Foreword

In September 2004 the first international symposium called ESAR was carried out at our University. The approach of this symposium was to assemble scientists as well as representatives of the authorities, medical and technical institutions in a scientific colloquium, in order to exchange experiences and to discuss their conclusions concerning the accident prevention and the complex incidents in the course of accident scenarios.

Accident research is based on the necessity of knowledge and analysis of the effects of accidents that occurred, in order to derive countermeasures for an optimized accident prevention and avoidance as well as in reduction of injury severity. Especially considering the target to fulfill the stipulation by the European Union to halve the number of persons killed annually in road traffic from the year 2000 until the year 2010, optimized measures and research of the happened road traffic accidents have to be executed, in order to reach this goal even taking into account the grown number of member states after the extension to 24 European countries. These efforts can no longer only include Europe but have to be shared around the world. Especially in third world countries or Asia and Africa wealth and mechanization increase, thus also traffic accidents increase. Here the gleaned experiences of long term research on that field are to be used profitably.

ESAR has set itself the goal to become a platform for the international exchange of knowledge and to principally deal in this respect with conclusions, methods and suggestions resulting from so-called „In-Depth-Investigations“. Real world accidents have to be documented immediately after the event and scientifically analyzed on multidisciplinary levels. ESAR opens the opportunity for scientists to present their studies. These usually lack the suitable platform for other symposia of this subject.

I personally welcome all delegates and colleagues to this 2006 conference ESAR which is held every two years. I hope that this event will be an international platform for exchange of scientific information.

Professor Dietmar Otte

Hannover Medical School
Program Chairperson

Prof. Dipl.-Ing Dietmar Otte (MH Hannover)

Organisation and Review Committee

Dipl.-Math. Bakker (DaimlerChrysler)
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Dipl.-Ing. Sferco (Ford)
Prof. Dr. med. Zwipp (TU Dresden)

Conference Manager

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Please refer to the Conference Web Site for program updates:
http://www.esar-hannover.de

Conference Registration

September 1st
7:30 - 9:00 Foyer Building J1 2nd Floor Lecture Room Hall F
9:00 - 9:40
Welcome Session
General Chairman: Dietmar Otte, Hannover Medical School

9:00
Dietmar Otte
Conference chairman
Hannover

Representatives Government and Industry
9:05
Dieter Bitter-Suermann
President of Hannover Medical School
Hannover

9:15
Josef Kunz
President of German Federal Highway Research Institute BASt
Bergisch Gladbach

9:25
Wolfgang Hahn
Representant of German Automobile Industry, Safety Department Opel
Rüsselsheim

9:35 - 9:55
Keynote Lecture
The Glass is Half Full
Carl E. Nash
George Washington University
USA

9:55 - 10:15
break

10:15 - 11:55
Session: Methodology of In-Depth Investigations
- Part I
Chair: E. Brühning, Federal Highway Research Institute BASt

10:15
In-depth on-the-spot Road Accident Investigation in Finland
I. Salo, K. Parkkari, P. Sulander, E. Keskinen
Finnish Motor Insurers’ Centre, Traffic Safety Committee of Insurance Companies (VALT)
Finland
10:35
In-Depth Investigation of Vehicle Traffic Injuries in Changsa of China
C. Kong, J. Yang, L. Li, W. Li, Z. Zhao, D. Otte
Hunan University, Hannover Medical School
P. R. China, Germany

10:55
In-Depth-Study in Jiading-District, Shanghai Considering as an Example for Accident Research in the Peoples Republic of China
A. Tenzer, W. Hongyan
Volkswagen AG, Tongji University
Germany / PR China

11:15
Concept and First Results of the ADAC Accident Research Based on the Data of ADAC Air Rescue Stations
T. Unger, W. Klanner
ADAC
Germany

11:35
PENDANT: A European Crash Injury Database
Loughborough University, University of Graz, MUH, INRET, Chalmers University, TNO, SWOV, INSIA
United Kingdom, Austria, Germany, France, Sweden, Netherlands, Spain

11:55 - 13:00
lunch

13:00 - 14:40
Session: Methodologies of In-Depth Investigations - Part II
Chair: R. Sferco, Ford

13:00
Multi-Level Statistical Models for Vehicle Crashworthiness Assessment – An Overview
H. Hautzinger
Institut für angewandte Verkehrs- und Tourismusforschung e.V. (IVT)
Germany

