



## PATREC RESEARCH SEMINAR

### World Transport Research Highlights: Feedback from WA Participants at the 14<sup>th</sup> World Conference on Transport Research

**Tuesday, 6 September 2016 – 3:00pm to 4:45pm**

at the Australian Urban Design Research Centre (AUDRC), Level 2, 1002 Hay Street, Perth

This is a **FREE of charge** event, but we appreciate your [RSVP](#) as seating is limited.

Please arrive at **2:45pm (tea/coffee provided) for a 3:00pm start.**

Please forward this Research Seminar invitation to anyone who might be interested.

### PROGRAM

3:00pm	<b>Welcome</b>	
3:05pm	<b>Assoc Prof Doina Olaru</b>	<i>Travel Demand at a Multidisciplinary Crossroad</i>
3:20pm	<b>Dr Renlong Han</b>	<i>Integrated Land Use and Transport Modelling</i>
3:35pm	<b>Hendrik Braun</b>	<i>WCTR Shanghai Review: WCTRS-Y and Selected Papers on Road Freight Mapping</i>
3:50pm	<b>Dr Jianhong (Cecilia) Xia</b>	<i>WCTR Shanghai Review: Airline Competition and Efficiency</i>
4:05pm	<b>Dr Chao Sun</b>	<i>Macroscopic Fundamental Diagrams</i>
4:20pm	<b>Qian Sun</b>	<i>Framework for Investigating Older Adults' Driving Behaviours and the Underlying Cognitive Mechanisms</i>

**Associate Professor Doina Olaru**, Management and Organisations, UWA Business School

#### ***Travel Demand at a Multidisciplinary Crossroad***

Every three years WCTR gathers more than 1,000 researchers and practitioners interested in addressing challenging issues in transport from around the globe. Eight broad topic areas currently capture evolving and leading-edge research in theories, methodologies and applications concerning transport issues. Some are newer and more refined, whilst others are well established and persist from the early 80s (Transport Modes; Traffic Management, Operations and Control; Transport Economics and Finance). At the forum held this year in Shanghai, exploration of the developing area of Activity and Transport Demand highlighted the multidisciplinary nature of research in travel behaviour. An analysis of the 140 papers and posters presented at the forum shows a focus on new demand modelling approaches, supported by appropriate data collection exercises (GIS, GPS, combined modes). However, the delineation of activity-travel analysis or demand estimation from the drivers of travel behaviour - social and spatial dimensions, implications for quality of life or for transport planning and policy - has become more difficult. Unlike the previous two conferences, less emphasis was noticed on the role of information and communication technology (ICT) in travel behaviour, and no research was presented specifically dedicated to analysis of time-use. The presentation will conclude with a few reflections on "Where from here?" for Travel Demand and, in particular, the need for data fusion/integration.

**Dr Renlong Han**, Team Leader Transport Modelling, Integrated Transport Planning, Dept of Transport

#### ***Integrated Land Use and Transport Modelling***

A challenge we faced during the preparation of the Perth Transport Plan@3.5m and we are always facing is to achieve better integration between land use planning and transport planning. This kind of integration was claimed to be achieved to some extent through time-consuming interactions between various government agencies, but there is no quantitative way to say this is the case. The model framework proposed is to incorporate both land use model and transport model into one platform with feedback or interaction between these traditionally separated agency models.

**Hendrik Braun**, PhD Candidate, UWA Business School

***WCTR Shanghai Review: WCTRS-Y and Selected Papers on Road Freight Mapping***

The presentation gives a review of the WCTR conference which took place from 10-15 July 2016 in Shanghai China. The focus is on the young researchers' initiative (WCTRS-Y) and the following selected papers in the context of road freight mapping:

- 1 Beziat, A., Toilier, F. *Using Urban form to characterize logistics profiles – A case study of Paris.*
- 2 Goodchild, A.V., Wang, Z., McCormack, E. *A methodology for forecasting freeway travel time reliability using GPS data.*
- 3 Reda, A., Gebresenbet, G. *Mapping out goods flow to Addis Ababa City, Ethiopia and its impact on environment.*

The papers listed are considered to be helpful for the PATREC freight project. Beziat and Toilier analyse various logistics profiles and behaviour in different areas of Paris to determine logistics profiles. Goodchild, Wang and McCormack separate GPS data to determine travel time reliability for trucks in the US. Reda and Gebresenbet analyse goods flow in Addis Ababa City and investigates how a delivery shift to night times would influence congestion and air pollution. Despite the obvious differences in application, the papers will help to gain an overview of the state-of-the-art in freight mapping and may contain useful methodology and additional ideas.

**Dr Jianhong (Cecilia) Xia**, Senior Lecturer, Department of Spatial Sciences, Curtin University

***WCTR Shanghai Review: Airline Competition and Efficiency***

This presentation will give a review of research presented in the section of Airline Competition and Efficiency in WCTR. The major issues and methods related to airline demand, competition and efficiency are summarised. Insights on lessons learned from these studies and implication on Western Australian regional aviation development are provided.

**Dr Chao Sun**, Research Fellow, PATREC, UWA

***Macroscopic Fundamental Diagrams***

I'll briefly talk about the concept of Macroscopic Fundamental Diagrams (MFD) which my paper is related to and its application in traffic control and road pricing. I'll also discuss an excellent Canadian study on car sharing and a recent high profile research by International Transport Forum (OECD) into on-demand shared taxis and buses which could dramatically reduce the number of cars on the streets while maintaining similar service levels. Both studies are based on real data.

**Qian (Chayn) Sun**, PhD Candidate, Department of Spatial Sciences, Curtin University

***Framework for Investigating Older Adults' Driving Behaviours and the Underlying Cognitive Mechanisms***

This paper developed a psycho-geoinformatics approach for investigating older adults' driving behaviours and the underlying cognitive mechanisms, by taking advantage of high frequency tracking of eye movement and vehicle kinematic, and the standard neuropsychological tests related to driving abilities. Recordings of the driver and his/her interactions with vehicle and environment at a microscopic scale give a closer assessment of driver's behaviours, its evolution across space and time and thus a better understanding of driver's cognitive processes. This paper aims to present the framework of the basic concepts, design and implementation of this study, as well as the practical considerations.

The **Planning and Transport Research Centre (PATREC)** at UWA delivers integrated land use and transport planning research to extend the evidence-base in support of the effective planning and management of Western Australia's high and rapid growth future.

Read more about PATREC at [www.patrec.uwa.edu.au](http://www.patrec.uwa.edu.au).