTTT21

The 21st International Symposium
on Transportation and Traffic Theory

5-7 August, 2015, Kobe, Japan

Welcome Message

Welcome to ISTTT21 in Kobe - the 21st International Symposium on Transportation and Traffic Theory. Every two years (originally three years), the ISTTT series, initiated from 1959, have been providing forums where groups of researchers, who are engaged in cutting-edge research on transportation and traffic theory, exchange their results, discuss research issues, and identify future directions. The interests of contributions have been gradually spreading out including traffic flow, network analysis, transport and land-use interactions and human behavior in the aspects of theory and modeling.

Following the tradition, papers for ISTTT21 were selected from a two-stage peer-review process, which was highly competitive. The total 120 extended abstracts were selected from 264 submissions in the first round review. After inviting full papers, the total 87 full papers were submitted and through the second round review, just 36 podium and 16 poster papers were finally selected. All 36 podium papers are included in the hard cover proceedings of ISTTT21 and all the podium as well as the poster papers are published in the electronic version of the proceedings by Elsevier.

In addition to the proceedings, all the podium papers and some of the poster papers will appear in special issues of Transportation Research Part B or C. The linkage between ISTTT and TR special issues has been established based on high quality of the symposium papers equivalent to the prestigious international journal and the concordance of research theme. We are deeply grateful the editors of Part B and C as well as Elsevier for their great support.

Lastly, it is envisaged that fruitful discussions under warm atmosphere during the symposium will contribute to further research development in the field of transportation and traffic theory. We wish you a pleasant stay in Kobe, a city having a unique style with the exotic atmosphere affected by the foreign cultures since old days. Thank you very much for joining us!

Masao Kuwahara, Hideyuki Kita and Yasuo Asakura
August, 2015

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Programme

4th August

18:00-	*Welcome Reception at the venue*

Day 1:5th August

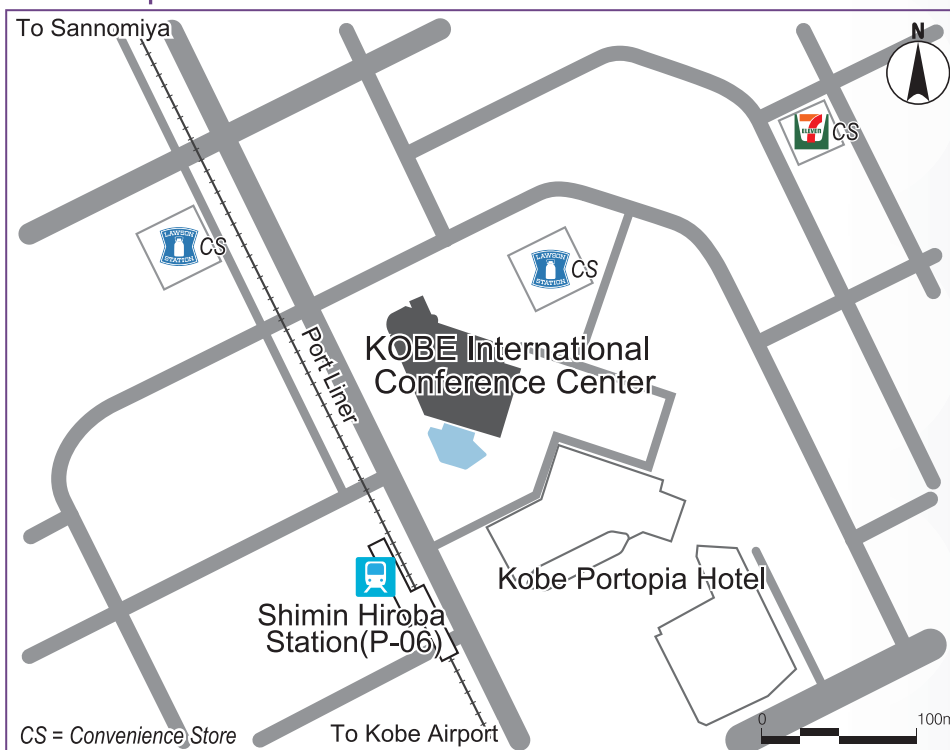| Time	Title	Authors
9:00-9:30	*Opening Remarks and Memorial Talk*	
9:30-10:20	*Session 1:* Activity Model *chaired by* Hai Yang	
	Activity-based market equilibrium for capacitated multimodal transport systems	Joseph Y.J. Chow Shadi Djavadian
	Dynamic Activity-Travel Assignment in Multi-State Supernetworks	Peng Liu Feixiong Liao Hai-Jun Huang Harry Timmermans
10:20-10:50	*Break 1*	
10:50-12:30	*Session 2:* Route Choice and Network Assignment *chaired by* William H. K. Lam	
	A Hyperpath-based Network Generalized Extreme-value Model for Route Choice under Uncertainties	Jiangshan Ma Daisuke Fukuda
	A Unified Closed-Form Expression of Logit and Weibit and its Application to a Transportation Network Equilibrium Assignment	Shoichiro Nakayama Makoto Chikaraishi
	Modeling absolute and relative cost differences in stochastic user equilibrium problem	Xiangdong Xu Anthony Chen Songyot Kitthamkesorn Hai Yang Hong K. Lo
	On multi-objective stochastic user equilibrium	Matthias Ehrgott Judith Y. T. Wang David P. Watling
12:30-14:30	*Lunch / Poster session*	

