University of Stuttgart
Center for Transportation Research

NETWORKS FOR MOBILITY

6th International Symposium
September 27/28, 2012
Stuttgart, Germany

Invitation and Program

(04/09/2012)

www.networks-for-mobility.net
Ladies and Gentlemen,

The members of FOVUS – the Centre of Transportation Research of Universität Stuttgart – invite you to attend the 6th International Symposium “Networks for Mobility”, which will take place from Sept. 27 – 28, 2012 in Stuttgart, Germany. The Mobility Triangle of “Economy, Ecology and Technology” will be the base for the 2012 Networks for Mobility Symposium. Sustainable Mobility needs input from the three triangle disciplines and some more.

As in the past at the symposium the discussion will focus on the following topics:
- Transportation System Planning
- Traffic Control and Telematics
- Transportation and the Environment

The last symposia showed that bringing together representatives from various disciplines can lead to new insights and new projects. The researchers and practitioners – from fields ranging from urban and regional planning, economics, and ecology, to geodesy, transportation planning, traffic, and vehicle engineering – experienced fruitful, multi-disciplinary exchanges, particularly due to the fact that methods of control theory, network analysis and modeling as well as simulation are very much interchangeable.

Within a compact two-day program, about 50 presentations will be given in plenary and parallel sessions. One highlight will be presentation about green mobility visions given by Mr. Hermann, the Minister of Transport and Infrastructure of Baden-Württemberg.

The day before the symposium, tutorials on three selected topics will be offered by FOVUS institutes: Evaluation of Urban Transportation Investments, Positioning and Map Matching for Traffic Applications and Innovative Approaches to Railway Capacity Analysis.

We hope you will find this program as exciting as we do, we are looking forward to receive your registration and see you in Stuttgart.

Volker Schwieger
Spokesperson, Center for Transportation Research
## International Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
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<tbody>
<tr>
<td>Kay W. Axhausen</td>
<td>Zurich, Switzerland</td>
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<tr>
<td>Bernard Bäker</td>
<td>Dresden, Germany</td>
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<tr>
<td>Ion Blodea</td>
<td>Timisoara, Romania</td>
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<td>Tilman Bracher</td>
<td>Berlin, Germany</td>
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<td>Alexander Eisenkopf</td>
<td>Friedrichshafen, Germany</td>
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<td>Bernhard Friedrich</td>
<td>Braunschweig, Germany</td>
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<td>Domenico Gattuso</td>
<td>Reggio di Calabria, Italy</td>
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<td>David B. Grant</td>
<td>Hull, UK</td>
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<td>Christian Holz-Rau</td>
<td>Dortmund, Germany</td>
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<td>Michael Jischa</td>
<td>Clausthal-Zellerfeld, Germ.</td>
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<td>Zoltan Kovacs</td>
<td>Veszprem, Hungary</td>
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<td>Herbert Kotzab</td>
<td>Bremen, Germany</td>
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<td>Michael Landwehr</td>
<td>Karlsruhe, Germany</td>
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<td>Rainer Lasch</td>
<td>Dresden, Germany</td>
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<td>Liqiu Meng</td>
<td>Munich, Germany</td>
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<td>Hideki Nakamura</td>
<td>Nagoya, Japan</td>
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<td>Chris Nash</td>
<td>Leeds, UK</td>
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<td>Andreas Oetting</td>
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<td>Gilles Paché</td>
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<td>Markos Papageorgiou</td>
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<td>Heinrich Reck</td>
<td>Kiel, Germany</td>
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<td>Werner Rothengatter</td>
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<td>Thomas Sachse</td>
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<td>Néstor Sáenz</td>
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<td>Eckehard Schnieder</td>
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<td>Manfred Schrödel</td>
<td>Vienna, Austria</td>
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<td>Jürgen Siegmann</td>
<td>Berlin, Germany</td>
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<td>Katalin Tanczos</td>
<td>Budapest, Hungary</td>
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<td>Eric Verhoef</td>
<td>Amsterdam, Netherlands</td>
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<td>Roger Vickerman</td>
<td>Canterbury, UK</td>
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<td>Michael Wegener</td>
<td>Dortmund, Germany</td>
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<td>Ulrich Weidmann</td>
<td>Zurich, Switzerland</td>
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## Stuttgart Members

FEES AND PAYMENT

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<tr>
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<th>Before</th>
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<tbody>
<tr>
<td>Participants</td>
<td>€ 320,-</td>
<td>€ 370,-</td>
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<tr>
<td>Authors</td>
<td>€ 200,-</td>
<td>€ 230,-</td>
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<tr>
<td>Student participants*</td>
<td>€ 80,-</td>
<td>€ 100,-</td>
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<tr>
<td>Tutorial Participants</td>
<td>€ 150,-</td>
<td>€ 200,-</td>
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The above-listed fees cover participation in all sessions, coffee breaks, daily lunch, proceedings, and the symposium banquet. Payment is requested by bank transfer or credit card (Visa or MasterCard).