13:35
Multi-Level Statistical Models for Vehicle Crashworthiness Assessment
H. Hautzinger
Institut für angewandte Verkehrs- und Tourismusforschung e.V. (IVT)
Germany
13:20
Statistical and Methodological Foundations of the GiDAS Accident Survey System
8 M. Pfeiffer, J. Schmidt
Institut für angewandte Verkehrs- und Tourismusforschung e.V.
Germany

13:40
Active Vehicle Safety Studies Based on In-Depth Accident Investigations - Possible or not?
9 J. Gail, U. Ellmers
Federal Highway Research Institute BASt
Germany

14:00
Structure of Fatal Accidents in Lower Saxony – a new Approach of Accident Sampling and Analysis of Accident Causes and Configurations
10 M. Jänsch, D. Otte, Ch. Krettek
Hannover Medical School
Germany

14:20
Method for In-Depth Traffic Accident Case-Control Studies
11 Y. de Vries, N. Jongerius
TNO Automotive Safety
Netherlands

14:40 - 15:00
break

15:00 - 15:20
Keynote Lecture
12 Accident Research as a Basis of the German Road Safety Policy
J. Hennerkes
Secretary of German Federal Ministry of Transport, Building and Urban Affairs
Germany
15:20 - 16:20
Session: Special Topics for Vulnerable Road Users
Chair: M. Jungmichel, Volkswagen

15:20
Powered Two-Wheeler Accidents – First Results Of APROSYS SP4 Implying GIDAS 2002 Data
13 J. König, A. Berg
DEKRA Automobil
Germany

15:40
Analysis of Car-Pedestrian Impact Scenarios for the Evaluation of a Pedestrian Sensor System Based on Accident Data from Sweden
14 S. Huang, J. Yang, F. Eklund
Chalmers University of Technology, Autoliv Electronics
Sweden

16:00
A Medical and Technical Analysis of Knee Injuries Focusing Vulnerable Road Users and Belted Car Drivers in Road Traffic
15 C. Haasper, D. Otte, K. Knobloch, C. Probst, C. Krettek, M. Richter
Hannover Medical School
Germany

16:20 - 16:40
break

16:40 - 18:20
Session: Regulations and Consumer Aspects
Chair: J. Bakker, DaimlerChrysler

16:40
Paired-Comparison Study: Correlation Between Euro NCAP Star Ratings and Accident Data from the National German Police Road Accident Statistics
16 C. Pastor
Federal Highway Research Institut BASt
Germany
17:00
"Whiplash" Testing and Assessment - Update of Current Activities with Focus on the New Euro NCAP Whiplash Testing and Assessment Protocol
17  B. Lorenz, R. Sferco
  Federal Highway Research Institute and Ford
  Germany

17:20
Crash Tests to Assess the Secondary Safety of Cars in the so-called “8000-EURO-Class”
18  F.A. Berg, P. Rücker, M. Gärtner, M. Groer
  DEKRA Automobil
  Germany

17:40
Analysis of Accident Data for the Optimization of Theoretical Driving-License Test
19  J. Bönninger, D. Sturzbecher
  TÜV / Dekra arge 21 tp
  Germany

18:00
Restraint use Patterns for Injured Children in Japan
20  K. Okamura, K. Mori, Y. Nishida
  National Research Institute of Police Science
  Japan

18:20
end of first conference day

20:00
Conference dinner
8:00 - 9:00

Poster Session: Short Presentations (no discussions)
Chair: D. Otte, Hannover Medical School

8:00
Accident Research Team in Germany - Experiences of an Interdisciplinary Project
21 L. Hannawald
VUFO
Germany

8:05
The TRACE Project: An Initiative to Update Accident Causation Issues and Evaluate the Safety Benefits of Technologies
22 Y. Page on behalf on the TRACE Consortium
Humain PSA Renault (LAB)
France

8:10
ZEDATU – A central Database of Fatalities in Austria
23 E. Tomasch, H. Steffan
University of Technology Graz
Austria

8:15
Investigation of Child Occupant Protection through an In-depth Study of Bus Accidents
24 K. Street, J.M. Barrios, J. Huguet
Applius IDIADA
Spain

8:20
Validation of Human Pedestrian Models using Laboratory Data as well as Accident Reconstruction
25 R. Happee, R. de Lange, L. van Rooij, X.J. Liu
TNO Automotive / TASS
Netherlands, China

8:25
Sensitivity of Car with Guardrail Impacts with a Multibody Simulation Tool
26 W. Klootwijk, B. Hoogvelt
TNO Automotive
Netherlands
8:30  Longtime follow-up of Patients with Bony or Ligamental Lesions after Whiplash or other Injury Mechanisms
27  M. Elbel, C. Dehner, L. Kinzl, M. Kramer
    University of Ulm
    Germany