Day 1:5th August

Time	Title	Authors
14:30-16:10	*Session 3:* Network Assignment and Parking *chaired by* Hani Mahmassani	
	Stochastic Eco-routing in a Signalized Traffic Network	Jie Sun Henry X. Liu
	Stochastic Optimal Path Problem with Relays	Peng (Will) Chen Yu (Marco) Nie
	A Parking-State-Based Transition Matrix of Traffic on Urban Networks	Jin Cao Monica Menendez
	Parking space management via dynamic performance-based pricing	Daniel Mackowski Yun Bai Yanfeng Ouyang
16:10-16:40	*Break 2*	
16:40-17:55	*Session 4:* Estimation and Calibration using real data *chaired by* Serge Hoogendoorn	
	Estimation of mean and covariance of stochastic multi-class OD demands from classified traffic counts	Hu Shao William H. K. Lam Agachai Sumalee Martin L. Hazelton
	Cellpath: fusion of cellular and traffic sensor data for route flow estimation via convex optimization	Cathy Wu Jérôme Thai Steven Yadlowsky Alexei Pozdnoukhov Alexandre Bayen
	W–SPSA in practice: Approximation of weight matrices and calibration of traffic simulation models	Constantinos Antoniou Carlos Lima Azevedo Lu Lu Francisco Pereira Moshe Ben-Akiva
Evening	*Conference Dinner*	

Poster Session (Day 1: 5th August)

Title	Authors
Jointly modelling individual's daily activity-travel time use and mode share by a nested multivariate Tobit model system	Chengxi Liu Yusak O. Susilo Anders Karlström
A Robust, Tactic-Based, Real-Time Framework for Public-Transport Transfer Synchronization	Mahmood Mahmoodi Nesheli Avishai (Avi) Ceder Tao Liu
Characterization of network traffic processes under adaptive traffic control systems	Alessandra Pascale Hoang Thanh Lam Rahul Nair
Providing bus priority at signalized intersections with single-lane approaches	S. Ilgin Guler Vikash V. Gayah Monica Menendez
Proposition and testing of a conceptual model describing the movement of individual pedestrians within a crowd	Dorine C. Duives Winnie Daamen Serge P. Hoogendoorn
Modeling transportation network redundancy	Xiangdong Xu Anthony Chen Sarawut Jansuwan Kevin Heaslip Chao Yang
Emission Modeling and Pricing in Dynamic Traffic Networks	Rui Ma Xuegang (Jeff) Ban W.Y. Szeto
Incorporating departure time choice into high-occupancy/toll (HOT) algorithm evaluation	Stephen D. Boyles Lauren M. Gardner Hillel Bar-Gera
Robust Calibration of Macroscopic Traffic Simulation Models using Stochastic Collocation	Sandeep Mudigonda Kaan Ozbay
A generalized flow splitting model for day-to-day traffic assignment	Xiaozheng He Henry X. Liu Srinivas Peeta
Calibration of Nonlinear Car-Following Laws for Traffic Oscillation Prediction	Christine Rhoades Xin Wang Yanfeng Ouyang

Title	Authors
Spatial and Temporal Characterization of Travel Patterns in a Traffic Network Using Vehicle Trajectories	Jiwon Kim Hani S. Mahmassani
Probe vehicle-based traffic flow estimation method without fundamental diagram	Toru Seo Takahiko Kusakabe
Equilibrium Analysis and Route Guidance in Large-Scale Networks with MFD Dynamics	Mehmet Yildirimoglu Mohsen Ramezani Nikolas Geroliminis
Optimal Urban Development Density along A Multi-Modal Linear Travel Corridor with Time-distance Toll Scheme	David Z.W. Wang Bo Du
Strategic Maritime Container Transport Design in Oligopolistic Markets	Panagiotis Angeloudis Luciano Greco Michael G H Bell

