

## Table of Contents - Oral Presentations

Warning: Due to files size and/or images, some files may take a little longer to open.

### Data Acquisition and Analysis for Future Safety Enhancement

- Paper No. 09-0214-O [Characteristics of Crashes That Result in Fires](#)
- Paper No. 09-0199-O [How Often Do Front Airbags Fail to Deploy in Fatal Frontal Crashes?](#)
- Paper No. 09-0553-O [A Classification Model for Prediction of Rollover Crash Severity](#)
- Paper No. 09-0370-O [Intersection Road Accident Causation: A European View](#)
- Paper No. 09-0234-O [Automatic Incident Detection and Classification at Intersections](#)
- Paper No. 09-0269-O [Widespread Collection of Real-World Crash Data Using Advanced Automatic Collision Notification and Medical Data Technologies](#)
- Paper No. 09-0282-O [Development of the Accident Investigation and Data Handling Methodology in the GIDAS Project](#)
- Paper No. 09-0245-O [A New Approach of Accident Causation Analysis by Seven Steps ACASS](#)
- Paper No. 09-0162-O [Simulation of Real Crashes as a Method for Estimating the Potential Benefits of Advanced Safety Technologies](#)
- Paper No. 09-0057-O [The US Side Impact Accident Causation Analysis and Potential Applications for Pre-Crash Safety](#)
- Paper No. 09-0375-O [Study on Pre-Crash and Post-Crash Information Recorded in Electronic Computer Units \(ECUs\) Including Event Data Recorders](#)
- Paper No. 09-0452-O [Feasibility of Using Event Data Recorders to Characterize the Pre-Crash Behavior of Drivers in Rear-End Collisions](#)
- Paper No. 09-0510-O [The Vision of Accident Free Driving – How Efficient Are We Actually In Avoiding Or Mitigating Longitudinal Real World Accidents](#)

### Developments in Frontal/Side Impact Protection

- Paper No. 09-0185-O [Comparison of University of Michigan CIREN Cases to Existing Types of Crash Tests](#)
- Paper No. 09-0156-O [Priorities for Enhanced Side Impact Protection in Regulation 95 Compliant Cars](#)
- Paper No. 09-0096-O [Quantification of the Scattering Due to the Dummy Set-Up in Side Pole Impact](#)
- Paper No. 09-0184-O [Lateral Glazing Characterization Under Head Impact: Experimental and Numerical Investigation](#)
- Paper No. 09-0549-O [Results of NHTSA's Comparison of the Offset Deformable Barrier and the Progressive Deformable Barrier Test Procedures](#)
- Paper No. 09-0105-O [Development of a High Deceleration Full Width Frontal Impact Test for Europe](#)
- Paper No. 09-0203-O [Summary of Activities of the Compatibility Working Group in Japan](#)
- Paper No. 09-0453-O [Methodology Sensitivity of the AHOF400 and KW400](#)
- Paper No. 09-0022-O [Evaluating Vehicle Incompatibility Using Center of Velocity Change Methodology](#)
- Paper No. 09-0380-O [Effects of Active Structures on Injuries in Medium Severity Frontal Impacts](#)
- Paper No. 09-0248-O [Detailed Analysis of Target Crashes for Pre-Crash Sensing Applications](#)
- Paper No. 09-0369-O [Investigation for New Side Impact Test Procedures in Japan](#)

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

- Paper No. 09-0076-O [Impact of Different Vehicle Models on Threat Assessment in Critical Curve Situations](#)
- Paper No. 09-0141-O [A Probabilistic Warning System for Safe Curve Negotiation](#)
- Paper No. 09-0189-O [Validation of a Hardware in the Loop \(HIL\) Simulation for Use in Heavy Truck Stability Control System Effectiveness Research](#)
- Paper No. 09-0204-O [Enhanced Braking Performance by Integrated ABS and Semi-Active Damping Control](#)
- Paper No. 09-0209-O [An Analysis of the Mechanism Causing Loss of Control During a Tire Delamination](#)
- Paper No. 09-0278-O [ESC Standard Fitment and Failure to Protect Young Drivers](#)
- Paper No. 09-0284-O [A Study of the Body Configuration and Superior Occupant Protection During Rollover](#)
- Paper No. 09-0481-O [Car Rollover Mechanisms and Injury Outcome](#)
- Paper No. 09-0552-O [NHTSA's Class 8 Truck-Tractor Stability Control Test Track Effectiveness and Objective Performance Test Development](#)

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

- Paper No. 09-0182-O [Unprecedented Vehicle and Traffic Safety Integrating V2X Communication](#)

