



21st International Technical Conference  
on the Enhanced Safety of Vehicles

**Reinventing Safety:  
Putting Advanced Technology to Work**



June 15–18, 2009  
International Congress Center Stuttgart, Germany

**2nd Announcement and  
Conference Registration**

# Committee Information

Organizing Committee Chairperson  
**Joseph N. Kianthra, Ph.D.**  
 Senior Technical Advisor for Vehicle Safety  
 U.S. Department of Transportation  
 National Highway Traffic Safety Administration

Scientific-Secretariat  
**Donna E. Gilmore**  
 ESV Technical Coordinator  
 U.S. Department of Transportation  
 Office of Vehicle Safety Research  
 National Highway Traffic Safety Administration  
 E-mail: Donna.Gilmore@dot.gov

Abstract Review Committee  
 The deadline for abstract submission is Wednesday, October 8, 2008. Each abstract will be assigned to a minimum of two scientific experts for review. The committee will review the abstract(s) and report their recommendations to the Technical Session Chairperson for the final paper selection.

Conference Host  
**Dr. Peter Reichelt**  
 Federal Highway Research Institute, Germany

Stuttgart Conference Organization  
**Dr. Rodolfo Schoeneburg**  
 Daimler AG  
 Director Mercedes-Benz Cars/Development Passive Safety, Durability, Vehicles Functions

Conference Secretariat  
**ESV 2009 Registration Office**  
 c/o more than event\*  
 Talstrasse 21/9  
 71563 Affalterbach  
 GERMANY

Supported by



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The Symbol of Stuttgart: The Television Tower

Venue: ICS Stuttgart next to the airport



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## Words of Welcome



21st International Technical Conference  
on the Enhanced Safety of Vehicles

**Reinventing Safety:  
Putting Advanced Technology to Work**



**Wolfgang Tiefensee**  
Federal Minister of Transport, Germany



**Guenther H. Oettinger**  
Minister President of Baden-Wuerttemberg



**Joseph N. Kianthra**  
Chairman, Government Focal Points



**Dr.-Ing. Peter Reichelt**  
Director and Professor  
Federal Highway Research Institute Germany

On behalf of the German Government, I would like to invite you to the 21st International Technical Conference on the Enhanced Safety of Vehicles (ESV) in Stuttgart from June 15 - 18, 2009. I am delighted that this internationally renowned conference will be held in Germany in 2009.

It was here, 50 years ago, that the concept of a rigid passenger cell was realized. Since then, seat belt systems, airbags and numerous other technological innovations have helped to reduce the number of people killed and seriously injured in road accidents. This success story should act as an encouragement to us. Today and in the future, it is the use of electronic systems, in particular, that will assist us in enhancing vehicle safety.

I wish you a pleasant stay in Stuttgart and hope that the ESV Conference 2009 will be a success.

I am particularly pleased to be able to welcome all those participating in the 21st International Technical Conference on the Enhanced Safety of Vehicles (ESV) 2009 in Stuttgart, the capital of the Federal State of Baden-Wuerttemberg.

Baden-Wuerttemberg not only benefits from multi-national corporations such as Daimler and Bosch, who have chosen to make Baden-Wuerttemberg the center of their business operations, but also from a powerful backbone of small and medium-sized enterprises. The primary driving forces behind the economy in our state are the core industries of automotive and mechanical engineering, as well as electrical engineering. Stuttgart and the surrounding region are a prosperous and innovative business location, characterized by forward-looking future technologies and an unbroken tradition of inventive creativity, making this an ideal place for a high-class international conference like the ESV Conference 2009.

I wish all participants a successful and fruitful conference as well as a pleasant stay in Stuttgart and the beautiful surrounding region.

The International Technical Conference on the Enhanced Safety of Vehicles is a forum through which progress in motor vehicle safety research and technology development as well as research results from other areas of vehicle safety are reported globally.

On behalf of the Government Focal Points and the National Highway Traffic Safety Administration I am pleased to announce the 21st ESV Conference to be held in Stuttgart, Germany, in 2009. At this important forum, world's experts will gather to discuss advances in vehicle safety technologies, human/vehicle performance, and strategies for future safety advancement. Each year nearly 1.2 million people die and many more are injured in road crashes, world wide. Collectively, as safety experts, we can increase awareness and provide useful information to help prevent these human tragedies. I am excited about this opportunity and in working together in forums such as the ESV we can make it a reality.

The German Federal Highway Research Institute (BAST) is preparing for your arrival in Stuttgart in 2009 with much anticipation and has selected a world class conference facility in the heart of Germany. I invite you to join us for the highly informative technical discussions at the 21st Enhanced Safety of Vehicles conference and exhibition.

It gives me a great deal of pleasure and it is a distinct honor for me to invite you to the 21st ESV Conference. From its beginning more than 35 years ago, as a representative body of the German Government, BAST has actively participated with the other Government Focal Points to form the steering committee for planning and organizing ESV Conferences.

In 2009, for the fourth time, Germany is the host country for this important international conference. Although the number of road fatalities has decreased by almost 75 % within the last 33 years in Germany, we are convinced that significant progress is still possible for improving vehicle safety. This conference, just as the others in the past, will play an important role in enhancing safety in the future. Once again, this ESV will also hold a Student Safety Technology Design Competition for the third time to encourage the younger generation to become more engaged in vehicle safety innovation.

You will have the opportunity to see the progress from research activities to technological innovations by attending the technical sessions on research findings, participating in the panel discussions and technical visits, and visiting the exhibits. See you in Stuttgart, June 15 - 18, 2009.

## The Conference Venue



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Opened in 2007, the ICS International Congress Center Stuttgart is one of the largest and most interesting facilities of its kind in Germany. It offers multifunctional event facilities at the trade fair site and it is a premium location for staging congresses, meetings, seminars and other events. In addition to a highly versatile space utilization concept, ICS is able to accommodate more than 9,000 guests. The ICS features the latest equipment technology and is the ideal venue for the 21st ESV Conference.

The ESV planners are delighted to be able to organize the ESV Conference 2009 in this modern and technically top quality venue – which also is ideally suited for the conference theme. Its glass façade provides an excellent view on the surrounding areas. The ICS is perfectly connected to downtown Stuttgart by modern public transport facilities of the VVS Transit and Tariff Association Stuttgart. Trains and buses can easily and flexibly be used by all conference participants as they receive a VVS-ticket together with their conference ticket.

## 21st ESV Events of the Day and Preliminary Technical Program at a Glance

### Reinventing Safety: Putting Advanced Technology to Work

Date/Time	P R O G R A M		
Monday June 15	08:00 a.m. – 08:30 a.m.	<b>Exhibition Opening</b> Exhibition Hall (C2)	<b>Exhibition</b> Exhibition Hall (C2) 08:00 a.m. – 06:00 p.m.
	09:30 a.m. – 12:00 p.m.	<b>Opening Ceremony</b> <b>U.S. Government Awards</b> <b>Government Status Reports</b> Large Convention Hall (C1)	
	12:30 p.m. – 02:00 p.m.	Lunch	
	02:00 p.m. – 05:30 p.m.	<b>Government Status Reports</b> (continued) <b>Plenary Session</b> Large Convention Hall (C1)	
	07:00 p.m. – 09:00 p.m.	<b>Welcome Reception, New Castle, Stuttgart</b>	

Date/Time	TRACK A	TRACK B	TRACK C	<b>Exhibition</b> Exhibition Hall (C2) 08:00 a.m. – 06:00 p.m.
	09:00 a.m. – 12:30 p.m.	Data Acquisition and Analysis for Future Safety Enhancement	Developments in Frontal/Side Impact Protection	
12:30 p.m. – 02:00 p.m.	Lunch			
02:00 p.m. – 05:30 p.m.	Student Safety Technology Design Competition, Finalist Oral Paper Presentations	Integrated Safety Approach: From Prevention to Severity Reduction and Post-Crash Safety	Biomechanics: Injury Criteria and Virtual Test Procedures/Tools Development	

# 21st ESV Events of the Day and Preliminary Technical Program at a Glance

## Reinventing Safety: Putting Advanced Technology to Work

Date/Time	P R O G R A M				
	TRACK A	TRACK B	TRACK C		
Wednesday June 17	09:00 a.m. – 12:30 p.m.	Safety Performance and Effectiveness of Driver Assistance, Technologies, Test & Evaluation Procedures, Benefits Assessment	Effect of Fuel Economy Strategies on Vehicle Safety	Rear Impact Injury Prevention & Protection	<b>Exhibition</b> Exhibition Hall (C2) 08:00 a.m. – 06:00 p.m.
	12:30 p.m. – 02:00 p.m.	Lunch			
	02:00 p.m. – 05:30 p.m.	Human Machine Interface – Issues, Driver Vehicle Interaction Related Research, Impaired Driving and Human Factors Guidelines Development	Deployment Strategies of Safety, Technologies – Voluntary Standards, Regulations & Ratings	Structural Integrity and Restraint Performance	
	07:00 p.m. – 00:30 a.m.	<b>Gala Dinner</b> , Mercedes-Benz Museum			
Thursday June 18	09:00 a.m. – 12:30 p.m.	Vulnerable Road Users: Pedestrian Safety	Advances in Vulnerable Occupant Protection Systems	Advances in Truck Safety / Bus, & Two-Wheeled Vehicles Safety	<b>Exhibition</b> Exhibition Hall (C2) 08:00 a.m. – 05:00 p.m.
	12:30 p.m. – 01:00 p.m.	<b>Closing Ceremony</b> <b>Student Competition Winners Announced</b> Large Convention Hall (C1)			
	01:00 p.m. – 02:30 p.m.	Light Lunch			
	02:30 p.m. – 07:00 p.m.	<b>Technical Events</b>			
Friday June 19	09:00 a.m. – 03:00 p.m.	<b>Driving Experience – Safety, Boxberg</b> Test and Experience Advanced Safety Systems Location: Bosch Proving Ground Boxberg			

# The Preliminary Program Technical Session Topics Call for Abstracts



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The 21st ESV Conference organizing committee welcomes submission of abstracts. Technical papers on selected topics in vehicle safety research are invited for presentation at the ESV Conference 2009 and inclusion in the Proceedings. All abstracts will be subject to review by Scientific Review Committees, and shall not have been published elsewhere or submitted for presentation at another conference prior to presentation at the ESV Conference 2009. Please refer to the guidelines and list of technical topics provided consecutively for submission of the abstract and presentation at the appropriate technical session.

### Abstract Submission Guidelines

- Technical papers are accepted on the basis of the originality and contents of the abstract. Predominantly commercial abstracts will be declined. Abstracts will be subject to review and acceptance by a scientific review committee.
- Abstracts will be selected for acceptance in one of two categories: Oral and Written, or Written only. If the content of a technical paper is different from the accepted abstract, the technical paper will be disqualified.

■ In order to be considered, all abstracts must be submitted in English, not to exceed 300 words, and should provide information on each of the following eight points:

- Research question/objective
- Methods
- Data sources (including sample size)
- Expected Results
- Conclusions
- Discussion
- Limitations of study
- What does the paper offer that is new in the field of automobile safety?

■ Abstracts must be submitted by October 8, 2008 online at <http://submissions.miracd.com/21esv>

■ Accepted abstracts will be posted prior to the conference, and the full proceedings containing technical papers will be available on the National Highway Traffic Safety Administration (NHTSA) website at [www-esv.nhtsa.dot.gov](http://www-esv.nhtsa.dot.gov). Conference attendees will receive a CD-ROM of the proceedings at registration.

