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## Conference programme

**STRC**

**13<sup>th</sup> Swiss Transport Research Conference**

Monte Verità / Ascona, April 24-26, 2013

# 1. Foreword

The Swiss Transport Research Conference (STRC) is a forum that brings together Swiss researchers adopting many different approaches to understanding transport phenomena. As such, the conference hosts topics across a wide spectrum in transport and land use: from logistics and travel behavior, traffic engineering, railway engineering, to environmental impact analysis and land use modeling. Overall, the following Keynote speakers have confirmed their attendance:

- Professor Rolf H. Möhring, TU Berlin.
- Professor Tommy Gärling, University of Gothenburg.
- Professor Andrew Daly, Rand Europe (Cambridge) und Institute for Transport Studies (Leeds).

The STRC is an excellent venue to catch up on the state of transport research in Switzerland. The conference takes place on the Monte Verità, Ascona (Ticino) at the Centro Stefano Franscini of ETH Zurich: an excellent conference center, and ideal environment in which to meet.

On behalf of the STRC organizing committee:

Kay Axhausen

*IVT–Institut für Verkehrsplanung und Transportsysteme*

*ETH Zürich*

## 2. Conference programme

### 2.1 Keynote speakers



**Rolf H. Möhring** is since 1987 Professor for Applied Mathematics and Computer Science at TU Berlin. He has held earlier positions as associate and assistant professor at the University of Bonn, the University of Hildesheim, and the RWTH Aachen. His Berlin research group focusses on graph algorithms, combinatorial optimization, scheduling, and industrial applications. Möhring is scientist in charge at the DFG Research Center Matheon, responsible for the application area "Networks". He is member of the editorial board of leading scientific journals, has served as chair of the German Operations Research Society GOR as well as the Mathematical Programming Society (MPS). In 2005, Möhring was awarded the Scientific Award of the German Operations Research Society GOR, and in 2010 he received the EURO Gold Medal of the European Association of Operational Research Societies.

#### **Network Routing - Integrating Dynamic Network Flows and Scheduling**

Traffic management and routing in logistic systems are optimization problems by nature. One wants to utilize the available street or logistic network in such a way that the network "load" is minimized or the "throughput" is maximized. The aspects of "time" and "congestion" play a crucial role in these problems and require new techniques that need to integrate dynamic network flows and scheduling.

The lecture will illustrate recent developments in this direction on selected applications:

- (1) Traffic guidance and congestion pricing (cooperation with ptv).
- (2) Routing automated guided vehicles in container terminals (cooperation with HHLA).
- (3) Ship traffic optimization on the Kiel Canal (cooperation with the German Federal Waterways and Shipping Administration).

All these applications benefit from new insights into routing in graphs. In (1), it is a routing scheme that achieves traffic patterns that are close to the system optimum but still respect certain fairness conditions, while in (2) it is a very fast real-time algorithm that avoids collisions, deadlocks, and other conflicts already at route computation. Finally, (3) combines techniques from (2) with special purpose scheduling algorithms.



**Tommy Gärling** is Emeritus Professor of Psychology affiliated with University of Gothenburg (Göteborg) and Karlstad University in Sweden. He has conducted research on travel behavior since the beginning 1980s, authored and co-authored close to 100 internationally published journal articles and book chapters, co-edited two books, is former member of the International Association of Travel Behavior Research (IATBR), and is member of the editorial board of the journal *Transportation*. Economic psychology and environmental psychology are two other fields of research in which Tommy Gärling is active. He has contributed to more than 200 international publications in these fields, is former president of the environmental psychology division of the International Association of Applied Psychology (IAAP), member of the editorial board of *Journal of Environmental Psychology*, and Associate Editor of *Journal of Economic Psychology*.

### **Aggregating Travel Satisfaction**

In general commute trips entail several legs varying in mode, duration, and other factors. In some way travelers aggregate their satisfaction with the trip legs to a satisfaction with the whole trip.

In this presentation:

- I will apply concepts such as decision utility, experienced utility, and remembered utility to understand the process of aggregation. Data from a survey of work commuters will be used as an empirical illustration.
- I will follow up on this by discussing how episodes of trips are evaluated according to a modified Prospect Theory resulting in sequences of instant experienced utilities which have emotional impacts on travelers' mood and changes in mood. Another important distinction in this context is between influences on current mood (how you feel *after* the trip) and recalled mood (how you remember that you felt *during* the trip).
- I will present results from simulations of the different processes (discrete updating versus directed memory retrieval) that account for differences and similarities in current and recalled mood. Data will also be presented from laboratory experiments emulating emotional impacts of episodes during travel.