- Paper No. 09-0330-O [Using Dedicated Short Range Communications for Vehicle Safety Applications – the Next Generation of Collision Avoidance](#)
- Paper No. 09-0118-O [Cooperative Intersection Collision Avoidance System for Violations \(CICAS-V\) for Prevention of Violation-Based Intersection Crashes](#)
- Paper No. 09-0193-O [Prediction of Pre-Impact Occupant Kinematic Behavior Based on the Muscle Activity During Frontal Collision](#)
- Paper No. 09-0419-O [The Effects of Automatic Emergency Braking on Fatal and Serious Injuries.](#)
- Paper No. 09-0319-O [Usage of Surround Sensor Information for Passive Safety – Challenges and Chances](#)
- Paper No. 09-0534-O [Pre-Crash Phase Analysis Using a Driving Simulator. Influence of Atypical Position on Injuries and Airbag Adaptation.](#)
- Paper No. 09-0333-O [The Effect of Pre-Pretensioning in Multiple Impact Crashes](#)
- Paper No. 09-0165-O [The Mercedes-Benz Experimental Safety Vehicle \(ESV\) 2009](#)
- Paper No. 09-0091-O [A Situation Based Method to Adapt the Vehicle Restraint System in Frontal Crashes to the Accident Scenario](#)
- Paper No. 09-0283-O [Powered-Two-Wheeler Integrated Safety – First Results of the SIM Project](#)
- Paper No. 09-0049-O [Enhanced Automatic Collision Notification \(ACN\) System - Improved Rescue Care Due to Injury Prediction - First Field Experience](#)
- Paper No. 09-0538-O [Combining CIREN and NASS-CDS Data to Predict Occupant Outcomes in Frontal Crashes](#)

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

- Paper No. 09-0020-O [Evaluation of the RibEye Deflection Measurement System](#)
- Paper No. 09-0437-O [Evaluation of an Alternate Thorax Deflection Device in the SIDII ATD](#)
- Paper No. 09-0418-O [WorldSID Small Female Two-Dimensional Chest Deflection Sensors and Sensitivity to Oblique Impact](#)
- Paper No. 09-0505-O [WorldSID Production Dummy Biomechanical Responses](#)
- Paper No. 09-0563-O [Comparison of WorldSID and ES-2re Biofidelity Using an Updated Biofidelity Ranking System](#)
- Paper No. 09-0263-O [Head and Spinal Trajectories in Children and Adults Exposed to Low Speed Frontal Acceleration](#)
- Paper No. 09-0142-O [Comparison of Passive Cervical Spine Flexion in Children and Adults](#)
- Paper No. 09-0154-O [Investigation of Facet Joint Response Under Rear Impact Conditions Using FE Model of the Cervical Spine.](#)
- Paper No. 09-0412-O [A Global Head Neck Torso Model for Whiplash Injury Criteria Investigation](#)
- Paper No. 09-0384-O [Coupling of ULP Head Model to THUMS Human Body FE Model : Validation and Application to Automotive Safety](#)
- Paper No. 09-0111-O [Development of Next Generation Human Body FE Model Capable of Organ Injury Prediction](#)
- Paper No. 09-0508-O [Load Transfer and Deformation Characteristics of the Pelvis in Non-Destructive Side Impact Tests](#)
- Paper No. 09-0306-O [Development of New Criteria for Assessing the Risk of KTH Injury in Frontal Impacts Using Hybrid III Femur Force Measurements](#)
- Paper No. 09-0196-O [Application and Evaluation of a Novel KTH Injury Criterion for the Hybrid III Dummy in Frontal Crash Test Environments](#)
- Paper No. 09-0253-O [Characteristics of Fatalities in the CIREN Database](#)
- Paper No. 09-0365-O [Reconstruction of a Real World Crash Involving a Child Using Hybrid III 10-Year Old and 5th Percentile Adult Female ATDs](#)
- Paper No. 09-0268-O [Comparison of Dynamic Responses of the THOR-NT and Hybrid III in Offset Frontal Crash Test](#)
- Paper No. 09-0372-O [Improvement of the Positioning of Dummy and Vehicle Parts During a Crash](#)
- Paper No. 09-0407-O [Objective Rating of Signals Using Test and Simulation Responses](#)
- Paper No. 09-0016-O [Study of Vehicle Dynamics and Occupant Response in Side Impact Crash Tests](#)
- Paper No. 09-0244-O [Development of a Motorcycle Rider Model with Focus on Head and Neck Biofidelity, Recurring to Line Element Muscle Models and Feedback Control](#)
- Paper No. 09-0249-O [Creating Representative Curves from Multiple Time Histories of Vehicle, ATD and Biomechanics Tests](#)

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

- Paper No. 09-0025-O [Development of a Safety Impact Estimation Tool for Advanced Safety Technologies](#)
- Paper No. 09-0281-O [New Approach of Accident Benefit Analysis for Rear End Collision Avoidance and Mitigation Systems](#)
- Paper No. 09-0408-O [Increased Safety and Reduction of Congestion by Using Driver Assistance Technology; Dream or Reality?](#)