### Notification to Authors

By the specified date authors will be notified the decision regarding their abstracts by e-mail. A notification confirming acceptance or rejection of the abstract will be located on the submission website <http://submissions.miracd.com/21esv>. Authors of accepted abstracts will be provided the guidelines for writing their technical papers and must submit their final paper for publication by the specified due date. The decision of the scientific review committee is final and is not negotiable.

Start Call for Abstracts:	July 8, 2008
Submission due:	October 8, 2008
Notification to Authors:	November 21, 2008
Final Paper due:	March 17, 2009
Online Registration due:	June 5, 2009

# The Preliminary Program

## Technical Session Topics



### Data Acquisition and Analysis for Future Safety Enhancement

**Chairperson: Ekkehard Bruehning, Germany**  
**Co-Chair: Koshiro Ono, Japan**

For more than three decades accident reconstruction methods have been successfully used in investigating real-world crashes and determining causes of crashes and injuries. It is of value when the data lead to deployment of crash prevention and crash protection countermeasures. The usefulness of this approach in predicting future safety needs based on past historical data is becoming less useful because of the changing pace at which new technologies are coming in to the vehicle fleet. As the focus on countermeasures are shifting from crash protection to integrated safety, the need for crash causation data and its interpretation are becoming more critical. This session invites papers aimed at a discussion of future data collection and analysis methods such as naturalistic driving data on human-vehicle performance, analytical methods for estimating potential benefits of safety technologies, evaluation methods of video data, and universal descriptions of crash causal factors and resulting crash types. These methods are likely to serve as the foundation for detailed analyses of real-world crash data in developing countermeasures for safety enhancement and determining potential benefits of safety enhancement features in the future.

### Developments in Frontal/Side Impact Protection

**Chairperson: Bernie Frost, United Kingdom**  
**Co-Chair: Dominique Charlebois, Canada**

Two of the most predominant crash types that cause fatalities and injuries are frontal and side crashes. Much improvement in crash protection in frontal and side crashes has resulted from the design changes that have happened over the last two decades, especially in reducing fatal and serious injuries. Changes in vehicle fleet characteristics have also created a new problem with respect to incompatibility of vehicles involved in multi-vehicle crashes. The problems involved in frontal crashes and side crashes are distinctly different. Considerable amount of research has been undertaken worldwide to develop suitable metrics to assure structural engagement, for appropriate energy management, and to develop suitable countermeasures including the use of advanced technologies to improve crash safety in frontal and side crashes. Papers are invited to discuss the various strategies for frontal crash protection that are being pursued globally in this session. Side impact protection has been a top crash safety priority in many regions of the world for more than a decade. The changing fleet characteristics and the advent of new technologies in vehicles necessitate a discussion of the latest research findings in this area. Papers in this session will

also include various aspects of side impact protection, including safety countermeasures, test devices and procedures for their evaluation, and performance requirements and consumer rating program for side impact protection.

### Vehicle Stability and Control Systems, and Rollover Prevention

**Chairperson: Young Han Youn, Korea**  
**Co-Chair: Antonio Erario, Italy**

Advanced Vehicle Control and Safety technologies are being introduced into vehicles at a fast pace. For example, electronic stability control and traction control systems are already available in many vehicles today. The potential of anti-lock brake systems (ABS) for improving driver control has been well documented in controlled testing environments. Many other intelligent technologies that use ABS as the foundation for improving driver control for reducing many crashes of various types including rollovers are being introduced in production vehicles. This session is inviting papers that discuss the various technologies that are available or are being developed to improve vehicle stability and control that prevent rollover crashes and that assist drivers in preventing crashes of various types or reduce their severities when they occur.

### Integrated Safety Approach: From Prevention To Severity Reduction and Post-Crash Safety

**Chairperson: Rodolfo Schoeneburg, Germany**  
**Co-Chair: Peter Robertson, Australia**

Over the last three decades, considerable amount of efforts have been devoted to the protection of occupants during crashes. However, vehicle technologies that are evolving provide the opportunity to address safety continuously from crash prevention to crash severity reduction, crash protection and post-crash safety in an integrated fashion. Many new technologies are already on the road or are on the verge of introduction into vehicles. The use of these advanced technologies can help with new and innovative solutions to both current and emerging safety problems. They can supplement the traditional approaches related to crash avoidance, reduction of crash severity, occupant protection, post-crash safety and structural integrity of motor vehicles to provide integrated safety solutions. This session is intended to discuss papers related to research being carried out on this subject around the globe by research institutions, governmental organizations, suppliers and original equipment manufacturers.

# The Preliminary Program

## Technical Session Topics



### Biomechanics: Injury Criteria and Virtual Test Procedures/Tools Development

**Chairperson: Philippe Vezin, France**  
**Co-Chair: Stephen Ridella, United States**

To effectively and efficiently motivate the incorporation of appropriate safety countermeasures to address the multitude of automotive crash scenarios requires ever more diverse tools and robust injury criteria and test procedures. To advance the discussion on these items, this technical session invites papers to address (1) the development and application of analytical and experimental techniques to better understand the basic impact injury process, (2) techniques that enhance the identification of mechanical responses that are determinants of the injury outcome, and/or (3) processes that enhance the interpretation and predictive accuracy of dummy responses and injuries. Also included in this discussion will be the injury criteria capable of addressing real world injuries, anthropometric test devices and other related topics.

### Safety Performance and Effectiveness of Driver Assistance Technologies, Test & Evaluation Procedures, Benefits Assessment

**Chairperson: Anders Lie, Sweden**  
**Co-Chair: Andre Seeck, Germany**

Advanced technologies are bringing new opportunities for enhancing safety in vehicles that never existed before. Driver warning and assistance technologies such as adaptive cruise control, road departure warning systems, and night driving systems are being introduced into production vehicles. These emerging technologies and concepts have great potential to improve safety. Examples of emerging technologies include braking systems that are being developed to assist the driver in braking and driver warning systems that alert the driver in imminent crash situations. The rapid introduction of these technologies to the market, while representing a positive direction in addressing safety concerns, has raised questions as to the level of safety benefits and practicability of many of these technological concepts. The key is to determine how well the technologies that are under consideration address the safety problems and to what extent they help in preventing crashes, in reducing their severities, and in protecting the occupants when crashes are unavoidable.

In estimating the safety benefits of these technologies, an analysis of the safety problems and target populations at each stage of the crash event is important. An important element in this process is the development of suitable test procedures that are objective and are related to real-world problems. Government regulatory and research bodies and vehicle manufacturers are examining concepts

to predict the safety consequences associated with advanced technologies. Papers are invited on past and current research related to test and evaluation procedures and estimates of potential safety benefits and other performance issues related to driver assistance safety technologies.

### Effect of Fuel Economy Strategies on Vehicle Safety

**Chairperson: Jac Wismans, Netherlands**  
**Co-Chair: Kyong Han Yoon, Korea**

With rising oil prices, automobile manufacturers are under constant pressure to improve fuel efficiency of vehicles. Conventional claims have been that more fuel efficient vehicles are lighter and smaller and are not as safe as their heavier and larger less fuel efficient counterparts. In the age of advanced technologies for higher fuel efficiency and for enhancing safety, opportunities exist for both fuel efficiency and improved safety to coexist without the necessary trade off of fuel efficiency against safety. This session is inviting papers on the subject of strategies for improving fuel economy and safety, and on the impact of fuel saving vehicle designs on crashes and safety. Included in these will be papers that discuss ongoing research activities in advanced fuel saving and safety technologies.

### Rear Impact Injury Prevention & Protection

**Chairperson: Lynne Bilston, Australia**  
**Co-Chair: Ola Boström, Sweden**

Rear impacts, though common, rarely cause fatalities and serious injuries. However, they result in a number of whiplash injuries that are common. Many researchers are pursuing this problem investigating causes of whiplash injuries and developing countermeasures that could prevent such injuries. Further, suitable test devices, and test procedures (dummies, barriers, etc.) and injury criteria are also under development. Many new technologies for rear crash prevention are also being developed. This session invites papers on these subjects as they apply to rear crash safety. Additionally, backing crashes have the potential to cause a significant number of injuries and deaths to children and adults. Many new technologies are being introduced into vehicles that improve rearward visibility by direct and indirect means such as advanced mirror systems, cameras and sensors of various types. These systems also provide drivers with the necessary warnings and assistance in preventing rear crash occurrences. For the development of these devices, visibility metrics and other criteria that are objective are also needed. This session invites papers on the above topics as they apply to enhancing rear crash safety by preventing them, reducing their severity and protecting the occupants when such crashes occur.

# The Preliminary Program

## Technical Session Topics



Human Machine Interface – Issues, Driver-Vehicle Interaction Related Research, Impaired Driving and Human Factors Guidelines Development

**Chairperson: Claudio Lomonaco, Italy**  
**Co-Chair: Lex van Rooij, Netherlands**

Advanced Crash Warning Systems are being introduced into production vehicles by many manufacturers that have the potential to alert drivers of impending crash situations. Such warnings use haptic, visual and auditory cues to alert drivers. In some cases drivers are alerted to prepare themselves for a crash. Others exercise limited controls by braking and steering actions through feedback that prompt drivers to take actions. An important aspect of their introduction into the fleet in production vehicles is their potential to obtain safety benefits. At the same time there is also the potential for unintended safety problems, particularly if drivers are unfamiliar with the various types of systems that are brought into production vehicles by manufacturers. Another issue is that the effectiveness of such systems depends on the interface design and how well drivers are able to interact with them and improve their driving performance. Much research is also going on in various institutions on the issues related to human-machine interface design, appropriate evaluation techniques, and suitable metrics for such evaluations. Regulatory bodies and automobile manufacturers are also researching the human factors issues related to impaired driving. They are also investigating the usefulness of suitable guidelines. Papers are invited on research related to all of the above topics as they relate to human-vehicle interface designs and their evaluation to reduce impaired driving in this session.

Deployment Strategies of Safety Technologies – Voluntary Standards, Regulations & Ratings

**Chairperson: John Hinch, United States**  
**Co-Chair: Dominique Cesari, France**

It appears that the continued hope for significant safety benefits lies within pre-emerging and emerging vehicle technological advancements. Even though some of these technologies will be deployed voluntarily, deployment of those systems that are truly safety beneficial need to be accelerated through rulemaking actions, consumer information/education programs, insurance incentives, and other methods.

Introduction of technologies through regulations would only be possible after developing suitable evaluation protocols and after estimating the likely benefits that may result in solving real-world safety problems. This is especially important because regulatory bodies do not generally mandate technologies and they need to be

based on total systems performance requirements. Further, safety performance of vehicle systems that are aimed at preventing crashes depend on the performance of driver-vehicle system. The success in preventing crashes in real-world situations would involve evaluation of vehicle response and driving performance as well. Proper analysis of crash data and objective evaluation procedures based on real world data is critical for deployment of safety technologies. Another approach is to find other means such as dissemination of consumer information and use of market forces as drivers for deployment of safety technologies by automobile manufacturers. New Car Assessment Program (NCAP) type consumer information programs and other rating schemes can stimulate the deployment of advanced technologies.

Many manufacturers have already started on the path of introducing technologies under the banner of safety for everyone, integrated safety, all-around safety, and other such slogans. These are real attempts by manufacturers to find a means to use technologies in enhancing their vehicles' safety performance and at the same time to attract customers to those products that incorporate advanced technologies. Papers are invited on past, present, or planned deployment efforts related to bringing advanced safety technologies to the market.