* = We kindly ask you to submit a copy of your student ID card together with the registration form.

Fees for the tutorials are separate from the symposium fees, but can be transferred in one payment sum.

REGISTRATION

For both the symposium and tutorials, please register with the registration form available at [www.networks-for-mobility.net](http://www.networks-for-mobility.net).

For any further questions, please feel free to contact the Symposium Management (please find the detailed coordinates on page 16).

Symposium participants may also register at the Symposium itself, starting on Thursday, September 27, 2012 at 8:00.

HOTELS

If hotel accommodation is needed, please visit the Stuttgart Marketing website for central hotel reservations in Stuttgart and the surrounding region:

We also recommend [www.hrs.de](http://www.hrs.de) or [www.booking.com](http://www.booking.com) for your booking.
Solutions to most of the current and future transportation problems cannot be found within only one single mode of transportation or within one single discipline. On the contrary, improvements regarding **sustainable mobility** require close interaction between the different transportation modes as well as the integration of the planning, technical, and socio-economic fields.

We encounter **networks and interdependencies** in all fields of transportation and mobility: in transport infrastructure, in telematics and road pricing with their demanding information processes; in combined passenger and freight transport linking road and rail; in public transport with the conflicting requirements of the passengers and operators; and in politics with the interaction of transportation, the environment, and society.

All these aspects will be dealt with in “Networks for Mobility 2012” covering the following topics indicated by session titles:

- Shared Mobility
- Quality of Transport and Logistics
- Traffic Detection and Traffic Signals
- Efficiency and Safety of rail-bound systems
- Built Environment and Travel Behavior
- Quality of Service in Road Networks
- Planning of Freight Traffic and Transport
- Transport Systems Modeling
- Travel Demand Modeling
- Public Transport System's Design
- Positioning and Location Referencing
- Sustainable Urban Transport
- Sustainable Freight Traffic and Logistics Services
- Eco-Management of Sustainable Mobility
In the context of the Symposium, tutorials on the following selected topics will be simultaneously provided on Wednesday, September 26. Each will start at 9:30. The registration for the tutorials is independent of the symposium registration.

**EVALUATION OF URBAN TRANSPORTATION INVESTMENTS**

In the first part of the tutorial, the theoretical background and methods for evaluating urban transportation investments will be presented. These include financing formalities in Germany, goals and procedure of the “Standardised Evaluation of Investments on Public Transport”, determination of traffic supply and demand for public transport and private transport, evaluation of costs and benefits, determination of macroeconomic indicators and calculation of subsequent costs. In the second part the participants will have the opportunity to evaluate a concrete example by using a software tool.

*Institute of Railway and Transportation Engineering* ([www.uni-stuttgart.de/iev](http://www.uni-stuttgart.de/iev))

**POSITIONING AND MAP MATCHING FOR TRAFFIC APPLICATIONS**

Various positioning sensors, such as GPS, odometers, and gyros are available for specific applications in vehicle positioning. The reduced availability of the GPS technique in urban areas leads to multi-sensor systems and to map matching techniques. This tutorial will focus on various positioning techniques in combination with digital maps. It consists of three parts: A) GNSS and Multi Sensor Systems, B) Digital Maps and Map-Matching, C) Mobile Phone Positioning. There will be no practical training but practice-oriented talks presented to the participants.

*Institute of Engineering Geodesy* ([http://www.uni-stuttgart.de/ingeo](http://www.uni-stuttgart.de/ingeo))

**INNOVATIVE APPROACHES TO RAILWAY CAPACITY ANALYSIS**

The main aim of railway capacity research is the improvement or optimization of the current, future, or recommended operational railway situation. This can be achieved in a number of different ways, one of them being through the analysis of the number of trains and their corresponding average waiting times, and then determining the optimal area of traffic flow. Improving railway operations can lead to decreased passenger and freight delays, increased profits for railway companies, and improved passenger comfort. In the tutorial, an introduction to capacity research will be given and several different research and evaluation methods of capacity analysis will be presented.