- Paper No. 09-0148-O [Reconsidering Accident Causation Analysis and Evaluating the Safety Benefits of Technologies: Final Results of the TRACE Project](#)
- Paper No. 09-0317-O [Benefit Estimation of Advanced Driver Assistance Systems for Cars Derived from Real-Life Accidents](#)
- Paper No. 09-0153-O [Situation-Interpretation as a Key Enabler for Cost-Effective and Low-Risk Driver Assistance Systems with High Collision Mitigation Capabilities](#)
- Paper No. 09-0187-O [Testing and Verification of Active Safety Systems with Coordinated Automated Driving](#)
- Paper No. 09-0561-O [A Forward Collision Warning \(FCW\) Performance Evaluation](#)
- Paper No. 09-0398-O [Method to Assess the Effectiveness of Integrated Pedestrian Protection Safety Systems](#)
- Paper No. 09-0132-O [Pedestrian Injury Mitigation by Autonomous Braking](#)
- Paper No. 09-0328-O [Autonomous Braking Systems and Their Potential Effect on Whiplash Injury Reduction](#)
- Paper No. 09-0137-O [eVALUE – a Test Programme for Active Safety Systems](#)
- Paper No. 09-0447-O [New Test and Evaluation Methods for Future Car2X Communication Based Driver Assistance](#)

### **(NEW) Effect of Fuel Economy Strategies on Vehicle Safety**

- Paper No. 09-0316-O [Characterizing and Enhancing the Safety of Future Plastic and Composite Intensive Vehicles \(PCIVs\)](#)
- Paper No. 09-0507-O [Status of NHTSA's Hydrogen and Fuel Cell Vehicle Safety Research Program](#)

### **Rear Impact Injury Prevention & Protection**

- Paper No. 09-0231-O [The Euro NCAP Whiplash Test](#)
- Paper No. 09-0533-O [Rear Impact Test Methodologies: Quasistatic and Dynamic](#)
- Paper No. 09-0492-O [Detailed Analyses of BioRID-II Response Variations in Hardware and Simulation](#)
- Paper No. 09-0368-O [A Development Process for Creating Finite-Element Models of Crash Test Dummies Based on Investigations of the Hardware](#)
- Paper No. 09-0364-O [Japan New Car Assessment Program for Minor Neck Injury Protection in Rear-End Collisions](#)
- Paper No. 09-0558-O [The Effectiveness of Rear-Mounted Mirrors for Improving Rear Visibility](#)
- Paper No. 09-0302-O [The Study for Dynamic Evaluation Method for Assessing Whiplash-Associated Disorder in Rear Impact](#)
- Paper No. 09-0371-O [City Safety - A System Addressing Rear-End Collisions at Low Speeds](#)
- Paper No. 09-0129-O [PRE-SAFE® in Rear End Collision Situations](#)

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

- Paper No. 09-0120-O [Logical Mediation Structures for Toyota's Driver Support Systems](#)
- Paper No. 09-0104-O [Emotional and Behavioural Response to Auditory Icons and Earcons in Driver-Vehicle Interfaces](#)
- Paper No. 09-0240-O [Interacting Drivers at Intersections: What Can Make Them More Safe and More Efficient?](#)
- Paper No. 09-0531-O [Implications for HMI Design: Understanding Age Induced Limitations on In-Vehicle Task Complexity](#)
- Paper No. 09-0247-O [Exploitable Characteristics of Driver Braking](#)
- Paper No. 09-0461-O [Test and Evaluation of the Cooperative Intersection Collision Avoidance System for Violations \(CICAS-V\) Driver-Vehicle Interface](#)
- Paper No. 09-0293-O [An Analysis of Speed-Related UK Accidents Using a Human Functional Failure Methodology](#)
- Paper No. 09-0252-O [Comparison Between Adaptive and Basic Model Metrics in Lane Change Test to Assess In-Vehicle Secondary Task Demand](#)
- Paper No. 09-0266-O [Computer Vision Systems for 'Context-Aware' Active Vehicle Safety and Driver Assistance](#)
- Paper No. 09-0340-O [Single-Trial Detection of Cognitive Processes for Increasing Traffic Safety](#)
- Paper No. 09-0406-O [Study of FACE Design, Lighting System Design for Enhanced Detection Rate of Motorcycles](#)

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

- Paper No. 09-0311-O [Evaluation Methods for the Real World Effectiveness of Active Safety Systems](#)
- Paper No. 09-0421-O [From 15 % to 90 % ESC Penetration in New Cars in 48 Months - The Swedish Experience](#)
- Paper No. 09-0374-O [Injury and Structural Trends During 12 Years of NCAP Frontal Offset Crash Tests](#)
- Paper No. 09-0387-O [Benefit Estimation of the Euro NCAP Pedestrian Rating Concerning Real-World Pedestrian Safety](#)