Structural Integrity and Restraint Performance

**Chairperson: Suzanne Tylko, Canada**  
**Co-Chair: Stephen Summers, United States**

From the beginning of the twenty-first century, the state-of-the-art in motor vehicle safety has been going through significant changes. In-vehicle advanced technologies such as electronic stability control that apply corrective measures to augment control of the vehicle by the driver in critical situations are being deployed. Advanced technologies available in many of today's vehicles can warn the driver of imminent crash situations. Also, occupant protection can be improved through the development of advanced air bags that can tailor their performance taking into consideration occupant and crash characteristics.

However, the design of future vehicles is also being driven by consumer demand for higher fuel economy and the concern for global warming. In addition to exploring hybrid, diesel, and alternative fueled vehicles, manufacturers are examining many other options. Manufacturers are examining ways to take weight out of their vehicles through the use of high strength steel and other light weight materials. Also, manufacturers are starting to offer very small "mini" and "micro" cars. The focus of this session is on the structural characteristics and size and weight changes being

# The Preliminary Program

## Technical Session Topics



explored and their effect on restraint systems performance that impact safety. Beyond today's advanced occupant protection safety technologies, will the smaller and/or stiffer cars of the future change the crash pulse significantly to necessitate new performance requirements related to structural integrity and occupant restraints in front and rear seating positions? What is the impact of compartment interior intrusion in crashes, on safety? What are the effects in different crash modes – frontal, side, and rollover? What are the countermeasures that could change the injury outcome in these situations? Would optimizing for safety and integrating structural and restraint performance be the best approach to enhance safety? These issues are receiving the attention of safety researchers world-wide. Papers are invited on research related to the safety impacts of structural and other characteristics of passenger vehicles of the future.

Vulnerable Road Users: Pedestrian Safety

**Chairperson: Hideki Yonezawa, Japan**  
**Co-Chair: Wojciech Przybylski, Poland**

Pedestrian protection using autonomous vehicle based solutions has been the focus of research worldwide for many years. Much progress has been made in this area. The primary vehicle oriented countermeasures are centered on improving frontal structure of passenger vehicles to mitigate head injuries and improving lower extremity injuries. However, pedestrian safety continues to be a serious problem in several countries. In many areas, in addition to vehicle-based solutions, infrastructure related solutions are also being explored. Advanced technology systems using radar, vision concepts and other types of sensors are being investigated to identify pedestrians at intersections and to potentially provide warnings to drivers. Papers are invited in this session to address the issues faced by pedestrians and bicyclists.

Advances in Vulnerable Occupant Protection Systems

**Chairperson: Jerzy W. Kownacki, Poland**  
**Co-Chair: Donald MacDonald, United Kingdom**

Occupant protection systems are generally regulated by safety performance requirements established through vehicle safety standards. These standards exist for frontal and side crash protection and in other areas of safety in many countries world-wide. However, these requirements are generally based on the 50th percentile male population even though safety benefits could result for other population as well.

Many of these standards are now incorporating additional requirements based on 5th percentile dummies. However, a

concern that remains is how well the current requirements extend to other vulnerable population such as the elderly and children. Additionally, does protection for the 50th percentile occupant at one speed compromise the protection for other occupants including children and small adults and the elderly? Even when child restraint systems (CRS) are used in transporting children in vehicles, and there are separate requirements for CRS based on sled testing, it is unclear how well the combination of the vehicle and the vehicles' own restraint systems along with the CRS would provide optimum safety. Another issue is safety of occupants in vehicles that use alternate fuels such as hydrogen and hybrid vehicles and the potential for fire and other safety concerns. In this session, papers are invited on all such topics that address safety of occupants that are vulnerable in motor vehicle crashes.

Advances in Truck Safety/Bus & Two Wheeled Vehicles Safety

**Chairperson: Matolcsy Mátyás, Hungary**  
**Co-Chair: Steve Sopp, United Kingdom**

Safety technologies for trucks and buses are topics that have received immense attention in past ESV conferences. This ESV conference will continue to focus on those technologies, and also explore research in the human-vehicle response area. With increasing attention on driver performance, are the safety technologies that can assist drivers of large vehicles in a pre-crash environment able to lessen or prevent a crash scenario from leading up to a crash involving smaller vehicles? Are these technologies capable of assisting drivers when they are drowsy and fatigued under long and tedious hours of operation?

Motorcycle crashes are a cause of serious concern globally. In the United States alcohol use and speeding are cited as major contributing factors in crashes. Non-use of helmets is another concern. Many of these same problems exist in various other regions as well. Motorcycle rider education and licensing, reducing the number of impaired motorcyclists on the road, increasing motorists' awareness of motorcycles and other vehicles on the road, use of advanced technologies, and increased helmet use are appropriate means to improve motorcycle safety. Technical papers are invited on these subjects for this session. Any potentially new technologies that address any aspect of motorcycle safety are also invited for this session. The safety of two-and three-wheeled vehicles using alternate fuel is also of particular interest in certain jurisdictions of the world. Technical papers on research related to these safety issues and potential solutions are invited for this session.

# Social Program



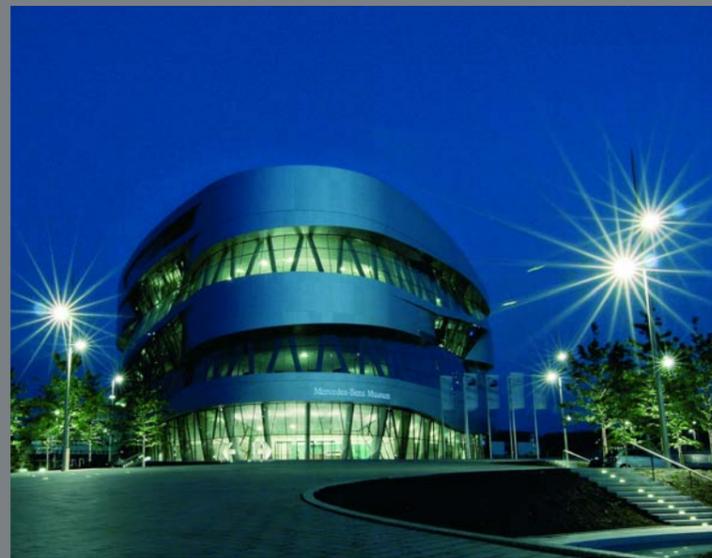
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Each conference has an accompanying Social program. During the ESV Conference 2009, there will be two evening events independent from the conference as such and other attractive offers in the beautiful Stuttgart region.

## Welcome Reception

Free for conference participants  
 € 40.00 for accompanying persons  
**Date:** Monday, June 15, 2009  
**Time:** 07:00 p.m. – 09:00 p.m.  
**Location:** New Castle (Neues Schloss), Stuttgart

The organizers of the ESV Conference 2009 are deeply honored that the Prime Minister of the German Federal State of Baden-Wuerttemberg has exclusively invited the conference participants to the dream-like setting of the Neues Schloss in the center of Stuttgart, one of the most beautifully located large cities of Europe. The Neues Schloss is situated in the heart of Stuttgart's city center, which makes it an ideal starting point for those who would like to discover other areas of Stuttgart. The Welcome Reception is kindly supported by the Federal State of Baden-Wuerttemberg, Robert Bosch GmbH and Daimler AG.



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## Gala Dinner

€ 130.00 per person  
**Date:** Wednesday, June 17, 2009  
**Time:** 07:00 p.m. – 00:30 a.m.  
**Location:** Mercedes-Benz Museum, Stuttgart

The ESV Conference Gala Dinner will take place in the unique and architecturally breathtaking Mercedes-Benz Museum, which is a modern symbol for the cradle of automotive engineering. The host and Chairman of the Board of Management of Daimler AG, Dr. Dieter Zetsche, will welcome all participants to an evening event which promises to scintillate the senses with exquisite haute cuisine and striking aesthetic surroundings.

In the exceptional atmosphere of this extraordinary venue, where more than 120 years of innovative automobile history are displayed, the guests will have the opportunity to exchange first impressions and experiences and make new international contacts. Guests can be expecting an enjoyable evening with a multi-faceted entertainment program part of which provides all participants with the opportunity to attend interesting, thematically related and individual guided tours. A shuttle service will be available for transporting guests between the hotels and the Mercedes-Benz Museum. The Gala Dinner is kindly supported by Mercedes-Benz.

# Social Program



© a) City of Heidelberg, b) Art Museum Stuttgart: Stuttgart-Marketing GmbH, c) Bebenhausen Monastery: Staatsanzeiger-Verlag, d) City of Metzingen, e) City of Esslingen, f) Traube Tonbach Hotel

## Social Events

The offers at a glance:

**a.) Heidelberg**  
 € 75.00 per person  
**Date:** Sunday, June 14, 2009  
**Time:** 09:00 a.m. – 06:30 p.m.

A day trip to one of the most beautiful German cities, famous, among other things, for its renowned castle, picturesque Old Town and romantic river ensemble amidst a mountain setting, not to mention the oldest German university.

Participants will take the ICE high speed train from Stuttgart main station to Heidelberg. After a relaxed lunch in one of the restaurants of the famous five-star-hotel "Die Hirschgasse", which is over 500 years old, the participants will have a guided tour through the beautiful Old Town and the delightful Heidelberg Castle. The visit will be rounded off by a stopover at the "Chocolaterie Yilliy", where the visitors can enjoy sensual delights including handmade hot chocolate before they head back to Stuttgart.

**b.) Stuttgart Highlights**  
 € 35.00 per person  
**Date:** Monday, June 15, 2009  
**Time:** 10:00 a.m. – 02:00 p.m.

A tour through the city center covering Stuttgart's most important sightseeing highlights. Participants will be guided through the new Art Museum Stuttgart, an architecturally eye-catching glass cube and the home of contemporary art, which is located at the Schlossplatz, one of Europe's truly breathtaking city squares. This will be followed by a short walk passing by the city center's sightseeing highlights, which leads to the Market Hall, one of the most beautiful Art Nouveau market halls in Germany, where the visitors can enjoy specialties from all over the world as well as the Italian gourmand-cuisine of the "Empore" restaurant.

**c.) Hohenzollern Castle and Bebenhausen Monastery**  
 € 35.00 per person  
**Date:** Tuesday, June 16, 2009  
**Time:** 10:00 a.m. – 04:00 p.m.

Baden-Wuerttemberg is enormously rich in historical sites and has numerous castles and monasteries. In the Stuttgart region, the Hohenzollern Castle and the Bebenhausen Monastery are without

## Social Program

doubt the most interesting ones. Participants will be shuttled to the Hohenzollern Castle, the ancestral seat of the Prussian Kings and German Emperors as well as the Swabian branch of the Princes of Hohenzollern, one of Europe's most famous and popular castles. After a short coffee break in the castle tavern, the trip continues through the charming Schoenbuch landscape to the former Bebenhausen Cistercian Monastery. Here visitors can enjoy a guided tour or a cultural event before being shuttled back to their hotels.

### d.) Shopping in Metzingen

€ 25.00 per person

**Date:** Wednesday, June 17, 2009

**Time:** 10:00 a.m. - 03:30 p.m.

A half-day tour for fashion connoisseurs and style gurus to the oldest and most important outlet city near Stuttgart. Metzingen is an outlet city on the edge of the landscape of the Swabian Alb. It includes flagship outlets of haute couture and well-known brands of the men's and women's clothing industry, like Hugo Boss, Windsor, Escada, Burberry, Bogner, Pierre Cardin, Otto Kern, and many more. Here visitors will find all that their hearts desire in terms of current fashion from accessories to a complete outfit in an appealing environment. A coffee break in the inner city or a short trip to the popular HohenNeuffen Castle will round off the tour.