*Institute of Railway and Transportation Engineering* ([www.uni-stuttgart.de/iev](http://www.uni-stuttgart.de/iev))
<table>
<thead>
<tr>
<th>Time</th>
<th>Wednesday, September 26, 2012 *</th>
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<tbody>
<tr>
<td>09:00</td>
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<td>Tutorials</td>
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<td>Positioning and Map Matching for Traffic Application (1/3)</td>
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<td>Positioning and Map Matching for Traffic Application (2/3)</td>
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<td>13:00</td>
<td>Lunch (13:00 – 14:00)</td>
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<td>14:00</td>
<td>Tutorials</td>
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<td>15:00</td>
<td>End of Tutorials</td>
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* = The Tutorials will be NOT held at the Symposium venue (“GENO Haus Stuttgart”). The Tutorial locations will be separately announced after submitting your registration form.
<table>
<thead>
<tr>
<th>Time</th>
<th>Thursday, September 27, 2012</th>
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<tbody>
<tr>
<td>08:00</td>
<td>Registration starts at 08:00</td>
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<tr>
<td>10:00</td>
<td>Opening</td>
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<td>Introduction and Opening Lecture</td>
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<td>12:30</td>
<td>Lunch <em>(12:30 – 13:30)</em></td>
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<td>13:30</td>
<td><strong>Parallel Sessions A</strong></td>
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<td>Traffic Detection and Traffic Signals</td>
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<td>15:00</td>
<td>Coffee Break <em>(15:00 – 15:30)</em></td>
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<td>15:30</td>
<td><strong>Plenary Session I</strong></td>
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<td>Shared Mobility</td>
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<td>17:00</td>
<td>Coffee Break <em>(17:00 – 17:30)</em></td>
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<td>17:30</td>
<td><strong>Parallel Sessions B</strong></td>
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<td>Quality of Service in Road Networks</td>
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<tr>
<td>19:00</td>
<td>Banquet (GENO-Haus, Restaurant)</td>
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**THE SYMPOSIUM IS SUPPORTED BY:**

![SSB Logo]![THALES Logo]![PTV GROUP Logo]
# Schedule

## September 28, 2012

<table>
<thead>
<tr>
<th>Time</th>
<th><strong>Friday, September 28, 2012</strong></th>
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<tr>
<td>08:00</td>
<td>Registration starts at 08:00</td>
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<td>09:00</td>
<td><strong>Parallel Session C</strong></td>
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<td>Travel Demand Modeling</td>
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<td>10:30</td>
<td><strong>Coffee Break (10:30 – 11:00)</strong></td>
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<td>11:00</td>
<td><strong>Parallel Sessions D</strong></td>
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<td>Sustainable Urban Transport</td>
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<td>12:30</td>
<td><strong>Lunch (12:30 – 13:30)</strong></td>
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<td>13:30</td>
<td><strong>Plenary Session II</strong></td>
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<td></td>
<td>Quality of Transport and Logistics</td>
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<tr>
<td>15:00</td>
<td><strong>Final Discussion</strong></td>
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OPENING    THURSDAY, SEPT. 27, 10:00-12:30

WELCOME ADDRESS

Prof. Dr. Wolfram Ressel  
Rector, University of Stuttgart

Prof. Dr. Volker Schwieger  
Speaker of the Center for Transportation Research - FOVUS

OPENING LECTURES

Sustainable Mobility and Climate Protection  
Winfried Hermann, Minister for Transport and Infrastructure, Baden-Württemberg

"Is walking transport?"
Perceptions and ideologies of sustainable transport modes.  
Daniel Sauter, Urban Mobility Research, Zurich, Switzerland

The Future of Mobility – Smart Cars and smart Traffic integrated in smart Grids  
Prof. Dr. Gernot Spiegelberg, Siemens AG, Munich, Germany

PLENARY SESSION I    THU, SEPT. 27, 15:30-17:00

SHARED MOBILITY

Integrated Mobility  
Florian Lennert (InnoZ, Berlin, Germany)

moovel - connecting public and private mobility  
Michael Kuhn (Daimler AG, Mobility Solutions / moovel, Stuttgart, Germany)

The Potential of Public Bike Systems  
Prof. Dr. Markus Friedrich (University of Stuttgart, Germany)