Area Map

Day 2: 6th August

Time	Title	Authors
9:00-10:40	*Session 5:* Public Transport *chaired by* Avishai Ceder	
	A two-stage approach to modeling vacant taxi movements	R.C.P. Wong W.Y. Szeto S.C. Wong
	A model of bus bunching under reliability-based passenger arrival patterns	Achille Fonzone Jan-Dirk Schmöcker Ronghui Liu
	Robust Transit Network Design with Stochastic Demand Considering Development Density	Kun An Hong K. Lo
	Optimal transit service atop ring-radial and grid street networks: a continuum approximation design method and comparisons	Haoyu Chen Weihua Gu Michael Cassidy Carlos Daganzo
10:40-11:10	*Break 3*	
11:10-12:00	*Session 6:* Road Pricing *chaired by* Ben Heydecker	
	Optimal Multi-Step Toll Design under General User Heterogeneity	Hongyu Chen Yu (Marco) Nie Yafeng Yin
	Learning marginal-cost pricing via trial-and-error procedure with day-to-day flow dynamics	Hongbo Ye Hai Yang Zhijia Tan
12:00-14:15	*Lunch / IAC meeting / Group Photo*	

Day 2:6th August

Time	Title	Authors
14:15-15:30	*Session 7:* Pedestrian and Driving Behaviour *chaired by* Hideyuki Kita	
	Continuum Theory for Pedestrian Traffic Flow: Local Route Choice Modelling and its Implications	Serge P. Hoogendoorn Femke van Wageningen-Kessels Winnie Daamen Dorine C. Duives Majid Sarvi
	Multilane first-order traffic flow model with endogenous representation of lane-flow equilibrium	Yasuhiro Shiomi Tomoki Taniguchi Nobuhiro Uno Hiroshi Shimamoto Toshiyuki Nakamura
	Modeling Lane-Changing Behavior in a Connected Environment: A Game Theory Approach	Alireza Talebpour Hani S. Mahmassani Samer H. Hamdar
15:30-16:00	Break 4	
16:00-16:50	*Session 8:* Managing Transport Systems *chaired by* Michael Bell	
	Model and a solution algorithm for the dynamic resource allocation problem for large-scale transportation network evacuation	Xiaozheng He Hong Zheng Srinivas Peeta
	A linear programming-based method for the network revenue management problem of air cargo	Kuancheng Huang Heng Lu
Evening	Conference Dinner	

Day 3: 7ᵗʰ August

Time	Title	Authors
9:00-10:15	*Session 9:* Queuing and Departure Time Choices *chaired by* Masao Kuwahara	
	The corridor problem with discrete multiple bottlenecks	Takashi Akamatsu Kentaro Wada Shunsuke Hayashi
	Bottleneck congestion and distribution of work start times: The economics of staggered work hours revisited	Yuki Takayama
	Bounding queuing system performance with variational theory	Jia Li H. Michael Zhang
10:15-10:45	Break 5	
10:45-12:25	*Session 10:* Dynamic Traffic Assignment *chaired by* Haijun Huang	
	Data-Driven Linear Decision Rule Approach for Distributionally Robust Optimization of On-line Signal Control	Hongcheng Liu Ke Han Vikash Gayah Terry Friesz Tao Yao
	Traffic control and route choice; capacity maximization and stability	Michael J Smith Ronghui Liu Richard Mounce
	Stability of Transportation Networks Under Adaptive Routing Policies	Sebastien Boyer Sebastien Blandin Laura Wynter
	Information provision strategies eliminating deluded equilibrium caused by travellers' misperception	Takahiko Kusakabe Yuta Nakano
12:25-13:55	Lunch	

Day 3:7th August

Time	Title	Authors
13:55-15:10	*Session 11:* Network Traffic Flow 1 *chaired by* Mike Cassidy	
	Stochastic Approximations for the Macroscopic Fundamental Diagram of Urban Networks	Jorge A. Laval Felipe Castrillón
	Macroscopic Traffic Dynamics with Heterogeneous Route Patterns	Ludovic Leclercq Céline Parzani Victor L. Knoop Jennifer Amourette Serge P. Hoogendoorn
	Controller Design for Gating Traffic Control in Presence of Time-Delay in Urban Road Networks	Mehdi Keyvan-Ekbatani Markos Papageorgiou Victor L. Knoop
15:10-15:40	*Break 6*	
15:40-16:30	*Session 12:* Network Traffic Flow 2 *chaired by* Carlos Daganzo	
	Robust Constrained Control of Uncertain Macroscopic Fundamental Diagram Networks	Jack Haddad
	On the Existence of Stationary States in General Road Networks	Wen-Long Jin
16:30-17:00	*Closing Remarks*	

Travel & Sightseeing Information

A tip not to get lost in Kobe: When you need to know a direction in the city, always look for the mountains – they are always on the north!