### e.) Esslingen Old Town Tour

€ 35.00 per person

**Date:** Wednesday, June 17, 2009

**Time:** 10:00 a.m. - 04:30 p.m.

The region around Stuttgart is not merely a picturesque metropolis amidst hills and small cities, it is also an international business location with an unbelievably rich history and culture. Participants will visit the Former Imperial City of Esslingen near Stuttgart. The tour will start with the marvelous panoramic view from the Esslingen Burg (castle) and a light lunch in the "Dicker Turm" restaurant, followed by a walk through the Old Town's alleys, passing by one of the most striking German city halls and ending with a degustation in Germany's oldest champagne producer. Visitors will be shuttled back to their hotels after the tour.

### f.) Black Forest, Tonbach Valley

€ 95.00 per person

**Date:** Friday, June 19, 2009

**Time:** 09:00 a.m. - 06:00 p.m.

Nature is the essence in one of Germany's most beautiful landscapes, which attracts people from all over the world. From the Black Forest to Baiersbronn in the Tonbach Valley, where the visitors will visit the "Schwarzwald-Stube" restaurant in the "Traube Tonbach Hotel", which has one of Germany's three-star restaurants and is the domain of Harald Wohlfahrt, who is one of the best chefs in Europe. After the journey to Baiersbronn, the visitors will enjoy a light lunch before they have a guided walking tour through an attractive part of the Black Forest or the culinary school at the "Traube Tonbach". There will be a coffee break or - as Germany is a wine-growing country and Baden-Wuerttemberg one of the most famous wine regions - a wine tasting with top quality wines as a relaxing break in between. After a dinner created and prepared by the team of Harald Wohlfahrt, the guests will be shuttled back to their hotels.

### Information on Stuttgart and the region

Charmingly situated in one of the largest winegrowing regions of Germany, Stuttgart is attractive not only because of its exquisite panorama, beautiful squares, renowned castles and buildings with demanding architectural styles, but also because of the range of cultural offers, such as the State Theater Stuttgart with its renowned plays, the world famous Stuttgart Ballet, and the State Opera, which has received many awards, including the coveted title "Opera House of the Year".

Another highlight is Europe's largest zoological-botanical garden - the Wilhelma - accommodating more than 10,000 animals and exotic plants, exquisite garden art, and Moorish architecture. Not to mention the 217m high television tower, which is the original model for television towers around the world. No other point in Stuttgart offers such a tremendous view on the city, the vineyard landscape, the Neckar Valley, the Swabian Alb, and the Black Forest.

The Stuttgart region, the prosperous business location and today one of the most innovative German cities, also the birthplace of automotive engineering, is the leading automobile location in Germany. Companies like Daimler, Porsche, Robert Bosch, TRW Automotive, and many more stand for a long automotive tradition. The large number of students at the universities in Stuttgart and its surrounding areas display the importance of education, research and development not only in the automotive industry. These topics make Stuttgart the ideal venue for the ESV Conference 2009.

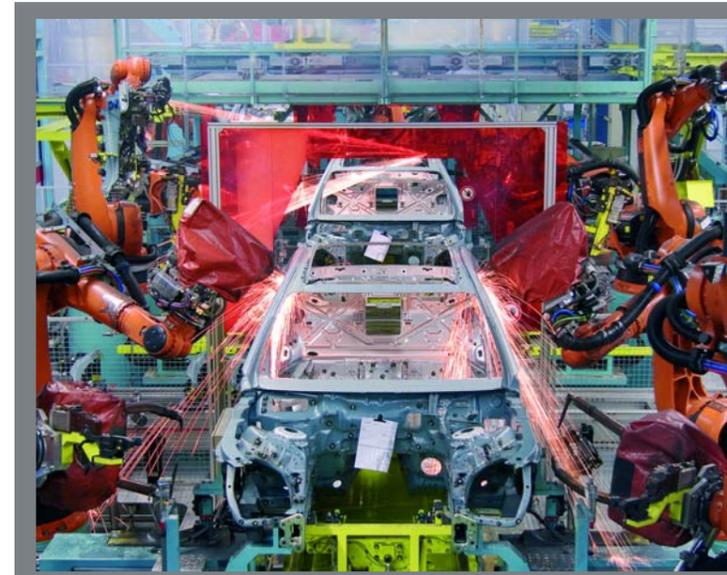
For more information about Stuttgart and its surrounding area, guests should refer to the official Stuttgart website [www.stuttgart-marketing.de](http://www.stuttgart-marketing.de), which also gives you the option of planning individual excursions and ventures.

### Refund and Cancellation Policy for Social Program

The cut-off date for guests to cancel their participation in a tour exempt from charges is April 30, 2009. Guests canceling until May 30, 2009 will receive their refunds, less a € 10.00 processing fee. Guests canceling after May 30, 2009 will be entitled to a refund of 50%. If our minimums are not reached by June 5, 2009, ESV Registration Office reserves the right to cancel any sightseeing tours. All participants will be notified of the cancellation prior to the tour and will receive a full refund of money paid.

This program was correct at the time it went to press, however, the organizers reserve the right to alter the program, if necessary.

## Social Program



## Technical Events

Technical Events are scheduled for Thursday afternoon, June 18, 2009, and Friday, June 19, 2009. Each visit is limited regarding the number of participants, so registrations will be made on a first-come first-served basis. The respective fee includes transportation.

### a.) Mercedes-Benz Tour

€ 40.00 per person

**Date:** Thursday, June 17, 2009

**Time:** 02:30 p.m. - 06:30 p.m.

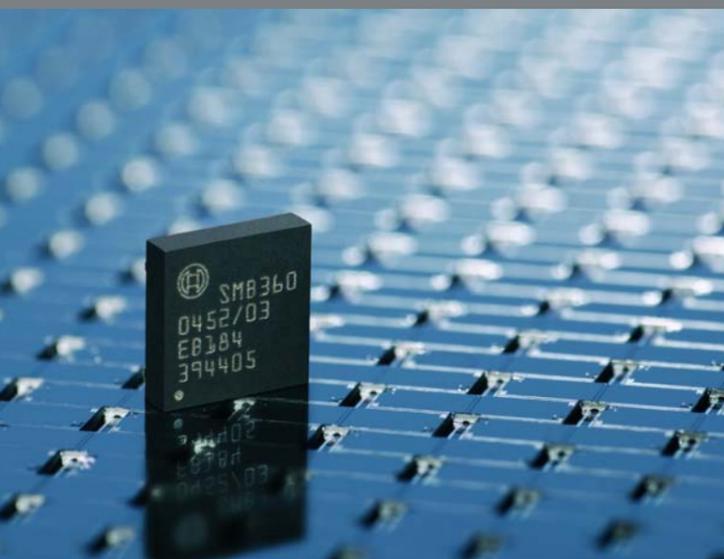
**Location:** Mercedes-Benz Plant Sindelfingen

Since 1915, the Daimler-Motorenengesellschaft, as it was known at that time, has been producing in the Sindelfingen plant. Today the plant is globally one of the most important manufacturing plants in the automotive world and with the Mercedes-Benz Technology Center, avails of the core of Mercedes-Benz passenger car development. Over 36,000 people are employed at the site with a production capacity of 2,100 vehicles per day. The plant has been the home of many important vehicle safety innovations such as the energy absorbing crush zone and frame-secured passenger compartment. Benefiting from this opportunity, you will get to know the home of the Mercedes-Benz S-, E- and C-Classes. Have a look behind the scenes of the production and safety development in your tour at Mercedes-Benz.

This event is kindly supported by Mercedes-Benz.

## Social Program

## Driving Experience – Safety, Boxberg



### b.) Robert Bosch Plant Tour

€ 40.00 per person

**Date:** Thursday, June 18, 2009

**Time:** 02:30 p.m. – 07:00 p.m.

**Location:** Robert Bosch Semiconductor Plant Reutlingen

Bosch has already been operating a 150 millimeter semiconductor plant in Reutlingen for ten years. In addition to applications like driver assistance systems and engine control units, semiconductors and micromechanics chips are important components of active and passive safety systems, such as ESP and airbags, in the automotive industry. Starting in 2009, the production of the 200 mm semiconductor will also be ramped up in Reutlingen. In the future, up to 1,000 wafers (corresponds to approx. 1,000,000 chips) will be produced here per day, 350 days a year, 24 hours a day. With an investment of € 600 million, this plant is one of the highest single investments ever carried out in the history of Bosch. The production process is basically oriented towards the “smart power process”. Integrated circuits combine highly sensitive sensor signal processing and high-current circuits on a chip for controlling powerful actuators.

This event is kindly supported by Robert Bosch GmbH.

### c.) DEKRA Automobil GmbH

€ 40.00 per person

**Date:** Thursday, June 18, 2009

**Time:** 02:30 p.m. – 06:00 p.m.

**Location:** Malsheim Airfield

DEKRA enhances the safety of vehicles by accompanying the prototype level, continuing with type approval and providing services over the whole lifetime. The company serves as an approved legislation consultant and competent partner of OEMs, suppliers and vehicle operators. The scope ranges from engineering services and testing for development and type approval, periodical inspection and benchmark testing to the qualification and training of drivers. Accident analyses and research provides a strong expertise based on real-world accident data as well as through the use of the capabilities of the DEKRA Technology Center. The Technical Event will present specific examples of these activities complemented by demonstrative outdoor tests. Participants may experience various safety features themselves by riding prepared vehicles and learning about the influence of some kinds of technical defects or non-functioning systems. Special safety-related items for vehicles (e.g. cargo securing) will also be part of the demonstrations.

This event is kindly supported by DEKRA Automobil GmbH.

### Driving Experience – Safety, Boxberg

€ 95.00 per person

€ 30.00 for accompanying persons

**Date:** Friday, June 19, 2009

**Time:** 10:00 a.m. – 03:00 p.m.

**Location:** Bosch Boxberg Proving Ground

Both Mercedes-Benz and Bosch have for many decades been trend-setters in safety technology. The organizers are therefore proud to be able to provide a very special opportunity to the ESV Conference’s participants: a driving experience on the Boxberg Proving Ground.

Participants are invited to discover current and future safety technologies developed by safety pioneers Mercedes-Benz and Bosch, experiencing the real life safety that perfectly complements the topics dealt with during the ESV Conference 2009. The driving experience will include integral safety on the threshold between active and passive safety and will focus on current and future radar- and camera-based safety systems. In addition, the participants will also be able to experience other safety systems in current series and test vehicles, as well as in passenger cars and commercial vehicles, and have the opportunity to discuss these safety topics with the Daimler and

Bosch experts. Participants need an internationally valid driver's license for passenger cars. Accompanying persons may also stay on site where they can watch the driving activities and enjoy the high-tech and exciting atmosphere as well as catering in a comfortable environment.

For all participants, there will be a shuttle service from Stuttgart to Boxberg and back from Boxberg to either Stuttgart (hotel, airport, main station) or – by request – to Frankfurt International Airport.

This event is kindly supported by Robert Bosch GmbH and DAIMLER AG.

# General Conference Information

## Bank Transfer Details

(only for residents of Germany, Austria and Switzerland)  
 Remittee: more than event, ESV 2009  
 Bank: Deutsche Bank, Bank code: 604 700 24,  
 Account no: 0200 949 00, BIC/SWIFT-Code: DEUTDEDB604,  
 IBAN: DE41 6047 0024 0020 0949 00

## Language

The official language of the conference is English. On Monday, June 15, 2009, from the Opening Ceremony through the Government Status Reports, as well as on Thursday, June 18, 2009, during the Closing Ceremony, simultaneous translation will be provided from German and English to Japanese and from German to English.

## Parking

7,300 parking spaces are available for conference participants directly at the ICS International Congress Center. Additional parking facilities can also be used directly at Stuttgart Airport, which is located next to trade fair and congress center.