PLENARY SESSION II    FRI, SEPT. 28, 13:30 - 15:00

QUALITY OF TRANSPORT AND LOGISTICS

Performance Evaluation in Public Transport. An Operational Methodology  
Prof. Domenico Gattuso (Mediterranea University, Reggio Calabria, Italy)

Quality of Logistics Services - A journey towards customer driven operational excellence along the supply chain  
Dr. Stephan Freichel  
(Independent Consultant, former Managing Director of Logwin Solutions, Aschaffenburg, Germany)
TRAFFIC DETECTION AND TRAFFIC SIGNALS

Traffic Monitoring replaces the quinquennial road traffic census in Baden-Wuerttemberg
Marion Mayer-Kreitz (Road Traffic Center Baden-Württemberg, Stuttgart, Germany)

Level of service estimation at traffic signals based on innovative traffic data services and collection techniques  Steffen Axer (Technical University of Braunschweig, Germany)

Using Inductive Loop Signature Re-identification for Travel Time Measurement - Use Case Bremerhaven
Friedrich Maier (commea T.E.C. traffic engineering & consulting, Munich, Germany)

The Bavarian Road Administration fostering innovation within Intelligent Transportation Systems – R&D project KOLIBRI
Ulrich Haspel (Bavarian Road Administration, Munich, Germany)

EFFICIENCY AND SAFETY OF RAIL-BOUND SYSTEMS

Evaluation of supply quality in passenger transport as a basis for the assessment of railway infrastructure measures
Michael Rittner (DB Netz AG, Frankfurt/Main, Germany)

Level Crossings of Light Rail Systems: Safety Review of a Man-Machine Interface
Hans-Joachim Meinicke (Stuttgarter Straßenbahnen AG, Germany)

Rescue Single Wagon load traffic: Abolish Shunting!
Bernd H. Kortschak (University of Applied Sciences, Erfurt, Germany)
QUALITY OF SERVICE IN ROAD NETWORKS

Measuring Travel Time Reliability for an FCD-based Route Information System
Rüdiger Ebendt (German Aerospace Center, Berlin, Germany)

Factors Influencing the Travel Time Reliability of Motorway Sections
Jochen Lohmiller (University of Stuttgart, Germany)

Impact of Vehicular Communication Performance on Travel Time Estimation in Urban Areas
Hugues Tchouankem (Leibniz University Hannover, Germany)

Fusion of Level of Service Data for Traffic Information Services
Thorsten Neumann (German Aerospace Center, Berlin, Germany)

PLANNING OF FREIGHT TRAFFIC AND TRANSPORT

Behavior-Oriented Freight Modeling: Method and Applications
Tobias Wieczorek (PTV AG, Karlsruhe, Germany)

The Formalization of the Appraisal of the Road Influence on the Transportation Process of Freight Traffic
Marina Petrunina (Transport and Telecommunication Institute, Riga, Latvia)

Integrating information from heterogeneous data sources to improve decision making in the long-haul freight business
Thomas Bousonville (University of Applied Sciences, Saarbrücken, Germany)

TRANSPORT SYSTEM MODELING

Latest Simulation Training Methods for Traffic Controllers and Signalmen
Jörg Demitz (Funkwerk Information Technologies GmbH, Kiel, Germany)

Using Cybernetics for Analyzing Safety within Transportation Systems
René Sebastian Hosse (Technical University of Braunschweig, Germany)

Model Definition and Optimization of Operative Cost Functions in Service Integration of Bus Services
Francis Cirianni (Mediterranea University of Reggio Calabria, Italy)
**PARALLEL SESSION C  FRIDAY, SEPT. 28, 09:00-10:30**

**TRAVEL DEMAND MODELING**

State of the art of multimodal macroscopic transport modeling  
*Udo Heidl (PTV AG, Karlsruhe, Germany)*

A New Quality in Transportation Modeling with Historical Navigation Speed Information  
*Lars Peter (PTV AG, Karlsruhe, Germany)*

Dynamics on housing career and travel behavior: toward a broader understanding  
*Aida Pontes de Aquino (Eindhoven University of Technology, The Netherlands)*

**PUBLIC TRANSPORT SYSTEMS DESIGN**

Linguistics in transportation: How structuralism can help to understand the functioning of transportation systems  
*Reinhold Schröter (Stuttgarter Straßenbahnen AG, Germany)*

Innovation in Regional Railway Passenger Transport: the Opening to Competition and new City Tunnel in Leipzig Region  
*Laurent Guihéry (Université Lumière, Lyon, France)*