8:35  Is Delta-V a good Parameter to Describe the Risk of Cervical Spine Injuries due to Whiplash?
28  M. Kramer, C. Dehner, M. Elbel, L. Kinzl
    University of Ulm
    Germany

8:40  How the 64.4 km/h (40 mi/h) Frontal Offset Deformable Barrier Crash Test Relates to Real-World Crash Severity
29  D. Aylor, J.M. Nolan, S. Zuby, B.C. Baker
    Insurance Institute for Highway Safety
    USA

8:45  Safety Criteria System – a Opportunity of Focussing different Dummy Loading Values to a Single Expression
30  F. Kramer, R. Werner, J. Reimer
    HTW Dresden
    Germany

8:50  Development of a Therapy Unit for Cervical Spine Injury Patients with the Aid of the Virtual Reality Technique and Computer-aided Force Feedback
31  C. Dehner, M. Elbel, L. Kinzl, M. Kramer
    University of Ulm
    Germany

8:55  Kinesiological EMG and Control of Movements with a Virtual Reality System Enable a Reliable Diagnosis of Functional Disturbances after QTF Grade II Whiplash Injuries
32  M. Elbel, C. Dehner, L. Kinzl, M. Kramer
    University of Ulm
    Germany
9:00 - 9:20
break

9:20 - 12:00
Session: Accident Prevention and Causation
Chair: H. Zwipp, University of Dresden

9:20
Systematic of Analysis of Human Accident Causation - Seven Steps Methodology
33 B. Pund, D. Otte, M. Jänsch
TUEV Nord and ARU at Hanover Medical School
Germany

9:40
Comparison of Single Vehicle Accidents with Cars not Equipped with ESP (Electronic Stability Programme) and the Assumption Cars are Equipped with ESP
34 E. Tomasch, H. Steffan, H. Hoschopf, A. Moser
University of Technology Graz, DSD Linz
Austria

10:00
Intrusion and the Aggressivity of Light Duty Trucks (LDT) in Side Impact Crashes
35 D. Patel, M. Ross, C. Compton, T. Wenzel
University of Michigan, Lawrence Berkeley National Laboratory
USA

10:20
The Effectiveness of Side Airbags in Preventing Thoracic Injuries in Europe
36 Y. Page, P. Thomas, V. Hervé, A. Kirk
Humain PSA (LAB), University of Loughborough, CEESAR
France, United Kingdom

10:40
Comparing Damage Patterns, Delta Vs, and Injury Severities between Real-World and Laboratory Narrow-Object Frontal Crashes
37 D. Aylor, R. Arbelaez
Insurance Institute for Highway Safety
USA
11:00  
Comparative Accident Rates of Vehicles Equipped with Stability Control - Field Experience  
38  
P. Thomas  
*University of Loughborough*  
*United Kingdom*

11:20  
Idea and Expectance of Intersection Assistant  
39  
M. Hoppe  
*Volkswagen*  
*Germany*

11:40 - 12:15  
break / brunch

12:15 - 13:45  
**Session: Injury Prevention and Mechanism**  
Chair: C. Krettek, *Hannover Medical School*

12:15  
Injuries of Foot & Ankle in Front Seat Passengers  
40  
H. Zwipp, R. Schubert, W. Schneiders  
*University of Dresden*  
*Germany*

12:25  
Actual Injury Situation of Bicyclists in Germany  
41  
*Hannover Medical School*  
*Germany*

12:35  
Sternal Fractures Occur most often in Old Cars to Seat-belted Drivers without any Airbag often with Concomitant Spinal Injuries - Clinical Findings and Technical Collision Parameters among 42.055 Crash Victims  
42  
*Hannover Medical School*  
*Germany*
12:45  
**Mortality of Occupants in Real Crash Scenarios – a Multivariate Analysis of Influences Regarding Mortality**  
43 S. Rohrer, L. Hannawald, R. Koch, H. Zwipp  
*VUFO, University of Dresden*  
*Germany*

12:55  
Discussion Part I

13:05  
**Influence of Vehicle Properties on Neck Injuries in Rear-end Collisions**  
44 Y. Watanabe  
*Institute of Traffic Accident Research and Data Analysis (ITARDA)*  
*Japan*

13:15  
**Injuries to Child Pedestrians Admitted to an Urban Pediatric Trauma Center**  
45 J. Steps Jermakian  
*Children’s Hospital of Philadelphia*  
*USA*