## Payment

All payments (registration fees, hotel costs, etc.) should be made in advance in Euro (€). When registering online, a confirmation of the registration and an invoice will immediately be sent to the indicated e-mail address. Upon receipt of payment, an official letter of confirmation and the original invoice will be sent by mail. When registering by fax, a confirmation of registration and the original invoice will be sent by mail to the indicated postal address. The official letter of confirmation will be sent by mail upon receipt of payment. No final confirmation will be sent before all fees have been received.

Please note that all payments should be free of bank handling charges. Bank drafts as well as personal, travelers' or company checks cannot be accepted. Payment via bank transfer is only possible for residents in Germany, Austria and Switzerland.

## Public Transport

The ICS International Congress Center is connected to Stuttgart main station by the rapid transit railway (S-Bahn), which can be used with the VVS-ticket which will be provided together with the ESV conference ticket. Furthermore, a bus station is situated directly at Stuttgart Airport (3-5 minutes on foot).

## Refund and Cancellation Policy

Cancellation must be made in writing. In case of cancellation before April 30, 2009, an administration fee of € 45.00 will be charged. For cancellations until May 30, 2009, an administration fee of € 95.00 will be charged. For cancellations after May 30, 2009, 90% of the participation fee is payable as set forth in the invoice. The incoming mail stamp is decisive for the date of receipt. It is possible to specify a substitute participant, thereby incurring no costs. Please note that Student Day Tickets can not be cancelled! Refunds will be issued within 30 days following the conference.

## Refund and Cancellation Policy for Accommodation

In case of cancellation of accommodation before April 30, 2009, 50% of the total hotel fee will be charged. For cancellations until May 30, 2009, 80% of the payable amount will be charged. Please note that there are no further refunds for cancellations after May 30, 2009!

## Refund and Cancellation Policy for Social Program

The cut-off date for guests to cancel their participation in a tour exempt from charges is April 30, 2009. Guests canceling until May 30, 2009, will receive their refunds less a € 10.00 processing fee. Guests canceling after May 30, 2009, will be entitled to a refund of 50%. If our minimums are not reached by June 5, 2009, ESV Registration Office reserves the right to cancel any sightseeing tours. All participants will be notified of the cancellation prior to the tour and will receive a full refund of money paid.

Kindly note that all cancellations and/or changes in registration and accommodation must be made in writing (e-mail or fax).

## Registration Online

Registration can be made online on the ESV Conference website <http://www.esv2009.com> until June 5, 2009.

## Registration by Fax

Registration can be made via the fax document, which can be downloaded as a PDF file on the ESV Conference website <http://www.esv2009.com> and sent to +49-7144-89 60 80-55.

Group reservations are only possible via e-mail ([registration@esv2009.com](mailto:registration@esv2009.com)) or fax +49-7144-89 60 80-55. The same applies for special requests and requirements (e.g. for handicapped people).

## Registration Fees

■ Delegate Ticket Advanced (June 15-18, 2009)	€ 740.00
Price valid through May 15, 2009, thereafter	€ 840.00
■ Delegate Ticket, One Day Only	€ 215.00/day
□ June 15, 2009	
□ June 16, 2009	
□ June 17, 2009	
□ June 18, 2009	
■ Speaker Technical Session Ticket Advanced (June 15-18, 2009)	€ 655.00
Price valid through May 15, 2009, thereafter	€ 750.00
■ Student Ticket* (June 15-18, 2009)	€ 175.00
■ Student Ticket*, One Day Only	€ 45.00/day
□ June 15, 2009	
□ June 16, 2009	
□ June 17, 2009	
□ June 18, 2009	

\*To qualify for student registration, please send your student I.D. for verification via e-mail to [students@esv2009.com](mailto:students@esv2009.com) or via fax to +49-7144-89 60 80-55.

All registration fees include:

- Participation in the ESV conference
- Possibility to attend Social and Technical Events (most require separate registration and additional fees)
- Congress material
- Refreshments and lunches during the congress
- Welcome Reception (requires extra fee for companions)
- Admittance to the exhibition
- A VVS-ticket for the Stuttgart public transport system

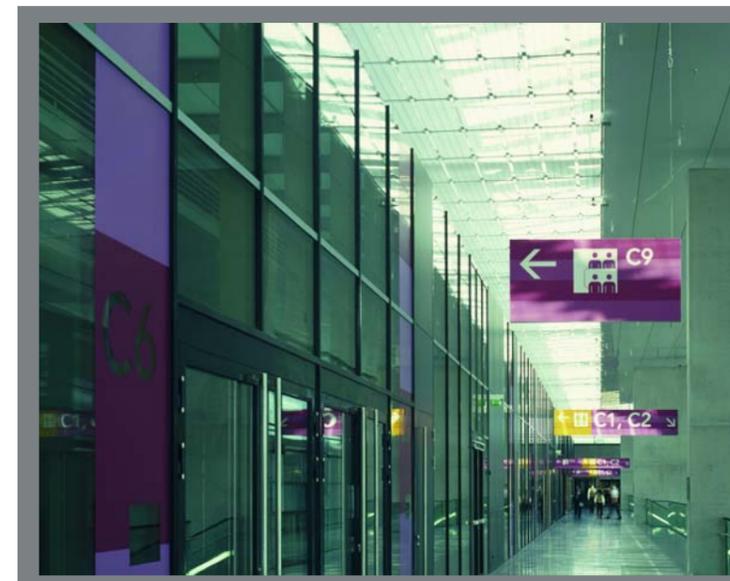
All registration fees include VAT 19%.

## Services for Persons with Disabilities

The ICS International Congress Center Stuttgart is accessible to participants with disabilities. Persons with disabilities who require special services and accommodation should contact the ESV Registration Office at +49-7144-89 60 80-44, or by e-mail: [registration@esv2009.com](mailto:registration@esv2009.com).

## Taxi

Taxi stands are situated directly at the entrance to the congress center.



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© Landesmesse Stuttgart GmbH

# Exhibition Information

## Exhibition Information

The ICS International Congress Center Stuttgart, which is situated next to the new Stuttgart Trade Fair Center, and whose capacity, versatility and flexibility is based on high international standards, provides high quality facilities and state-of-the-art technical equipment such as WLAN access etc.

The ESV Conference 2009 exhibition will take place in hall C2, situated next to the auditorium (hall C1) with more than 3,500 sqm of exhibition space, so that conference participants can easily visit the exhibition during the conference breaks. Visitors can be expecting high-quality technological exhibits, products and information in a premium atmosphere in terms of design and contents. Well-known enterprises from Stuttgart and its region, such as Mercedes-Benz, Robert Bosch GmbH, TRW Automotive GmbH, DEKRA Automobil GmbH, Takata Corporation, BMW Group, Autoliv Inc. and others will exhibit their latest products and safety solutions. Universities which are involved in the automotive industry will also have the opportunity to exhibit their products. The visitors will thus find the conference themes partly realized in the exhibition.

Location: ICS International Congress Center Stuttgart (C2)

## Date/Time:

June 15, 2009	08:00 a.m. – 06:00 p.m.
June 16, 2009	09:00 a.m. – 06:00 p.m.
June 17, 2009	09:00 a.m. – 06:00 p.m.
June 18, 2009	09:00 a.m. – 05:00 p.m.

Exhibition Opening: June 15, 2009, 08:00 a.m. – 08:30 a.m.

A booth will be 9.00 sqm (3.00 m x 3.00 m) in size and will cost € 3,000 including standard equipment (excl. VAT 19%). Each booth can on request be extended and customized. As an additional service, meeting rooms can be booked in advance or on site.

A detailed exhibitor's brochure with all relevant data and information will probably be available for download as a PDF file on the ESV website in September 2008.

# Travel Information

## 1. Access to Stuttgart

The organizers thank their partners Lufthansa and Deutsche Bahn AG for their favorable offers, which give ESV Conference participants attractive opportunities to travel to Stuttgart.

### Arrival by Plane

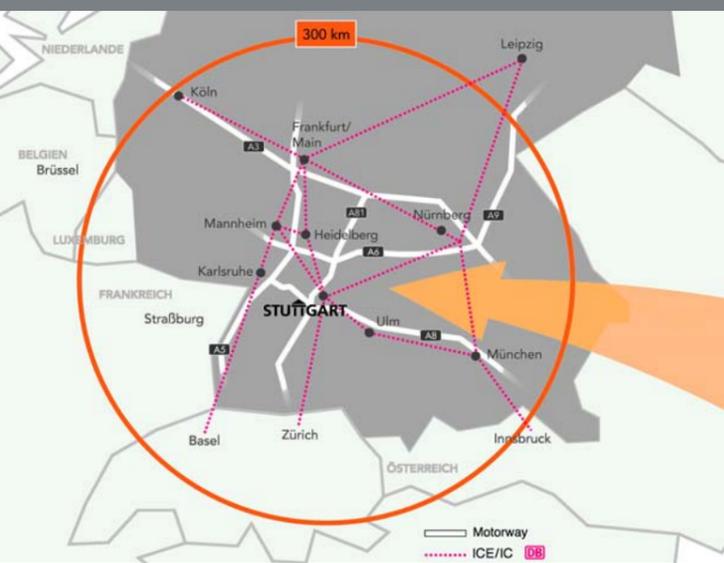
The terminals of Stuttgart Airport are situated directly next to the trade fair and congress center. Public transport (S-Bahn) connects the airport to the city center and to Stuttgart main station (duration: approx. 25 minutes). At Stuttgart Airport, there are also numerous taxi stands and car rental companies.

ESV Conference 2009 participants travel at a special rate in first or second class from a Deutsche Bahn station of their choice to Stuttgart Airport/New Trade Fair and back.

The fare for a round trip to Stuttgart Airport/New Trade Fair is a fixed price from all stations within Germany\*:

2nd class	€ 89.00**
1st class	€149.00**

The exclusive offer is valid within Germany on all Deutsche Bahn trains including the ICE. The tickets are valid between June 13 and 21, 2009. For further information see <http://www.deutsche-bahn.de>



The German air carrier Lufthansa, linking Stuttgart with many major cities around the world, offers special airfares for conference participants traveling on Lufthansa services to the ESV Conference 2009. For details contact the nearest Lufthansa sales or reservation office referring to:

GGAIRLHCONGRESS, Code: LH09STR004

Hotline in Germany: +49-1803-803 803.  
Hotline in North America (toll free): +1-800-645 3880.

To take advantage of this special offer the official registration confirmation to the ESV Conference 2009 is required. Travel wholly within Germany is not permitted.

### Arrival by Train

Stuttgart main station is a listed building and is located in downtown Stuttgart, close to Stuttgart's shopping district (Koenigstrasse) and the Schlossgarten. Through the rail network (ICE, IC, InterRegio), Stuttgart is directly connected with 13 European capitals. The journey time from Frankfurt to Stuttgart, for example, is only 75 minutes, and from Munich to Stuttgart 125 minutes. The German railway company Deutsche Bahn AG brings you quickly, comfortably and conveniently to the ESV Conference 2009 in Stuttgart.

\* The fee for changes and reimbursement before 1st day of validity is € 15.00, changes and reimbursement from 1st day of validity excluded. You can also book this special ticket by telephone. There is a booking fee of € 10.00. The number is +49-1805-31 11 53. Please specify ESV as the reference. The hotline is available from Monday to Saturday 08:00 a.m.-09:00 p.m. Charges per call are 14ct/min within the network of Deutsche Telekom AG.  
\*\* Prices are subject to change.

