

TECHNOLOGY: ENABLING A SAFER TOMORROW

INTRODUCTION

The Enhanced Safety of Vehicles (ESV) program originated in 1970 under the North Atlantic Treaty Organization (NATO) Committee on the Challenges of Modern Society, and was implemented through memorandums of understanding between the Governments of the United States, France, 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 safety 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, Republic of Korea, and two international organizations the European Enhanced Vehicle-safety Committee, and the European Commission. A representative from each country/organization serves as a Government Focal Point in support of the ESV program.

In the interest of information exchange, The U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA), distributes the Proceedings of the 26th International Technical Conference on the Enhanced Safety of Vehicles. The technical papers in this publication detail safety research efforts underway worldwide, and share the common interest of reducing motor vehicle related fatalities and injuries.

The opinions, findings, and conclusions expressed in the publications are the original written work of the author(s) and not necessarily those of the U.S. Department of Transportation, National Highway Traffic Safety Administration. Traditional papers are accepted after the corresponding abstracts undergo technical review. To enhance the scientific content, several papers were accepted for peer-review and published in a special edition of **Traffic Injury Prevention** by Taylor and Francis Group. These papers are available to the public via <https://www-esv.nhtsa.dot.gov/>

On behalf of the Conference Organizing Committees we thank our international participants for their dedication and support of the 26th ESV Conference and look forward to your future participation.

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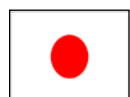
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26th ESV TECHNICAL SESSION CHAIRS & CO- CHAIRS

Technical Session	Session Chair (Country)	Session Co-Chair (Country)
Protection of Vulnerable Road Users	Rikard Fredriksson (Sweden)	Yasuhiro Matsui (Japan)
Safety Performance in Frontal and Rear Crashes	Youghan Youn (Republic of Korea)	Stephen Summers (US)
Crash Avoidance: Driving Automation Systems Level 0, 1, and 2. Product Evolution; Evaluation; and Real-World Deployment Challenges	Dr. Jost Gail (Germany)	Eric Traube (US)
Biomechanics: Advances in Experimental and Mathematical Biomechanics and Injury Research	Matthew Craig (US)	Rainer Hoffmann (Germany)
Safety Performance in Side Impact and Rollover Crashes	Thomas Belcher (Australia)	Suzanne Tylko (Canada)
Crash Avoidance: Automated Driving Systems Levels 3, 4 and 5: Product Evolution; Evaluation; and Real-World Deployment Challenges	Riender Happee (Netherlands)	Professor Kyongsu Yi (Republic of Korea)
Biomechanics: Advances in Crash Test Dummies, Instrumentation and Data Analysis	Philippe Vezin (France)	Dr. Kevin Moorhouse (US)
Restraint System Design and Performance Challenges: Addressing the Needs of Diverse Populations (Age, Gender, Stature)	Riske Meijer (Netherlands)	Lotta Jakobsson (Sweden)
Crash Avoidance: Human-Machine Interface Design and Driver Monitoring Technologies in Vehicles	Peter Burns (Canada)	Dr. Chris Monk (US)
Consumer-Focused Approaches in Vehicle Safety to Drive the Automotive Market on a Global Scale	Andre Seeck (Germany)	Michiel van Ratingen (Netherlands)
Crash Avoidance: Continuation Session	Eric Traube (US)	Tetsuya Niikuni (Japan)
Adapting Safety Evaluation Approaches for Vehicles with Automated Driving Systems	Jim Hand (UK)	Nicole van Nes (Netherlands)
Automated and Integrated Crash Safety	Jac Wismans (Netherlands)	Marcus Wisch (Germany)
Assessment of New and Improved Field Data Collection, Analysis and Benefits Assessment Methods	Chip Chidester (US)	Rob Eenink (Netherlands)

U.S. GOVERNMENT AWARD RECIPIENTS

Presented at the 26th ESV Conference, Eindhoven, Netherlands

U.S. Government Special Awards of Appreciation

In recognition of and appreciation for outstanding leadership and special contributions in the field of motor vehicle safety

Bernd Lorenz	Germany
Adam McNeill	Germany
Hans Ammerlaan	Netherlands
Dr. Nils Lubbe	Sweden
Martin Magnusson	Sweden
Bernie Frost	United Kingdom
Daniel Smith	United States
David Zuby	United States

U.S. Government Awards for Safety Engineering Excellence

In recognition of and appreciation for exceptional scientific contributions in the field of motor vehicle safety engineering and for distinguished service to the motoring public

Yasuhiro Matsui	Japan
Kyongsu Yi	Korea
Anders Kullgren	Sweden
Dr. Mikael Ljung Aust	Sweden
Tom Hollowell	United States
Sue Bai	United States

26th ESV INTERNATIONAL STUDENT SAFETY TECHNOLOGY DESIGN COMPETITION FINALISTS

ASIA PACIFIC

REGIONAL COORDINATOR: MASASHI YUKAWA, JSAE, JAPAN

School Nihon University Biomechanics Team, Japan
Project Title Development of New Lumbar-Abdominal Dummy for Vehicle Occupants
Advisor Tetsuya Nishimoto

REGIONAL COORDINATOR: YOUNGHAN YOUN, KOREA

School School of Mechanical and Aerospace Engineering, Seoul National University, Korea
Project Title Health Monitoring and Emergency Braking Algorithm for Automated Driving Vehicle Fail-Safe System
Advisor Kyongsu Yi

NORTH AMERICA

REGIONAL COORDINATOR: ART CARTER, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (NHTSA), UNITED STATES

School California Polytechnic State University, San Luis Obispo, CA
Project Title Autonomous Collision Avoidance System for Collaborative Vehicle Platooning
Advisors Dr. Charles Birdsong (Overall Advisor)
Bruce Edward DeBaruhl (Computer Engineering Team Advisor)

School Oregon State
Project Title: Automatic Vehicle Damage and Passenger Injury Assessment
Advisor Dr. David Hurwitz

School Virginia Tech Transportation Institute (VTI)
Project Title Pre-Rear End Positioning and Risk Extenuation System (PREPARES)
Advisor Dr. Zachary Doerzaph