**Andrew Daly** is a Senior Research Fellow at RAND Europe (Cambridge), a Research Professor at the Institute for Transport Studies in Leeds and the author of the widely-used ALOGIT software; he received the 2012 Lifetime Achievement Award from the International Association for Travel Behaviour Research. His work has attempted to bridge the gap between research and practice in choice modelling: pioneering the introduction of random utility models, making advanced models operational for large areas so they can be used in practical planning, and improving the credibility of Stated Choice methods. He has published and presented about 200 papers on these subjects, has contributed to a number of books and regularly reviews papers for the leading transport journals. He has directed major transport modelling projects in The Netherlands, France, Sweden, Denmark, Norway, Australia and the UK and contributed to projects in several other countries. He frequently advises local, national and international government agencies on transport modelling and valuation.

### **Forecasting travel demand using large-scale models**

Decisions concerning many aspects of transport policy require support by forecasts of travel demand.

The talk will discuss:

- The models that are required to forecast passenger demand, showing how they can be adapted to meet the requirements of policy.
- Details of the specification are outlined, in particular looking at the issues of model estimation and validation, including validation of values of time and elasticity.
- Applications are also considered, looking at population forecasting, model applications using simulation and expected demand and the serious difficulties caused by dealing with congestion.

## 2.2 Overview

	WEDNESDAY 24		THURSDAY 25		FRIDAY 26			
TIME	AUDITORIUM	BALINT	AUDITORIUM	BALINT	AUDITORIUM	BALINT		
07:30			Breakfast		Breakfast			
08:00			Breakfast		Breakfast			
08:30			Breakfast		Breakfast			
09:00			<b>Session 2A:</b> <i>Demand modelling and travel behaviour I</i>	<b>Session 2B:</b> <i>Data, technology, and parking</i>	<b>Session 5A:</b> <i>Simulation techniques</i>	<b>Session 5B:</b> <i>Land use and policy II</i>		
09:30								
10:00			Coffee break		Coffee break			
10:30			Coffee break		Coffee break			
11:00			<b>Session 3A:</b> <i>Demand modelling and t.b. II</i>	<b>Session 3B:</b> <i>Land use and policy I</i>	Coffee break			
11:30					Keynote by Andrew Daly			
12:00					Conclusion photo, etc.			
12:30					Conclusion photo, etc.			
13:00	Registration and lunch (sandwich)		Lunch					
13:30	Registration and lunch (sandwich)		Lunch					
14:00	Welcome and Keynote by Rolf H. Möhring		Keynote by Tommy Gärling					
14:30			Coffee break					
15:00	Coffee break		Coffee break					
15:30	Coffee break		Coffee break					
16:00	<b>Session 1A:</b> <i>Traffic Operations I</i>	<b>Session 1B:</b> <i>Air/Rail/Logistics</i>	<b>Session 4A:</b> <i>Traffic Operations II</i>	<b>Session 4B:</b> <i>Public transport and pedestrians</i>				
16:30								
17:00								
17:30								
18:00								
18:30			FREE					
19:00	FREE	STRC Committee meeting	Apperitif Canton Ticino					
19:30			Apperitif Canton Ticino					
20:00	Dinner		Gala Dinner					
20:30	Dinner		Gala Dinner					

## 2.3 Sessions

On Wednesday 24<sup>th</sup> afternoon:

Keynote by Rolf H. Möhring				
<b>Chair:</b> M. Bierlaire <b>Room:</b> Auditorium				
Start	End	Author	Title	
14:30	15:30	Rolf H. Möhring	<i>Network Routing - Integrating Dynamic Network Flows and Scheduling</i>	
Session 1A: Traffic operations I				
<b>Chair:</b> N. Geroliminis <b>Room:</b> Auditorium				
Start	End	Authors	Title	
16:00	16:30	Ramezani, Mohsen Geroliminis, Nikolas	<i>Queue profile estimation in signalized arterials by utilizing probe vehicle data</i>	
16:30	17:00	Guler, Ilgin Menendez, Monica	<i>Empirical Evaluation of Bus and Car Delays at Pre-signals</i>	
17:00	17:30	Samoili, Sofia Efthymiou, Dimitrios Antoniou, Constantinos Dumont, André-Gilles Dumont	<i>Short-term prediction models for managed lanes</i>	
17:30	18:00	Ortigosa, Javier Menendez, Monica	<i>Study of urban grid configurations</i>	
18:00	18:30	Zheng, Nan Aboudolas, Konstantinos Geroliminis, Nikolas	<i>A City-scale Three-dimensional Macroscopic Fundamental Diagram: Simulation Findings</i>	
Session 1B: Air, Rail, and Logistics				
<b>Chair:</b> R. Maggi <b>Room:</b> Balint				
Start	End	Authors	Title	
16:00	16:30	Chen, Jianghang Atasoy, Bilge	<i>Planning of feeding station installment for electric urban public mass-transportation system</i>	
16:30	17:00	Noto, Claudio	<i>Airport Capacity Allocation with Network Airlines</i>	
17:00	17:30	Robenek, Tomas Chen, Jianghang	<i>Exploratory Analysis of Demand Interaction in the Planning of Passenger Railway Service</i>	
17:30	18:00	Fumasoli, Tobias Mancera, Albert Bruckmann, Dirk Weidmann, Ulrich	<i>ViWaS – single wagonload freight traffic in Europe</i>	
18:00	18:30	Atasoy, Bilge Salani, Matteo Bierlaire, Michel	<i>Solution methodologies for a mixed integer nonlinear integrated airline schedule planning problem</i>	

On Thursday 25<sup>th</sup> morning (first part):

<b>Session 2A: Demand modelling and travel behaviour I</b>			
<b>Chair:</b> K. W. Axhausen <b>Room:</b> Auditorium			
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>
08:30	09:00	Rosset, Etienne Kowald, Matthias	<i>Residential and territorial based analysis of mobility behaviour in Swiss agglomerations</i>
09:00	09:30	Ciari, Francesco Marmolejo, Alejandro Stahel, Alexander	<i>Mobility patterns in Switzerland: past, present and future</i>
09:30	10:00	Glerum, Aurelie Frejinger, Emma Karsltrom, Anders Hugosson, Muriel Besser Bierlaire, Michel	<i>A dynamic discrete-continuous choice model of car ownership and usage</i>
10:00	10:30	Ehreke, Ilka Weis, Claude	<i>Determine VTTS for the German Federal Transport Infra-structure Planning – a method report</i>
<b>Session 2B: Data, technology, and Parking</b>			
<b>Chair:</b> N. Geroliminis <b>Room:</b> Balint			
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>
08:30	09:00	Waraich, Rashid Dobler, Christoph Axhausen, Kay	<i>Simulating Parking Search</i>
09:00	09:30	Kazagli, Evanthia Jingmin Chen Bierlaire, Michel	<i>Exploring the Potential of Smartphone Data for the Advancement of Route Choice Models</i>
09:30	10:00	Montini, Lara Rieser-Schussler, Nadine Axhausen, Kay	<i>Field Report: GPS-based Travel Survey of the Greater Zurich Area</i>
10:00	10:30	Ythier, Jeanne Walker, Joan Bierlaire, Michel	<i>The influence of social CONTACTS and communication use on travel behavior: a smartphone-based study</i>



On Thursday 25<sup>th</sup> morning (second part):

<b>Session 3A: Demand modelling and travel behaviour II</b>				
<b>Chair:</b> K. W. Axhausen <b>Room:</b> Auditorium				
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>	
11:00	11:30	Stathopoulos, Amanda Glerum, Aurelie Themans, Michael Bierlaire, Michel	<i>Dynamic vehicle ownership forecasting: advances in modeling inter-temporal choice</i>	
11:30	12:00	Erath, Alex van Eggermond, Michael A.B. Fourie, Peter J. Chakirov, Artem	<i>Decision support tools in transport planning: from research to practice</i>	
12:00	12:30	Marki, Fabian Charypar, David Axhausen, Kay	<i>Integration of household interaction into a continuous simulation model</i>	
<b>Session 3B: Land use and policy I</b>				
<b>Chair:</b> R. Maggi <b>Room:</b> Balint				
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>	
11:00	11:30	Efthymiou, Dimitrios Farooq, Bilal Bierlaire, Michel Antoniou, Constantinos	<i>Agent-Based Indicators Analysis in the Context of Policy Evaluation</i>	
11:30	12:00	Anreiter, Wilfried	<i>Do Agglomeration Programmes help coordinate spatial and transport planning?</i>	
12:00	12:30	Bodenmann, Balz Vecchi, I. Axhausen, Kay Hackney, Jeremy	<i>FaLC: an implementation of a land-use transport interaction model for Switzerland</i>	
12:30	13:00	Scagnolari, Stefano Gogov, Aleksandar Maggi, Rico	<i>Relationality in Urban Processes: How Cultural Projects Makes Connections With The Human and Physical Reality</i>	