### Arrival by Car

Freeways (Autobahn)  
A 8: Karlsruhe - Stuttgart - Munich  
(Exits Stuttgart-Zentrum / Vaihingen, Stuttgart-Degerloch, Stuttgart-Flughafen)

### Car Rental

You can reserve your car online going at the following websites:  
[www.sixt.de](http://www.sixt.de)  
[www.avis.de](http://www.avis.de)  
[www.europcar.de](http://www.europcar.de)

## 2. Access to the conference venue (ICS International Congress Center)

### Arrival by Public Transport

The excellent transport links to the new Stuttgart Trade Fair and the ICS International Congress Center are rapid and easy to use. At Stuttgart main station, take the S2 or the S3 S-Bahn in the direction of the new Stuttgart Trade Fair Center/Airport.

It takes approx. 25 minutes by S-Bahn from Stuttgart main station to the new Stuttgart Trade Fair and the ICS International Congress Center. The S-Bahn has a service every 10 or 20 minutes from the main station from 04:55 a.m. (or 05:25 a.m. on Sundays and public holidays) until 00:25 a.m.

The S-Bahn has a service every 10 or 20 minutes from the new Stuttgart Trade Fair and the ICS International Congress Center to the main station from 05:08 a.m. (or 05:48 a.m. on Sundays and public holidays) until 00:08 a.m.

For detailed information please visit the website [www.vvs.de](http://www.vvs.de).

### Arrival by Car

The new Stuttgart Trade Fair and the ICS International Congress Center are 13 km away from Stuttgart city center and are located directly next door to Stuttgart Airport.

Please follow the signs towards Stuttgart Airport. The new Stuttgart Trade Fair and the ICS International Congress Center are directly connected to the A8 motorway and the B27 trunk road.

### Arrival via the A8 motorway:

From the direction of Stuttgart: Leave the motorway at the access road for the airport and trade fair center. You will then be guided directly to the multi-story car park over the A8 motorway. From the direction of Munich: There is an exit on the A8 motorway which leads you to the multi-story car park over the motorway.

Arrival via the B27 trunk road from the direction of Stuttgart or Tuebingen: The car parks at the western edge of the trade fair site are accessible from both directions. Or use the road no. L 1192 to the multi-story car park over the A8 motorway.

### Parking

The most conveniently situated multi-story car parks near the ICS are the car parks P 20 to P 23 as well as the car park P 10 near the Moevenpick Hotel Stuttgart Airport.

### Emissions Disc

From March 1, 2008, restricted driving zones may be imposed for certain vehicles which generate heavy emissions. They will be marked with a new "environmental zone" traffic sign. There will also be such a zone in Stuttgart from March 1, 2008. This will comprise the entire city area.

As the new Stuttgart Trade Fair and the ICS International Congress Center are situated outside of Stuttgart city, you will not need an environmental disc for your visit to the trade fair. Please be aware that you will need an emissions disc for a subsequent visit to or an overnight stay in Stuttgart city.

## Additional Information

### Insurance and Liability

It is highly recommended that all participants have adequate travel and health insurance, as the organizers of the ESV Conference 2009 cannot accept any liability for accidents, illnesses or injuries that may occur at or during the conference.

### Identification Documents and Customs

Foreign nationals require a valid passport or other identification document to enter Germany. The passport must be valid for at least another four months after entry into Germany. For citizens of EU countries a valid identity card is sufficient. Children must be included in their parent's passport or have their own children's passport. Citizens of certain countries require a visa to enter Germany. Detailed information can be obtained at local German embassies or consulates. Information on Customs formalities is available on <http://www.zoll.de>

### Currency/Credit Cards

The national German currency is the Euro (€). Foreign currency can be exchanged in most banks and hotels. Modern cash machines accept a variety of German and international debit and credit cards. The airports and major railway stations have electronic currency changing machines which can be used to exchange foreign currency into euros as well. Credit cards are not universally accepted, particularly in smaller outlets.

### Banks

Opening hours are determined individually by the banks, and can vary greatly. On Saturdays and Sundays all banks are closed. Most banks provide cashpoints which can be accessed 24 hours a day.

### Climate

Stuttgart's climate is characterized by its warm summers and mild winters. The average temperature in Stuttgart in June ranges between 18°C/64°F and 28°C/84°F.

### Other

Time zone: Central European Time (CET)  
with European daylight savings time  
Telephone country code: +49  
Power voltage: 230 V, 50 Hz.

### ESV Conference Website

The official website of the 21st International Technical Conference on the Enhanced Safety of Vehicles 2009 in Stuttgart provides further information regarding the conference, exhibition and accompanying events as well as information about venues and accommodation: <http://www.esv2009.com>.

# Accommodation

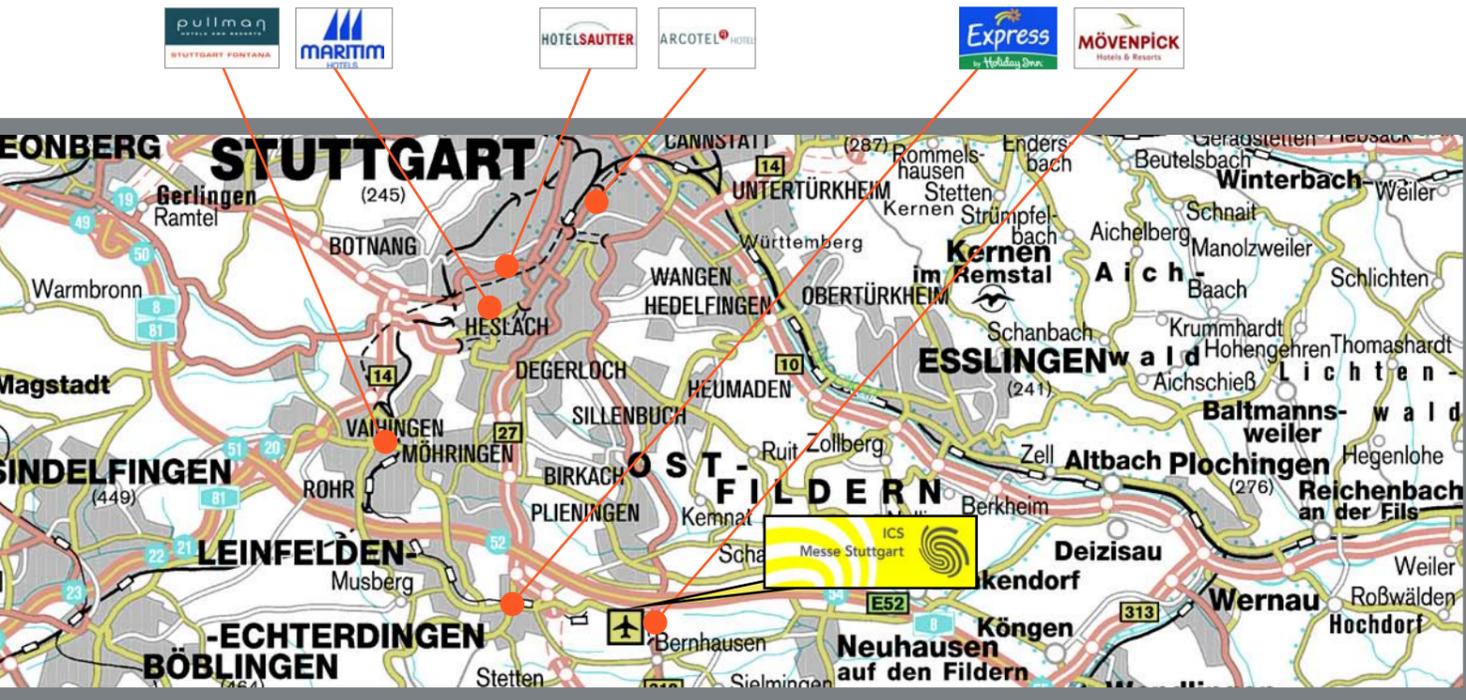


21st International Technical Conference  
on the Enhanced Safety of Vehicles

Reinventing Safety:  
Putting Advanced Technology to Work

## Registration Form 1/3

If not registering via the Website (strongly recommended), mail or fax this Registration Form to:  
ESV Registration Office, c/o more than event, Talstrasse 21/9, 71563 Affalterbach, GERMANY,  
**Fax: +49-7144-89 60 80-55**



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As Stuttgart is a popular tourist destination, accommodation facilities are accordingly excellent, have a very good price-performance ratio, and will fully satisfy all the conference participants' requirements in various categories ensuring a comfortable and memorable stay.

Room capacities have been reserved in the hotels mentioned below, consciously located at different sites in Stuttgart. Bookings can be made online on the conference website: [www.esv2009.com](http://www.esv2009.com).

### Moevenpick Hotel Stuttgart Messe \*\*\*\*

Standard single room	€ 145.00	w/o breakfast
Standard double room	€ 145.00	w/o breakfast
Superior single room	€ 155.00	w/o breakfast
Superior double room	€ 155.00	w/o breakfast

Website: [www.moevenpick-hotels.com](http://www.moevenpick-hotels.com)

### Moevenpick Hotel Stuttgart Airport \*\*\*\* Superior

Comfort single room	€ 180.00	w/o breakfast
Comfort double room	€ 202.00	w/o breakfast
Executive single room	€ 200.00	w/o breakfast
Executive double room	€ 222.00	w/o breakfast

Website: [www.moevenpick-hotels.com](http://www.moevenpick-hotels.com)

### Holiday Inn Express, Leinfelden \*\*\*

Single room	€ 98.00	incl. breakfast
Double room	€ 98.00	incl. breakfast

Website: [www.ichotelsgroup.com](http://www.ichotelsgroup.com)

### Pullman Fontana Stuttgart-Vaihingen \*\*\*\*

Single room	€ 147.00	w/o breakfast
Double room	€ 187.00	w/o breakfast

Website: [www.accorhotels.com](http://www.accorhotels.com)

### Maritim Hotel Stuttgart \*\*\*\*

Single room	€ 154.00	incl. breakfast
Double room	€ 173.00	incl. breakfast

Website: [www.maritim.de](http://www.maritim.de)

### Hotel Sautter (Stuttgart) \*\*\* Superior

Single room	€ 94.00	incl. breakfast
Double room	€ 115.00	incl. breakfast

Website: [www.hotel-sautter.de](http://www.hotel-sautter.de)

### Arcotel Camino (Stuttgart) \*\*\*

Single room	€ 123.00	incl. breakfast
Double room	€ 142.00	incl. breakfast

Website: [cc.arcotel.at](http://cc.arcotel.at)

Please find the general terms and conditions as well as the cancellation policy with the registration and hotel booking form. All extra costs such as minibar or other hotel services must be paid by the guests themselves.

### Contact Details

(Please use capital letters and complete a separate form for each attendee)

Salutation .....

First Name .....

Last Name .....

Professional Degree .....

Organization .....

Department .....

Position .....

Address .....

ZIP/Postal Code, City .....

State .....

Country .....

Phone .....

Fax .....

E-mail .....

### Registration Fees (please tick)

	Quantity	Amount
<input type="checkbox"/> Delegate Ticket Advanced (June 15-18, 2009)	_____	_____
Price valid through May 15, 2009, thereafter	_____	_____
<input type="checkbox"/> Delegate Ticket, One Day Only	_____	_____
<input type="checkbox"/> June 15, 2009 <input type="checkbox"/> June 16, 2009 <input type="checkbox"/> June 17, 2009 <input type="checkbox"/> June 18, 2009		
<input type="checkbox"/> Speaker Technical Session Ticket Advanced* (15.-18.06.2009)	_____	_____
Price valid through May 15, 2009, thereafter	_____	_____
<input type="checkbox"/> Student Ticket** (June 15-18, 2009)	_____	_____
<input type="checkbox"/> Student Ticket**, One Day Only	_____	_____
<input type="checkbox"/> June 15, 2009 <input type="checkbox"/> June 16, 2009 <input type="checkbox"/> June 17, 2009 <input type="checkbox"/> June 18, 2009		

\*Only one speaker per technical paper may be eligible for the reduced fee. Please enter your Paper number here: \_\_\_\_\_

\*\* To qualify for student registration, please send your I.D. verification via e-Mail to [students@esv2009.com](mailto:students@esv2009.com) or via fax to +49-7144-89 60 80-55.