- Paper No. 09-0464-O [Driver Alcohol Detection System for Safety \(DADSS\) – A Non-Regulatory Approach in the Development and Deployment of Vehicle Safety Technology to Reduce Drunk Driving](#)
- Paper No. 09-0515-O [A Proposed Comprehensive Crashworthiness Rating System](#)
- Paper No. 09-0217-O [A Safety Rating for Far-Side Crashes](#)
- Paper No. 09-0261-O [Florida Standard for Crashworthiness and Safety Evaluation of Paratransit Buses](#)
- Paper No. 09-0299-O [Rear Occupant Protection JNCAP Test](#)
- Paper No. 09-0342-O [Development of the Virtual Testing Benchmarks \(VTB\)](#)
- Paper No. 09-0275-O [CNG Cars Safety in Accidents \(Case Study: Iran\)](#)
- Paper No. 09-0215-O [Basis for a Fluid Integrity NCAP Rating](#)
- Paper No. 09-0177-O [Future E/E-Architectures in the Safety Domain](#)
- Paper No. 09-0008-O [ISO 27956 – a New Standard Describing Requirements and Test Methods for Lashing Points and Partitioning Systems for Cargo Securing in Delivery Vans](#)

## **Structural Integrity and Restraint Performance**

- Paper No. 09-0210-O [Why Passenger Survivability Cannot Be Completely Assured in Front-To-Front Vehicle Impacts at Current Legal Speed Limits](#)
- Paper No. 09-0331-O [Material Characterization Levels for Crashworthiness Applications](#)
- Paper No. 09-0400-O [Car Crashes with Polytrauma in Southern Germany](#)
- Paper No. 09-0483-O [NHTSA Research on Improved Restraints in Rollovers](#)
- Paper No. 09-0501-O [Webbing Sensitivity as a Means for Limiting Occupant Excursion in Rollovers](#)
- Paper No. 09-0502-O [Roof Strength and Injury Risk in Rollover Crashes of Passenger Cars and SUVs](#)
- Paper No. 09-0555-O [A Study of the Factors Affecting Fatalities of Air Bag and Belt-Restrained Occupants in Frontal Crashes](#)

## **Vulnerable Road Users: Pedestrian Safety**

- Paper No. 09-0145-O [Development Of A Biofidelic Flexible Pedestrian Legform Impactor Type Gtr Prototype, Part 1: Development And Technical Evaluations](#)
- Paper No. 09-0262-O [The Scatter of Pedestrian Upper-Leg Impactor](#)
- Paper No. 09-0277-O [Evaluation of a Flexible Pedestrian Legform Impactor \(FlexPLI\) for the Implementation Within Legislation on Pedestrian Protection](#)
- Paper No. 09-0376-O [Evaluation of the Effectiveness of Pedestrian Protection Systems Through In-Depth Accident Investigation, Reconstruction and Simulation](#)
- Paper No. 09-0112-O [Development of Flexible Pedestrian Legform Impactor FE Model and Comparative Study with Leg Behavior of Human FE Model THUMS](#)
- Paper No. 09-0318-O [Performance of Vehicle Bumper Systems with the EEVC/TRL Pedestrian Lower Legform](#)
- Paper No. 09-0206-O [Characteristics of TRL Pedestrian Legform Impactor and Flexible Pedestrian Legform Impactor in Car-Front Impact Tests](#)
- Paper No. 09-0459-O [The Causes of Pedestrians' Head Injuries Following Collisions with Cars Registered in 2000 or Later](#)
- Paper No. 09-0127-O [Pedestrian Head Impact Dynamics: Comparison of Dummy and PMHS in Small Sedan and Large SUV Impacts](#)
- Paper No. 09-0026-O [Development of an Hybrid Hood to Improve Pedestrian Safety in Case of Vehicle Impact](#)
- Paper No. 09-0067-O [Development of the Pop-Up Engine Hood for Pedestrian Head Protection](#)
- Paper No. 09-0366-O [Effect of Muscle Contraction in Low Sped Car-Pedestrian Impact – Simulations for Walking Posture](#)
- Paper No. 09-0462-O [Safety Requirements for Cyclists During Leg Impacts](#)
- Paper No. 09-0485-O [Development and Validation of Sedan Pedestrian Bucks Using Finite Element Simulations: Application in Study the Influence of Vehicle Automatic Braking on the Kinematics of the Pedestrian Involved in Vehicle Collissions](#)

## **Advances in Vulnerable Occupant Protection Systems**

- Paper No. 09-0242-O [Responses of Hybrid III 3YO and Q3 Dummies in Various CRSs Tested Using ECE R44 Impact Conditions](#)
- Paper No. 09-0564-O [The Role of Vertical Roof Intrusion in Predicting Occupant Ejection](#)
- Paper No. 09-0355-O [Safer Restraint Systems for Children 6 to 10 Years Old](#)
- Paper No. 09-0367-O [A Study of Thoracic Injury Criteria for Elderly Korean Occupant](#)