On Thursday 25<sup>th</sup> afternoon:

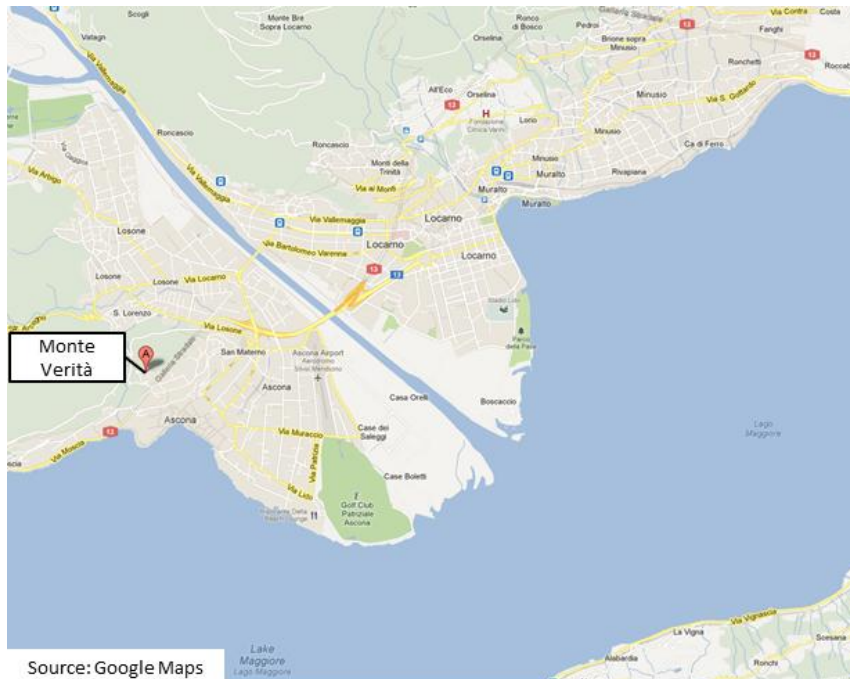
<b>Keynote by Tommy Gärling</b>				
<b>Chair:</b> K.W. Axhausen <b>Room:</b> Auditorium				
<b>Start</b>	<b>End</b>	<b>Author</b>	<b>Title</b>	
14:00	15:00	Tommy Gärling	<i>Aggregating Travel Satisfaction</i>	
<b>Session 4A: Traffic operations II</b>				
<b>Chair:</b> N. Geroliminis <b>Room:</b> Auditorium				
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>	
15:30	16:00	Vitins, Basil Axhausen, Kay	<i>Adaptive Network Design versus Rigid Patterns – Can we do better than a grid? –</i>	
16:00	16:30	Cao, Jin Menendez, Monica	<i>On-street parking near intersections: effects on traffic</i>	
16:30	17:00	Ji, Yuxuan Geroliminis, Nikolas	<i>Dynamic Partitioning of Urban Transportation Networks</i>	
17:00	17:30	Samoili, Sofia Dumont, André-Gilles Dumont Geroliminis, Nikolas	<i>Dynamics of lane distribution flows in freeways</i>	
17:30	18:00	Yildirimoglu, Mehmet Geroliminis, Nikolas	<i>Dynamic Traffic Assignment with Macroscopic Fundamental Diagram for Simple Networks</i>	
18:00	18:30	Aboudolas, Konstantinos Geroliminis, Nikolas	<i>Perimeter Flow Control in Heterogeneous Networks</i>	
<b>Session 4B: Public transport and pedestrians</b>				
<b>Chair:</b> R. Maggi <b>Room:</b> Balint				
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>	
15:30	16:00	Barth, Emanuel Weidmann, Ulrich	<i>Crossing the Line – How Administrative Borders Affect Customers of Urban Public Transport Services</i>	
16:00	16:30	Danalet, Antonin Farooq, Bilal Bierlaire, Michel	<i>Pedestrian location choice modeling from sensors data</i>	
16:30	17:00	Hanseler, Flurin Bierlaire, Michel	<i>Dynamic estimation of pedestrian demand within railway stations: A graph-based approach</i>	
17:00	17:30	Nageli, Lorenzo Orth, Hermann Weidmann, Ulrich	<i>High quality public transport and promotion of non-motorized transport – compromise or complement? An analytical approach assessing conflicts</i>	
17:30	18:00	Nikolic, Marija Farooq, Bilal Bierlaire, Michel	<i>Exploratory analysis of pedestrian flow characteristics in mobility hubs using trajectory data</i>	
18:00	18:30	Boyacı, Burak Geroliminis, Nikolas Zografos, Konstantinos	<i>An Optimization Framework for the Development of Efficient One-Way Car-Sharing Systems</i>	