# Registration Form 2/3

Social Program (please tick)	Quantity	Amount
<input type="checkbox"/> <b>Welcome Reception</b> Monday, June 15, 2009 For Conference participants included in registration fee	_____	_____
Accompanying persons	_____	€ 40.00
<input type="checkbox"/> <b>Gala Dinner</b> Wednesday, June 17, 2009	_____	€ 130.00

Social Events (please tick)	Quantity	Amount
<input type="checkbox"/> <b>Heidelberg</b> Sunday, June 14, 2009	_____	€ 75.00
<input type="checkbox"/> <b>Stuttgart Highlights</b> Monday, June 15, 2009	_____	€ 35.00
<input type="checkbox"/> <b>Hohenzollern Castle and Bebenhausen Monastery</b> Tuesday, June 16, 2009	_____	€ 35.00
<input type="checkbox"/> <b>Shopping in Metzingen</b> Wednesday, June 17, 2009	_____	€ 20.00
<input type="checkbox"/> <b>Esslingen Old Town Tour</b> Wednesday, June 17, 2009	_____	€ 35.00
<input type="checkbox"/> <b>Black Forest, Tonbach Valley</b> Friday, June 19, 2009	_____	€ 95.00

Technical Events (please tick)	Quantity	Amount
<input type="checkbox"/> <b>Mercedes-Benz Tour</b> Thursday, June 18, 2009	_____	€ 40.00
<input type="checkbox"/> <b>Robert Bosch Plant Tour</b> Thursday, June 18, 2009	_____	€ 40.00
<input type="checkbox"/> <b>DEKRA Automobil GmbH</b> Thursday, June 18, 2009	_____	€ 40.00
<input type="checkbox"/> <b>Driving Experience – Safety, Boxberg</b> Friday, June 19, 2009 Accompanying person	_____	€ 95.00 € 30.00

### Accommodation

Hotel name: 1st choice \_\_\_\_\_ 2nd choice \_\_\_\_\_  
 Check-in date: \_\_\_\_\_ Check-out date: \_\_\_\_\_  
 Number of rooms: \_\_\_\_\_ Single room/s \_\_\_\_\_ Double room/s

Please note that all extras have to be paid individually to the hotel on-site.

### Terms and Conditions for Participation and Cancellation

#### Booking Conditions

##### 1. Services

Daimler AG, hereinafter referred to as "DAIMLER", is supporting the ESV Conference 2009 for the Bundesanstalt für Strassenwesen (Federal Highway Research Institute) and therefore performs services of the type and scope pursuant to the event descriptions in the respective currently valid event program. DAIMLER reserves the right to make changes to the program sequence in exceptional cases.

##### 2. Registration and Confirmation

Registration is possible online, by e-mail, fax or mail. Applications for registration will be dealt within the order in which they are received. Registration will be confirmed in writing by e-mail and mail.

# Registration Form 3/3

### 3. Cancellation by DAIMLER

If the conference in whole or in part cannot take place due to the illness of a speaker, force majeure or any other circumstances which DAIMLER is not responsible for, there is no claim for the event being held. In the case of cancellation by DAIMLER, there is in any case only the obligation to reimburse the participation fees that have already been paid.

### 4. Cancellation by Participant

Cancellation must be made in writing. In case of cancellation before April 30, 2009, an administration fee of € 45.00 will be charged. For cancellations until May 30, 2009, an administration fee of € 95.00 will be charged. For cancellations after May 30, 2009, 90% of the participation fee is payable as set forth in the invoice. The incoming mail stamp is decisive for the date of receipt. It is possible to specify a substitute participant, thereby incurring no costs.

Please note that Student Day Tickets can not be cancelled!

Refunds will be issued within 30 days following the conference.

### 5. Hotel Cancellation Policy

In case of cancellation of accommodation before April 30, 2009, 50% of the total hotel fee will be charged. For cancellations until May 30, 2009, 80% of the payable amount will be charged. Please note that there are no further refunds for cancellations after May 30, 2009!

### 6. Social Program Cancellation Policy

The cut-off date for guests to cancel their participation in a tour exempt from charges is April 30, 2009. Guests canceling until May 30, 2009, will receive their refunds, less a € 10.00 processing fee. Guests canceling after May 30, 2009, will be entitled to a refund of 50%. If our minimum quotas are not reached by June 5, 2009, ESV Registration Office reserves the right to cancel any sightseeing tours. All participants will be notified of the cancellation prior to the tour and will receive a full refund of money paid.

### 7. Conditions of Payment

The participation fees fall due for payment without any deductions.

Participants from countries other than Germany, Austria and Switzerland: Payment is possible by credit card only. Holders of Master Card and Visa Card may use their credit cards for paying all charges. The invoice will be sent to the participant via e-mail as well as via mail together with the voucher.

Participants from Germany, Austria and Switzerland: Payment is possible by credit card or bank transfer. The invoice will be sent to the participant via e-mail and mail. As soon as the payment has been made, the voucher will be sent to the participant via mail. Payment by bank transfer is only possible until April 30, 2009!

Please note that your attendance at the Conference will not be confirmed if payment is not made within 28 days upon receipt of the invoice.

Bank transfer costs should be paid by the participant.

Checks cannot be accepted.

### Methods of Payment (please tick)

Credit Card:  
 Card Holder \_\_\_\_\_ Type of Credit Card \_\_\_\_\_ Card No. \_\_\_\_\_  
 Exp. Date \_\_\_\_\_ Card ID/Card Validation Code \_\_\_\_\_

### Bank Transfer (only possible for participants from Germany, Austria and Switzerland):

Please transfer the indicated amount (free of any bank charges) to the following account:

Remittee: more than event, ESV 2009, Bank: Deutsche Bank, Bank code: 604 700 24, Account no: 0200 949 00, BIC/SWIFT-Code: DEUTDE33HAN, IBAN: DE41 6047 0024 0020 0949 00.

With your registration you agree that your contact details are used by NHTSA for ESV Conference-related information.

With my signature I accept all mentioned booking conditions.

Signature \_\_\_\_\_

Date \_\_\_\_\_

## 21st ESV Government Focal Points



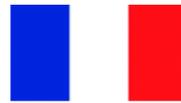
**Australia**  
**Mr. Peter Robertson**  
 Assistant Secretary  
 Vehicle Safety Standards  
 Department of Transport and Regional Services  
 GPO Box 594  
 Canberra ACT 2601, AUSTRALIA  
 Phone: +61-26274-6271  
 Fax: +61-2 6274-7714  
 E-mail: Peter.Robertson@dotars.gov.au



**Germany**  
**Dr. Peter Reichelt**  
 Director and Professor  
 Federal Highway Research Institute (BAST)  
 Brüderstraße 53  
 D 51427 Bergisch Gladbach, GERMANY  
 Phone: +49-2204-43-100  
 Fax: +49-2204-43-675  
 E-mail: Reichelt@bast.de



**Canada**  
**Mr. Christian Lavoie**  
 Director, Motor Vehicle Standards,  
 Research and Development  
 Transport Canada  
 275 Slater Street, 17th Floor  
 Ottawa, Ontario, CANADA K1A 0N5  
 Phone : +1-613-998-2268  
 Fax : +1-613-990-2913  
 E-mail: lavoich@tc.gc.ca



**France**  
**Mr. Bernard Gauvin**  
 Ingénieur Général des Mines  
 Ministère des Transports  
 Direction de la sécurité et de la Circulation Routière  
 L'Arche de la Defense  
 92055 Paris La Defense Cedex 04, FRANCE  
 Phone: +33-1-4081-8128  
 Fax: +33-1-4081-8359  
 E-mail: bernard.gauvin@equipement.gouv.fr



**Mr. Philippe Jean**  
 Head of Unit  
 Directorate General Enterprise and Industry  
 European Commission  
 BREY 10/058  
 Av. d'Auderghem 45  
 Brussels B-1040 BELGIUM  
 Phone: +32-2 295 05 39  
 Fax: +32-2 296 96 37  
 Email: philippe.jean@ec.europa.eu



**Hungary**  
**Mr. Sándor Szabó**  
 Head of EU-UNECE Centre  
 KTI/Institute for Transport Sciences  
 H-1518 Budapest POB. 107, HUNGARY  
 Phone: +36-1-371-59-59  
 Fax: +36-1-205-59-27  
 E-mail: szabos@kti.hu



**European Enhanced Vehicle-safety Committee**  
**Dr. Dominique Cesari**  
 Deputy Director  
 INRETS  
 25 Avenue Francois Mitterrand  
 Case 24  
 F-69675 Bron Cedex, FRANCE  
 Phone: +33-4 72 14 25 70  
 Fax: +33-4 72 14 25 73  
 E-mail: dominique.cesari@inrets.fr



**Italy**  
**Dott. Ing. Antonio Erario**  
 Director of the International Regulation Division  
 Ministry of Infrastructure and Transport  
 Department of Land Transport  
 Via G. Caracci 36- 00157  
 Rome, ITALY  
 Phone: +39-06 4158 6228  
 Fax: +39-06 4158 3253  
 E-mail: erario.a@trasportinavigazione.it

## 21st ESV Government Focal Points



**Japan**  
**Mr. Masayuki Shima**  
 Director, International Affairs Office  
 Engineering and Safety Department, Road Transport Bureau,  
 Ministry of Land Infrastructure and Transport (MLIT) Japan  
 213 Kasumigaseki, Chiyoda-ku,  
 Tokyo, 100-8918, JAPAN  
 Phone: +813-5253-8592  
 Fax: +813-5253-1639  
 E-mail: shima-m22b@mlit.go.jp



**The Netherlands**  
**Mr. Kees Doornheim**  
 Head of vehicle standards development  
 RDW Vehicle Approval and Information  
 P.O. Box 777  
 2700 AT Zoetermeer, The NETHERLANDS  
 Phone: +31-79-3458-272  
 Fax: +31-79-3458-041  
 E-mail: cdoornheim@rdw.nl



**Poland**  
**Mr. Wojciech Przybylski, M.Sc.**  
 Technical Development Director  
 80 Jagiellonska Street  
 03-301 Warsaw, POLAND  
 Tel: +48-22 811-21-89  
 Fax: +48-22 811-09-06  
 E-mail: wojciech.przybylski@its.waw.pl



**United Kingdom**  
**Mr. Ian Yarnold**  
 Deputy Head of Vehicle Technology and Standards  
 Department for Transport  
 2/03, Great Minister House  
 76 Marsham St.  
 London SW1P 4DR, UNITED KINGDOM  
 Phone: +44-207-944-2080  
 Fax: +44-207-944-2069  
 E-mail: Ian.Yarnold@dft.gsi.gov.uk



**Republic of Korea**  
**Mr. Hong-rak Kim**  
 Deputy Director  
 Ministry of Construction and Transportation (MOCT)  
 1, Joongang-Dong, Gwacheon-City  
 Gyeonggi-Do 427-712, REPUBLIC OF KOREA  
 Phone: +82-2-2110-8699  
 Fax: +82-2-504-9156  
 E-mail: sgtkhr@hanmail.net