- Paper No. 09-0410-O [Opportunities for Protecting the Right Front Passenger in Frontal Crashes](#)  
 Paper No. 09-0351-O [Misuse of Airbag Deactivation When Children Are Travelling in the Front Passenger Seat](#)  
 Paper No. 09-0044-O [Continuous Restraint Control Systems: Safety Improvement for Various Occupants](#)  
 Paper No. 09-0414-O [Protection of Overweight Children in Child Restraint Systems](#)  
 Paper No. 09-0354-O [A Safe "Ride Height Line" for Child Car Occupants](#)  
 Paper No. 09-0539-O [NHTSA's Initial Evaluation of Child Side Impact Test Procedures](#)  
 Paper No. 09-0358-O [Development and Improvement of Q3s – a Three Year Old Child Side Impact Dummy](#)

## **Advances in Truck Safety/Bus & Two Wheeled Vehicles Safety**

- Paper No. 09-0072-O [Anti Lock Braking and Vehicle Stability Control for Motorcycles – Why or Why Not?](#)  
 Paper No. 09-0238-O [Mainland European Truck Accidents in the UK – Key Issues for Drivers](#)  
 Paper No. 09-0190-O [Implementation of Stability Control for Tractor-Trailers Using the National Advanced Driving Simulator \(NADS\)](#)  
 Paper No. 09-0097-O [Commercial Vehicle Safety Technologies: Applications for Brake Performance Monitoring](#)  
 Paper No. 09-0469-O [How to Use Mirrors](#)  
 Paper No. 09-0181-O [New Requirements to the Emergency Exits of Buses](#)  
 Paper No. 09-0427-O [Injury Mechanisms to Mass Transit Bus Passengers During Frontal, Side and Rear Impact Crash Scenarios](#)  
 Paper No. 09-0197-O [Analysis of Coaches Rows Seats Distance Influence on the Passengers Comfort and Safety](#)  
 Paper No. 09-0194-O [Improving Motorcyclists' Safety in Spain by Enhanced Crash Test Procedures and Implementation Guidelines.](#)  
 Paper No. 09-0448-O [Status of NHTSA Motorcoach Safety Plan](#)  
 Paper No. 09-0385-O [Study on Visibility and Discomfort Glare of Adaptive Frontal Lighting System \(AFS\) for Motorcycle](#)  
 Paper No. 09-0254-O [Effectiveness Evaluation of Antilock Braking Systems \(ABS\) for Motorcycles in Real-World Accident Scenarios](#)  
 Paper No. 09-0260-O [Dynamic Analysis of Side-By-Side Utility and Recreational Vehicles](#)
- 

## **Table of Contents - Written Papers**

### **Data Acquisition and Analysis for Future Safety Enhancement**

- Paper No. 09-0031-W [VIIS - Vehicle Infrastructure Interaction Simulation on "real" Roads](#)  
 Paper No. 09-0048-W [Fusion of In-Vehicle Sensor Data to Develop Intelligent Driver Training System \(IDTS\)](#)  
 Paper No. 09-0136-W [Cooperative Sensor Technology for Preventive Vulnerable Road User Protection](#)  
 Paper No. 09-0163-W [Using the Objective Rating Method \(ORM\) as a Quality Assessment Tool for Physical Tests, Test Methods, and Mathematical Models](#)  
 Paper No. 09-0200-W [Driver Behavior Modeling Using Hybrid Dynamic Systems for 'Driver-Aware' Active Vehicle Safety](#)  
 Paper No. 09-0326-W [Yaw Rate Error - A Dynamic Measure of Lane Keeping Control Performance for the Retrospective Analysis of Naturalistic Driving Data](#)  
 Paper No. 09-0332-W [Methods and Procedures for Testing the E-Call In-Vehicle Unit for the Purpose of Its Performance Assessment and Certification](#)  
 Paper No. 09-0346-W [A Comparison of Computer Modeling to Actual Data and Video of a Staged Rollover Collision](#)  
 Paper No. 09-0415-W [Computerized Crash Reconstruction of Real World Crashes Using Optimization Methodology](#)  
 Paper No. 09-0424-W [Crush Vs Energy Relationship for Yugo GV – Case Study](#)

### **Developments in Frontal/Side Impact Protection**

- Paper No. 09-0021-W [Development of Moving Deformable Barrier Reproducing Struck Car Deformation in Real-World Car-To-Car Side Impact Accidents in Europe and Japan](#)  
 Paper No. 09-0071-W [A Holistic Approach to Pedestrian Protection and Crash Sensing](#)  
 Paper No. 09-0100-W [Study on Improving Occupant Injury Performance for FMVSS214 Side Pole Impact](#)  
 Paper No. 09-0109-W [An Evaluation of PDB Test Results for Partner Protection and Self Protection](#)  
 Paper No. 09-0110-W [A Proposal for an Improved Method of Evaluating Vehicle Compatibility in Full-Frontal Rigid Barrier Tests](#)  
 Paper No. 09-0152-W [Numerical Simulation of Crash-Test for a Formula SAE Car](#)