Industrial design’s criteria for the development of public transport vehicles for urban areas in Colombia  
*Mario Avellaneda Gonzalez (National University, Bogota, Colombia)*

Consistent Decision Process and Algorithm for Train Dispatching  
*Yong Cui (University of Stuttgart, Germany)*

**POSITIONING AND LOCATION REFERENCING**

Positioning in Real-Time Public Transport Navigation: Comparison of Vehicle-Based and Smartphone-Generated Acceleration Data to Determine Motion States of Passengers  
*Ina Partzsch (Fraunhofer Institute, Dresden, Germany)*

Getting in and out of a taxi: spatio-temporal hotspot analysis for floating taxi data in Shanghai  
*Jukka Matthias Krisp (Technical University of Munich, Germany)*

Evaluation of Dynamic Location Referencing Algorithms  
*Rainer Schützle (University of Stuttgart, Germany)*
**Sustainable Urban Transport**

Successful Initiation and Coordination of Mobility Management – Experience of the German Action Program "efficient mobil"

*Mechtild Stiewe (ILS: Research Institute for Regional and Urban Development, Dortmund, Germany)*

Spatial Implications from Electro-Mobility: Developing an urban typology to analyse requirements and potential benefits for cities from an electric vehicles scenario

*Wolfgang Rid (University of Stuttgart, Germany)*

Non-motorized mobility and the steering force of the Organized Civil Society towards innovative approaches for planning a sustainable urban mobility.

*Regina Orváñanos Murguía (Laboratorio de Tecnología Urbana, Guadalajara, Mexico)*

**Sustainable Freight Traffic and Logistics Services**

Key Performance Indicators for Intermodal Transportation

*Martin Posset (h2 projekt.beratung KG, Vienna, Austria)*

Intermodal Networks for Freight Transport in the Hinterland of Seaports – The Example of Railroad

*Herbert Kotzab (University of Bremen, Germany)*

Sustainable Buying of Transport Services

*Rudolf O. Large (University of Stuttgart, Germany)*

**Eco-Management of Sustainable Mobility**

Impact of Road Network on the Pranahita Wildlife Sanctuary, India

*E.N. Murthy (University of Hyderabad, India)*

Simulation of linkage efficiency in a road-fragmented habitat network

*Rüdiger Jooß (University of Stuttgart, Germany)*

Gravity Ropeway: Could be a reliable source of transport the goods and services in Hills and Mountainous Regions of Nepal

*Shambhu Dev Baral (Association of District Development Committees, Sanepa, Nepal)*
**SOCIAL PROGRAM**

**THURSDAY, SEPTEMBER 27, 19:00**

**BANQUET – THURSDAY, SEPTEMBER 27, 2012, 19:00**

All registered symposium participants are invited to attend this social program event. Please join us on the evening of Thursday, September 30 at 19:00 for the official Symposium banquet.

This social program, which is included in your registration price, will be held directly after the first day of events at the "GENO Haus" convention center in Stuttgart (same location as the Symposium). The banquet will offer an inviting atmosphere to continue your networking and reach out and meet other participants. In addition to dinner and socializing, a small entertainment program will also take place during the banquet.

**THE SYMPOSIUM VENUE:**

![Symposium Venue Image]
GENO Haus
Heilbronner Str. 41
70191 Stuttgart
www.geno-haus.de

S-Bahn
You can use all lines. Get off at main station (“Hauptbahnhof”). Change here to Stadtbahn lines U5, U6, U7, U12 or U15.

Stadtbahn
Take Stadtbahn lines U5, U6, U7, U12, or U15 in direction Killesberg, Gerlingen, Mönchfeld, or Stammheim, respectively. Get off at stop “Türlenstraße/Bürgerhospital”

Car
The GENO-Haus is situated in the city center of Stuttgart very close to the central station (as illustrated on the right). Parking is free for all participants.

Plane
From Stuttgart Airport, take S-Bahn lines S2 or S3. Get off at main station (“Hauptbahnhof”) and change to Stadtbahn lines U5, U6, U7, U12, or U15.

Mr. Rainer Schützle
University of Stuttgart
Center for Transportation Research
Geschwister-Scholl-Str. 24D
70174 Stuttgart, Germany
Phone: +49-711-685-84048
Fax: +49-711-685-84044
E-mail: fovus@fovus.uni-stuttgart.de
Internet: www.networks-for-mobility.net