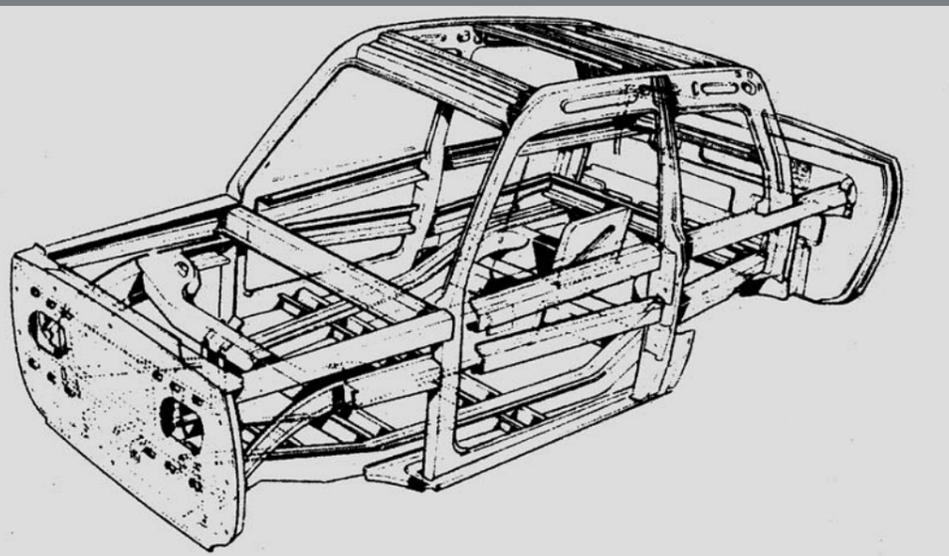
**United States of America**  
**Dr. Joseph N. Kianthra**  
 Senior Technical Advisor for Vehicle Safety  
 National Highway Traffic Safety Administration (NVS-300)  
 1200 New Jersey Avenue SE  
 Washington, DC 20590, UNITED STATES OF AMERICA  
 Phone: +1-202-366-4862  
 Fax: +1-202-366-8546  
 E-mail: joseph.kianthra@dot.gov



**Sweden**  
**Mr. Anders Lie**  
 Specialist, Head Office  
 Swedish National Road Administration  
 Röda vägen 1 - 781 87  
 Borlänge, SWEDEN  
 Phone: +46-771-119-119  
 Fax: +46-243-752-00  
 E-mail: anders.lie@vv.se

# History of ESV

# History of ESV



The United States Department of Transportation, National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Research is the official Government agency responsible for the implementation of the International Technical Conferences on the Enhanced Safety of Vehicles. The conferences are held approximately every two years and hosted by participating governments. Delegate and attendee participation includes governments, automotive industries, motor vehicle research engineers and scientists, medical, insurance, and legal professionals, consumers, academia, private corporations, and international media, all from around the world.

The ESV Program originated in 1970 under the NATO Committee on the Challenges of Modern Society, and was implemented through bilateral agreements between the Governments of the United States, France, the Federal Republic of Germany, Italy, the United Kingdom, Japan, and Sweden. The participating nations agreed to develop experimental safety vehicles to advance the state-of-the-art technology in automotive engineering, and to meet periodically to exchange information on their progress. Since its inception the number of international partners has grown to include the Governments of Canada, Australia, the Netherlands, Hungary, Poland, the Republic of Korea, and two international organizations - the European Enhanced Vehicle-Safety Committee,

and the European Commission. A representative from each country and organization serves as a Government Focal Point in support of the Conference.

In 1971 the Conference was known as the "International Technical Conference on Experimental Safety Vehicles". Over time, the focus of the conference shifted from concentration on the development of experimental safety vehicles to broader issues of safety and international cooperation seeking reductions in motor vehicle fatalities and injuries. These issues include program advances such as Pedestrian Safety, Frontal and Side Impact Protection, Biomechanics, Intelligent Transportation Systems, and Vehicle Compatibility. In 1991, the participating governments agreed to change the name of the Conference to "The International Technical Conference on the Enhanced Safety of Vehicles" to reflect the current focus. The 14th ESV Conference, held in Munich, Germany, in May 1994, was the first conference in which the new name was used, and "25 Years of ESV Development" was celebrated.

The 15th ESV Conference, held in Melbourne, Australia, in May 1996, established a new 5-year priority research program known as International Harmonized Research Activities (IHRA). Established under the auspices of the ESV Conference, the

program established six international priority research areas; Biomechanics, Advanced Offset Frontal Crash Protection, Vehicle Compatibility, Pedestrian Safety, Intelligent Transportation Systems, and subsequently chose Side Impact Protection. In May 1997, NHTSA hosted a Public Workshop to share with its partners the goals and objectives of IHRA. In November 1997, the ESV Government Focal Points agreed that all participating governments would join in these priority research programs, governed by an IHRA Steering Committee comprised mainly of the ESV Government Focal Points. Five working groups in each of the priority research areas were led by participating governments, and comprised of government and industry experts.

In June 2005, the 19th ESV Conference, held in Washington, DC, welcomed the Republic of Korea to the member Governments supporting the ESV Program. The first ESV Student Safety Technology Design Competition was introduced and it was a highlight of the conference agenda. The expectations and vision of vehicle safety research were discussed during the plenary session, and participants were inspired to be active contributors in achieving measurable gains in safety globally. More than 850 attendees from 23 countries gathered together to make this a successful and valuable conference for all who participated.

The international conference participants, their continued interest, dedication, and unwavering support are what make this conference extremely rewarding. The ESV Conference continues to be one of the world's premier events in the field of motor vehicle safety research.

# The 3rd Collegiate Student Safety Technology Design Competition

# Sponsors and Sponsoring Opportunities



The Collegiate Student Safety Technology Design Competition gives young scholars from Asia-Pacific, Europe, and North America an exciting opportunity to design, build, and demonstrate a potentially cost effective conceptual scale model of a vehicle safety technology. Participating teams must be from an ESV Member Country.

Teams consisting of university level seniors and/or graduate students, guided by a faculty advisor, enter a 300-word abstract on a theme related to a global vehicle safety research priority. Entries are judged on the basis of the abstract in each of the three geographical regions, and six teams are selected to participate in their regional competition. A panel of safety experts from each region visits their team's school and evaluates the safety devices and the designs, and select three team finalists per region.

The three team finalists from each region compete for top honors at the ESV Conference 2009 in Stuttgart, Germany, and their prototype devices will be displayed in the Exhibition Hall at the ESV Conference. An international panel of judges made-up of vehicle safety engineering experts from around the globe, will select the first-place winner and the runner up, both of whom will receive their respective awards and international recognition for their achievements.

Entry to the competition is now open on [www-esv.nhtsa.dot.gov/pages/StudentDesComp.htm](http://www-esv.nhtsa.dot.gov/pages/StudentDesComp.htm).

Thanks to various top-class sponsors and partners, the ESV Conference 2009 in Stuttgart will be a congress inline with the demanding requirements of the international participants. We are proud to present the following sponsors:

**ESV Sponsor:**

■ **DAIMLER AG**  
Daimler AG, encompassing Mercedes-Benz Cars, Daimler Trucks, Daimler Financial Services, Mercedes-Benz Vans and Daimler Buses, is a leading global producer of premium passenger cars and the largest manufacturer of commercial vehicles in the world. Daimler sells its products in nearly all the countries of the world and has production facilities on five continents. Since the foundation of Daimler-Benz AG in 1926, the company has grown constantly and today has more than 272,000 employees.

**Exclusive Partner:**

■ **Robert Bosch GmbH**  
Robert Bosch GmbH is a leading international technology and service provider for different sectors, from motor vehicle and industrial technology to consumer goods and building technology. The company, which is active worldwide, was founded in 1886 in Stuttgart and is today represented by 271,000 employees and 300 subsidiaries and regional companies in over 50 countries.

**Main Sponsor:**

■ **DEKRA Automobil GmbH**  
DEKRA stands, as it has for over 80 years, for safety and quality where people deal with modern technology. With over 18,000 employees, DEKRA is active in 28 countries in Europe, as well as in North America, Brazil, South Africa, Morocco, Algeria and China. DEKRA Automobil GmbH provides numerous automotive services to private and business customers. When it comes to periodic vehicle monitorings and appraisals, DEKRA is the national and European market leader with over 22 million motor vehicle tests and over one million appraisals every year.

■ **TRW Automotive GmbH**

TRW Automotive is one of the most important companies in the automotive component supply industry and is the benchmark for trend-setting innovations when it comes to the development of integrated safety systems for the automotive industry. As a global player, TRW Automotive has over 66,000 employees worldwide, who develop and produce systems and products according to the highest safety and quality criteria in 27 countries.

**Sponsor:**

■ **BMW Group**  
Founded in 1916 as "Bayerische Flugzeugwerke AG" and later changed to "Bayerische Motoren Werke AG", the company is now one of the world's leading premium manufacturers in the

automotive industry. In addition to the development, production and marketing of automobiles and motorcycles, the BMW Group offers its private and business customers a comprehensive range of financial services.

■ *Takata Corporation*

Takata is one of the leading manufacturers of steering wheels, seat belts, airbags and child seats, and develops electronic units for restraint systems. The company, founded in 1933, is today represented by approx. 36,000 employees active in 44 plants in 16 countries.

■ *Autoliv Inc.*

With 42,000 employees in over 80 locations around the globe, Autoliv is the worldwide leader in developing and manufacturing automotive safety. The systems knowledge gained over decades of developing products for passive safety forms a sound basis for the increasingly important topic of active safety. The use of these new

technologies for recognizing dangerous situations has great potential for the design of occupant protection systems. Convenience, warnings, accident avoidance, reducing the severity of accidents, calling the emergency services – all in the cause of fewer deaths and the reduction of serious injuries in road accidents.

**The ESV is kindly supported by:**

■ *The Federal State of Baden-Wuerttemberg*

Baden-Wuerttemberg is one of Europe's leading technology regions, benefiting from a successful mix of tradition and progress, regional identity and cosmopolitan values, economic dynamism and social interaction, diversity and solidarity.

In addition to the above mentioned sponsoring packages, company presentations and brandings in various layouts are also possible. Information on sponsoring opportunities can be obtained from the organizer by e-mail at [contact@esv2009.com](mailto:contact@esv2009.com) or telephone +49-7144-89 60 80-44.

## Key Dates



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## Press Activities

Nowadays as car safety topics and ecological topics become increasingly important to the public, the organizers are happy to be able to actively weave the international press into the ESV Conference 2009.

A press lounge with state-of-the-art equipment will be set up, providing a space where international journalists will have the opportunity of getting the latest information on the ESV Conference in a comfortable and convenient atmosphere.

Media partners will also support the ESV Conference 2009 with their public relation activities.

The organizers invite all media and journalists to be an active part of the ESV Conference 2009 in Stuttgart.



Keep these Dates open for the  
21st ESV Conference in Stuttgart  
June 15-18, 2009

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### Key Dates

- Start Call for Abstracts: **July 8, 2008**
- Abstract Submission due: **October 8, 2008**
- Notification to Authors: **November 21, 2008**
- Final Paper due: **March 17, 2009**
- Online Registration due: **June 5, 2009**



21st International Technical Conference  
on the Enhanced Safety of Vehicles

## 2nd Announcement

Latest information is available at  
[www.esv2009.com](http://www.esv2009.com)



Federal Ministry  
of Transport, Building  
and Urban Affairs



U.S. Department of Transportation  
**National Highway Traffic Safety  
Administration**