On Friday 26<sup>th</sup> morning:

<b>Session 5A: Simulation techniques</b>				
<b>Chair:</b> N. Geroliminis <b>Room:</b> Auditorium				
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>	
08:30	09:00	Ge, Qiao Menendez, Monica	<i>A Simulation Study of the Car-to-X Communication Based Freeway Merge Control</i>	
09:00	09:30	Horni, Andreas Montini, Lara	<i>A Glimpse at Emergence in Agent-Based Simulations</i>	
09:30	10:00	Charypar, David Axhausen, Kay	<i>A Framework for Parallel Agent-Based Simulation in Physical Space</i>	
10:00	10:30	Dubernet, Thibaut Axhausen, Kay	<i>A Framework to Represent Joint Decisions in a Multi-Agent Transport Simulation</i>	
10:30	11:00	Ming, Lu Axhausen, Kay	<i>First Results of Simulating Traffic Behaviour Using Distributed Adaptive Control</i>	
<b>Session 5B: Land use and policy II</b>				
<b>Chair:</b> R. Maggi <b>Room:</b> Balint				
<b>Start</b>	<b>End</b>	<b>Authors</b>	<b>Title</b>	
08:30	09:00	Ibraimovic, Tatjana Hess, Stephane	<i>Households' response to changes in the ethnic composition of neighbourhoods: Exploring reference-dependence and asymmetric preference structures</i>	
09:00	09:30	Schirmer, Patrick Zollig Renner, Christof Mueller, Kirill Bodenmann, Balz Axhausen, Kay	<i>LandUse Simulation on the Canton of Zurich – Final</i>	
09:30	10:00	Hackney, Jeremy Vitins, Basil Bodenmann, Balz	<i>Market-Clearing Models in FaLC</i>	
10:00	10:30	Efthymiou, Dimitrios Hurtubia, Ricardo Bierlaire, Michel Antoniou, Constantinos	<i>The Integrated Land-Use and Transport Model of Brussels</i>	
10:30	11:00	Zollig-Renner, Christof	<i>Modelling real estate development with heterogeneous agents</i>	
<b>Keynote by Andrew Daly</b>				
<b>Chair:</b> M. Bierlaire <b>Room:</b> Auditorium				
<b>Start</b>	<b>End</b>	<b>Author</b>	<b>Title</b>	
11:30	12:30	Andrew Daly	<i>Forecasting travel demand using large-scale models</i>	

### 3. Location and transportation

The conference takes place on the Monte Verità, Ascona (Ticino) at the Centro Stefano Franscini of ETH Zurich in Switzerland. The venue is near Ascona and Locarno, both on the Maggiore's lake coast (see map).



On Wednesday 24<sup>th</sup> there will be a shuttle service from Locarno train station to Monte Verità. The timetable is the following:

- 12:00h Shuttle (11 seats)
- 12:25h Shuttle (30 seats)
- 12:35h Shuttle (11 seats)
- 13:10h Shuttle (11 seats)

We recommend attendants to plan their arrival to the Locarno station before 12:35.

On Friday 26<sup>th</sup> there will be also shuttle services from Monte Verità to Locarno starting at 13:00 h.

## 4. Additional information

The present program and the papers of the conference can be checked at the conference web page:

<http://www.strc.ch/conferences/2013>

Also details of the venue can be found:

<http://www.monteverita.org>

Finally, information concerning travel times by train can be checked at:

<http://www.sbb.ch/>

The presentations are planned to be 30 minutes long: 15 minutes presentation, 10 minutes questions, 5 minutes extra. Please, plan your presentations to last 15 minutes (not more than 15 slides recommended).

For other questions regarding the conference, please send us an e-mail at:

[Strc2013@ivt.baug.ethz.ch](mailto:Strc2013@ivt.baug.ethz.ch)