13:25  
**Evaluation of Risk Factors for Accidental Injuries of Children and Adolescents**  
46 W. Schneiders, A. Rollow, S. Rammelt, A. Biewener, M. Holch, A. Serra, S. Richter, B. Schlag, D. Roesner, H. Zwipp  
*University of Dresden*  
*Germany*

13:35  
Discussion Part II

13:45  
**Conference Review**  
**General Chairman:** Dietmar Otte, Hannover Medical School

14:00  
end
Scientific Organisation Secretariat
Mrs. Ingrid Herburg  
Carl-Neuberg-Str. 1  
30625 Hannover  
e-mail: esar@mh-hannover.de  
+49 511 532 – 6410  
during the conference  
+49 511 532 – 5000

Congress opening hours/registration desk
Friday 1st Sept.  7:30 – 18:20  
Saturday 2nd Sept.  7:30 – 14:00

Poster presentation
All posters are displayed in the main lobby near the conference hall.

Speakers Ready Room
There is a speakers’ Ready Room near the conference hall (room M), please follow the signs.  
Please give your presentation file *.ppt to the operator to put it on our conference computer to take care of a scheduled presentation.

Language
The official language of the Congress is English. Simultaneous translation is not provided.

Proceedings
All papers and posters are printed in a special conference book as report of the Federal Highway Research Institute BASt Journal M with ISBN-number.
# List of Congress Hotels

<table>
<thead>
<tr>
<th>Name of Hotel</th>
<th>Rate in €</th>
<th>Phone</th>
<th>Fax</th>
<th>Reservation</th>
<th>Deadline for booking</th>
<th>Reservation Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel IBIS Hannover Medical Park Hannover Medical Park Feodor-Lynen-Str. 1 D-30625 Hannover</td>
<td>56,-*</td>
<td>+49 511 95670</td>
<td>+49 511 9567140</td>
<td><a href="http://www.ibishotel.com">www.ibishotel.com</a></td>
<td>1st Aug. 06</td>
<td>&quot;UNFALL&quot;</td>
</tr>
<tr>
<td>Mercure Hotel Hannover Medical Park Hannover Medical Park Feodor-Lynen-Str. 1 D-30625 Hannover</td>
<td>84,-*</td>
<td>+49 511 95660</td>
<td>+49 511 9566333</td>
<td><a href="http://www.mercure.com">www.mercure.com</a></td>
<td>1st Aug. 06</td>
<td>ESAR</td>
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<tr>
<td>Hotel Mercure Atrium Hannover Karl-Wiechert-Allee 68 D-30625 Hannover</td>
<td>67,-*</td>
<td>+49 511 54070</td>
<td>+49 511 5407826</td>
<td><a href="http://www.accorhotels.com">www.accorhotels.com</a></td>
<td>1st Aug. 06</td>
<td>25105</td>
</tr>
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*including breakfast
Conference Hotels

MERCURE Atrium Hotel

MERCURE Medical Park IBIS Hotel
Travelling by car

Arriving from Kassel or Hamburg leave the highway A7 at “Autobahnkreuz Hannover-Ost” and follow the highway A2 direction “Dortmund”. Using highway A2 leave at “Autobahnkreuz Hannover-Buchholz” and follow highway A37 direction Hannover. Leave at second exit “MHH” and follow description “Medizinische Hochschule”. To find the conference hall and registration desk please look at the plan on side 15.
How to find Conference Site

Traveling by train
Arrival at Central Station “Hannover Hauptbahnhof”.
Use Underground line 8 direction “Messegelände” and leave the tram at station “Aegidientorplatz” (second station after entering). Use then line 4 direction “Roderbruch” from the same platform opposite side. Leave the tram at station “Medizinische Hochschule”. To find the conference hall and registration desk please look at the plan at the top of this sheet.

Traveling by airplane
Arrival at Airport Hannover-Langenhagen. Use S-Bahn to Central Station Hannover and follow description “travelling by train” or take a taxi (approx. € 30, 20 min)

Description of way to conference hall:
5 minutes walking distance from the hotels IBIS, Mercure Hannover Medical Park and 10 minutes from Mercure Atrium Hannover
Evening Event

We invite you for a relaxable evening on Friday to the Town Hall in the city of Hannover. The location is

“Gartensaal”  8 pm

Town Hall, Hannover, Trammplatz 2
The Organisation Committee and the Organiser, speakers, presenters and other participants gratefully acknowledge the following institutions for their various contributions in this ESAR conference:

We express our special thanks for non monetarily support of the conference with

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