- Paper No. 09-0173-W [Performance Analysis Methodology Based on Crash Pulse Severity and Vehicle Occupant Packaging for Full Frontal Crash Event.](#)
- Paper No. 09-0174-W [Development of Test Methods for Evaluating Curtain Airbag Deployment Performance](#)
- Paper No. 09-0175-W [Environmental Perception for Future Integrated Safety Systems](#)
- Paper No. 09-0188-W [Analysis of Injury Trends in Frontal University of Michigan CIREN Cases in the Context of Crash Tests](#)
- Paper No. 09-0211-W [Fireworthiness: A Final Report on the Technology Base](#)
- Paper No. 09-0218-W [In-Depth Field Investigations of Belt-Restrained Children in Farside Crashes](#)
- Paper No. 09-0229-W [Improvement of Airbag Performance Through Pre-Triggering](#)
- Paper No. 09-0230-W [Crash Type Distinction Using Structure-Borne Sound Sensing](#)
- Paper No. 09-0243-W [Assessment of Injury Severity of Nearside Occupants in Pole Impacts to Side of Passenger Cars in European Traffic Accidents - Analysis of German and UK In-Depth Data](#)
- Paper No. 09-0255-W [Coupled Human Body Side Impact Model to Predict Thoracic Injury](#)
- Paper No. 09-0257-W [Impact and Injury Patterns in Frontal Crashes of Vehicles with Good Ratings for Frontal Crash Protection](#)
- Paper No. 09-0272-W [Evaluation of a Finite Element Model of the Thor-NT Dummy in Frontal Crash Environment](#)
- Paper No. 09-0279-W [Evaluation of the Performance of Competitive Headforms as Test Tools for Interior Headform Testing](#)
- Paper No. 09-0288-W [Development of New Airbag for Rear Seat Occupants](#)
- Paper No. 09-0295-W [Protection System for Far-Side Occupants in Lateral Crashes](#)
- Paper No. 09-0296-W [Dynamic Side Impact Testing with the 50Th Percentile Male Worldsied Compared to the Es-2Re](#)
- Paper No. 09-0298-W [NPACS-Development Research Results](#)
- Paper No. 09-0304-W [Crash Adaptive Vehicle Structures and Components](#)
- Paper No. 09-0329-W [Evaluation of Advanced Compatibility Frontal Structures Using the Progressive Deformable Barrier \(PDB\)](#)
- Paper No. 09-0363-W [Validation Methodology on Airbag Deployment Process of Driver Side Airbag](#)
- Paper No. 09-0403-W [The Influence of Subframe Geometry on a Vehicle's the Frontal Crash Response](#)
- Paper No. 09-0411-W [Development of a Computational Model of the WorldSID 50th Male](#)
- Paper No. 09-0416-W [NHTSA's Recent Test Program on Vehicle Compatibility](#)
- Paper No. 09-0417-W [Technology Analysis and Design of Automotive Radar for Frontal Impact Protection](#)
- Paper No. 09-0422-W [Design and Optimization Approaches to Provide a Frame for Designer in the Vehicle Development Phase with the Focus on Enhanced Safety](#)
- Paper No. 09-0423-W [Characteristics of Small Overlap Crashes](#)
- Paper No. 09-0466-W [A Validated Oblique Pole Sled Test Methodology to Analyze Occupant Response.](#)
- Paper No. 09-0467-W [Development of a Countermeasure Airbag to Minimise the Risk of Serious Injury from Interaction with an Adjacent Occupant or Far-Side Interior in Side Impact Crashes](#)
- Paper No. 09-0475-W [Rear Seat Occupant Protection in Far Side Crashes](#)
- Paper No. 09-0480-W [The Minicars RSV: Still a Car for the Future?](#)
- Paper No. 09-0550-W [Uniform Application of NASS CDS Child Safety Data Definitions and Data Extraction](#)
- Paper No. 09-0556-W [Updated Analysis of Lower Extremity Injury Risk in Frontal Crashes in the United States](#)
- Paper No. 09-0322-W [Benefit of Adaptive Occupant Restraint Systems with Focus on the New US-NCAP Rating Requirements](#)

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

- Paper No. 09-0086-W [Objective and Subjective Evaluation of an Outrigger Construction on Rollover](#)

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

- Paper No. 09-0070-W [GPS, Communication and Environmental Based Collision Mitigation System for Trucks](#)
- Paper No. 09-0207-W [Universal Medical Rescue Protocol Changed: "High Speed Auto Crash" Changed to "High Risk Auto Crash" in the Field Triage Decision Scheme](#)
- Paper No. 09-0478-W [Field Test of a Cooperative Intersection Collision Avoidance System for Violations \(CICAS-V\)](#)