Shops, restaurants and bars: Those around the venue are not many. There are convenient stores in a walking distance (see a map on page 6), as well as a few restaurants and bars in Portpia hotel.

Transport to the city centre: Take a train called Port Liner to go to Sannomiya, the main station of the city. The train station (Shimin-Hiroba-mae) is on the west side of the venue and the hotel. The service is frequent. Travel time is 11 minutes. Take any train departing from Sannomiya station to go back. Please note: trains departing from Sannomiya in the weekdays' morning is very congested. Please expect delays due to waiting time and avoid carrying large luggage onto the train, or use a taxi to avoid congestion.

Smart cards: Smart cards such as ICOCA and Suica can be used to take trains in the area. ICOCA is sold only at JR stations, such as JR Sannomiya.

City centre: The busiest area is between Sannomiya station and Motomachi station (a station next to the west side of Sannomiya). The area is divided by the elevated rail track of JR lines. Roughly speaking, the north side of the area is for drinking and dining, while the south side of the area is for shopping. There are two department stores in the city centre (Sogo on the south of Sannomiya station, and Daimaru on the south of Motomachi station) and a shopping arcade on the south of the rail tracks.

Airport buses: Those going to Itami (ITM) or Kansai (KIX) airports depart from Sannomiya station. The bus stop situates at the southwest side of the station. See: http://www.kate.co.jp/pc/e_time_table/e_map/e_kobe_map.html. To go to Kobe airport (UKB), simply use Port Liner or a taxi.

Boats to KIX: There is a boat service from Kobe airport to KIX. If you stay Portpia hotel and directly go to KIX, this is a good alternative. To go to the pier from the hotel, taking a taxi is easy. See: http://www.kobe-access.jp/en/

Shinkansen: The Shinkansen (high-speed rail) trains depart from Shin-Kobe station. Take a taxi or an underground train at Sannomiya station to go there.

Sightseeing in Kobe and cities nearby:

(1) *City centre:* See the broacher in the conference bag and maps available at reception. If you wish to go on the mountain, taking Kobe Nunobiki Ropeway (cable car) is the easiest way. There are cruise services in the port and nearby from Naka pier. Kitano district is famous in westernised houses built by consuls of western countries more than a century ago.

(2) *Mt. Rokko / Arima-onsen:* Mt. Rokko is a leisure zone with beautiful panoramas from the top of the mountain. Arima-onsen is on the other side of the mountain, which is the oldest spa in Japan with historical atmosphere.

(3) *Himeji Castle:* A world heritage castle built in 1346. It is one of the most famous and beautiful castle in Japan. Take a special rapid service train at JR Sannomiya and alight at Himeji station. It takes 30 minutes.

(4) *Osaka and Kyoto:* To go there, take a train from Sannomiya station. All JR, Hankyu, and Hanshin trains going east stop at Osaka-Umeda station. JR trains also go to Kyoto. Using Shinkansen is basically not recommended because the fare is much higher and travel time is not very different.

Symposium Dinner and Banquet

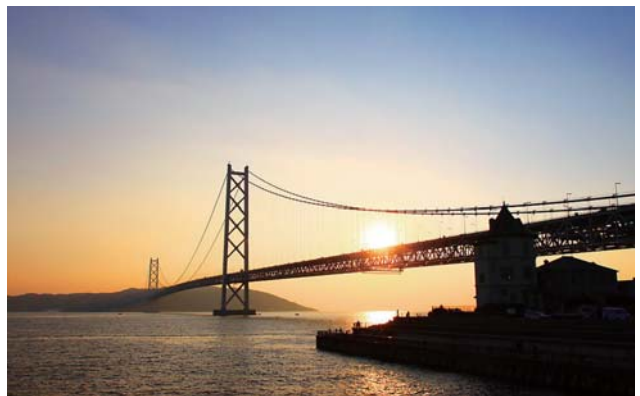## Day 1 (5th August): Symposium dinner at Shu-shin-kan

Nada district, the south-east end of Kobe city, has been acknowledged for centuries as the best for the production of Japanese sake for pure mineral-rich Miya-

water and the harvest of special rice for sake brewing, Yamada-Nishiki. The dinner place is in a historical wooden hall of sake brewery with 250 years of tradition. You can enjoy tasting a variety of fresh sake with sophisticated Japanese cuisine in the atmosphere of Japanese spirit and culture.