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

- Paper No. 09-0116-W [Evaluating Recent Seat Models in Rear-End Impacts According to Currently Discussed Consumer Test Proposals](#)
- Paper No. 09-0334-W [Modeling and Prediction of Occupant Knee-Thigh-Hip Injuries](#)
- Paper No. 09-0335-W [Evaluation of the Risk of Injury Caused by a Knee Airbag in Out-Of-Position](#)
- Paper No. 09-0362-W [Comparison of Anthropomorphic Test Dummies with a Pediatric Cadaver Restrained by a Three-Point Belt in Frontal Sled Tests](#)
- Paper No. 09-0392-W [Three Years Old Child Head-Neck Finite Element Modeling –Simulation of the Interaction with Airbag in Frontal and Side Impact](#)
- Paper No. 09-0402-W [Analysis of 3D Rigid Body Motion Using the Nine Accelerometer Array and the Randomly Distributed In-Plane Accelerometer Systems](#)
- Paper No. 09-0420-W [Biofidelity of the WorldSID Small Female Revision1 Dummy](#)
- Paper No. 09-0432-W [Dynamic Response of Head Under Vehicle Crash Loading](#)
- Paper No. 09-0506-W [Development of Response Corridors for the Compressive Stiffness of the Male and Female Upper Arm in Lateral Loading](#)
- Paper No. 09-0546-W [OOP Airbag Tests Using the 5th Percentile Female THOR Dummy](#)
- Paper No. 09-0557-W [Test Program to Define Oblique Chest Loading in Side Impact](#)

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

- Paper No. 09-0144-W [Street : A Novel Simulator for Driver Assistance System Evaluation](#)
- Paper No. 09-0222-W [Evaluation of the Safety Benefits of Passive And/or On-Board Active Safety Applications with Mass Accident Data-Bases](#)
- Paper No. 09-0259-W [Safety Impact Methodology \(SIM\) Evaluation](#)
- Paper No. 09-0312-W [Predictive Time to Line Crossing Estimation for Lane Departure Warning Systems](#)
- Paper No. 09-0378-W [Speed Limiting Trials in Australia](#)
- Paper No. 09-0391-W [Vehicle-To-Vehicle Communication for Enhanced Integrated Safety](#)
- Paper No. 09-0395-W [A Common Approach to Understanding Strengths and Limitations of Different Techniques for Quantifying Casualty Benefits](#)
- Paper No. 09-0436-W [The Effect of ABS as a Preventive Safety Device: The Result of Statistical Analysis Using Integrated Road Traffic Accident Database](#)
- Paper No. 09-0438-W [Requirements and Data Sources Needed for Validation of Component Properties and Performance in Simulation Based Benefit Assessment of Driver Assistance Technologies](#)
- Paper No. 09-0511-W [An Examination of Crash Scenarios and the Potential Benefits of Six Advanced Safety Technologies](#)
- Paper No. 09-0532-W [How Tires Change a SUV's Performance in Fishhook and Sine with Dwell Testing](#)
- Paper No. 09-0559-W [Lane Departure Warning \(LDW\) Performance Evaluation](#)
- Paper No. 09-0569-W [Assessment of a Drowsy Driver Warning System \(DDWS\) for Heavy Vehicle Drivers](#)
- Paper No. 09-0570-W [Enhanced Camera/Video Imaging Systems \(E-C/VIS\) for Heavy Vehicle Drivers](#)

## **(NEW) Effect of Fuel Economy Strategies on Vehicle Safety**

- Paper No. 09-0300-W [NHTSA Tire Rolling Resistance Test Development Project - Phase 1](#)

## **Rear Impact Injury Prevention & Protection**

- Paper No. 09-0029-W [Numerical Simulation for Evaluating Child Occupant Behaviour in the Case of a Rear Impact](#)
- Paper No. 09-0324-W [Influence of Seatback Content and Deflection on FMVSS 202a Dynamic Response](#)

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

- Paper No. 09-0250-W [Driver's Mental Workload Assessment Using EEG Data in a Dual Task Paradigm](#)

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

- Paper No. 09-0286-W [Development of a Generic Assessment Methodology for Advanced Safety Systems](#)  
Paper No. 09-0393-W [Demonstrator for Virtual Testing Procedure. Application to Pedestrian Adult Head Impacts](#)  
Paper No. 09-0445-W [Preparing the Future for Functional Safety of Automotive E/E-Systems](#)

## **Structural Integrity and Restraint Performance**

- Paper No. 09-0186-W [Analysis and Prevention of Child Ejections from Golf Cars and Personal Transport Vehicles](#)  
Paper No. 09-0471-W [USA Ambulance Crashworthiness Frontal Impact Testing](#)  
Paper No. 09-0491-W [Computational Analysis of a Near and Far Side Front Occupant Kinematics in a Vehicle Rollover with Different Restraint](#)  
Paper No. 09-0513-W [Vehicle Roof Geometry and Its Effect on Rollover Roof Performance](#)