Day 2 (6th August): Banquet at Maiko Villa Kobe

Banquet will take place at Maiko Villa Kobe located on a hill facing the Akashi Kaikyo Bridge. The bridge, built across the west entrance of Osaka Bay, is the longest bridge in the world with the main span of 1,991 m. We shall go to the other side of the Akashi Strait by crossing the bridge before the dinner.
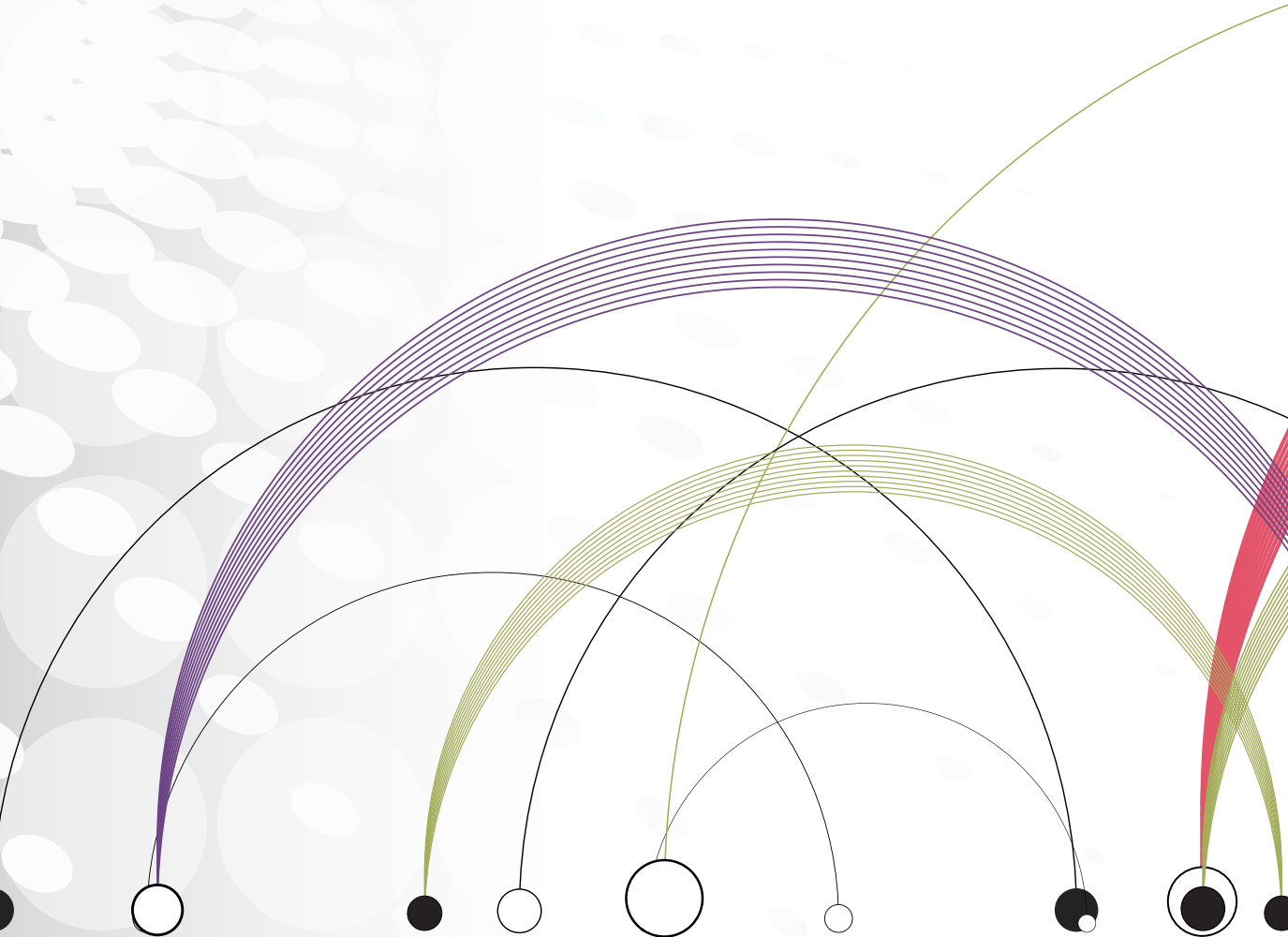

Note:
Buses are chartered to go to the dinner place. A staff of the symposium will guide you to the bus after the last session ends. Those who will not attend the last session (incl. accompanying persons) must be in the lobby hall before the scheduled ending time of the last session (5th: 17:55, 6th: 16:50) to join the dinner unless otherwise instructed.

Local Committee Members of ISTTT21

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Meet in Kobe

Thank you for joining us!