## **Vulnerable Road Users: Pedestrian Safety**

- Paper No. 09-0027-W [Pedestrian Protection Using a Shock Absorbing Liquid \(SALi\) Based Bumper System](#)  
Paper No. 09-0088-W [Development of a New Flex-PLI LS-DYNA Model and Investigations of Injury from Vehicle Impact](#)  
Paper No. 09-0146-W [Development of a Biofidelic Flexible Pedestrian Legform Impactor Type GTR Prototype, Part2: Technical Details](#)  
Paper No. 09-0159-W [New Modular Assessment Methods for Pedestrian Protection in the Event of Head Impacts in the Windscreen Area](#)  
Paper No. 09-0226-W [Predictive Pedestrian Protection – Sensor Requirements and Risk Assessment](#)  
Paper No. 09-0264-W [Pedestrian Collisions with Flat-Fronted Vehicles: Injury Patterns and Importance of Rotational Accelerations as a Predictor for Traumatic Brain Injury \(TBI\)](#)  
Paper No. 09-0276-W [Stationary Video-Based Pedestrian Recognition for Driver Assistance Systems](#)  
Paper No. 09-0323-W [The Heavy Goods Vehicle Aggressivity Index](#)  
Paper No. 09-0356-W [Design Analysis of a Sandwich Hood Structure for Pedestrian Protection](#)  
Paper No. 09-0429-W [Pedestrian Injury Characteristics Following Road Traffic Collisions](#)  
Paper No. 09-0489-W [Benefit of “Dynamic Use Cases” to Early Design an Driving Assistance System for Pedestrian/truck Collision Avoidance](#)  
Paper No. 09-0504-W [A Study of Bicyclist Accidents in Changsha of China and Hannover of Germany](#)

## **Advances in Vulnerable Occupant Protection Systems**

- Paper No. 09-0081-W [Concept Study of Adaptive Seatbelt Load Limiter Using Magnetorheological Fluid](#)  
Paper No. 09-0484-W [Comparison of New Children Anthropometry Data and CRS Dimensions](#)  
Paper No. 09-0543-W [Characteristics of PTW Accidents Susceptible to be Avoided and Minimized Through ADAS and IVIS Implementations](#)

## **Advances in Truck Safety/Bus & Two Wheeled Vehicles Safety**

- Paper No. 09-0061-W [An Analysis of Hospitalized Motorcyclists in the State of Maryland Based on Helmet Use and Outcome](#)  
Paper No. 09-0134-W [Commercial Vehicle Safety Technologies: Applications for Tire Pressure Monitoring and Management](#)  
Paper No. 09-0205-W [Effectiveness of Passenger Seat Belt Usage on the Rollover Crashworthiness of an Intercity Coach](#)  
Paper No. 09-0213-W [Influence of Alcohol Concentration and Braking Procedure on Motorcyclist Brake Reaction Time Using a Motorcycle Riding Simulator](#)  
Paper No. 09-0399-W [Evaluation of Needs and Possibilities to Change the Requirements in the Regulations Regarding the Possibility of Observing the Surroundings in the N1 Vehicles](#)  
Paper No. 09-0450-W [Initial Site Inspection of Motorcycle Collisions with Roadside Objects in New Jersey](#)  
Paper No. 09-0458-W [Modification of a Truck Front for Improved Kinematics in Run Over Accidents](#)  
Paper No. 09-0460-W [Evaluating Crash Avoidance Countermeasures Using Data from FMCSA/NHTSA's Large Truck Crash Causation Study](#)  
Paper No. 09-0465-W [Development of a Thorax Protector for Motorcyclists](#)

- Paper No. 09-0472-W [Method of Driving Assistance System Design to Improve Human-Vehicle Interactions and Safety Technologies Developments for Trucks](#)
- Paper No. 09-0500-W [Design of the Decision Logic for a PTW Integrated Safety System](#)
- Paper No. 09-0551-W [Testing of Heavy Truck Tire Pressure Monitoring Systems \(TPMS\) in Order to Define an Acceptance Test Procedure](#)

### **Government Status Report**

- Paper No. 09-0587-G [Government Status Report France](#)
- Paper No. 09-0589-G [Government Status Report Poland](#)
- Paper No. 09-0590-G [Government Status Report Republic of Korea](#)
- Paper No. 09-0591-G [Government Status Report Federal Republic of Germany](#)
- Paper No. 09-0594-G [Government Status Report Italy](#)
- Paper No. 09-0595-G [Government Status Report Sweden](#)
- Paper No. 09-0596-G [Government Status Report Netherlands](#)
- Paper No. 09-0600-G [Government Status Report European Enhanced Vehicle-Safety Committee](#)
- Paper No. 09-0601-G [Government Status Report United States](#)
- Paper No. 09-0602-G [Government Status Report Japan](#)